LEXICAL PHRASES
IN RESEARCH ARTICLE AND PHD THESIS ABSTRACTS
IN APPLIED LINGUISTICS AND PSYCHOLOGY

by

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Abstract

The present study examined the macro level discourse functions (MALDIFs) and lexical phrases associated with these functions in 480 research article and PhD thesis abstracts in applied linguistics and psychology. We looked at disciplinary and generic variation in MALDIFs in terms of frequency of occurrence, sequencing of use and cyclicity. We also looked at variation in lexical phrases between disciplines and genres in terms of patterns and uses.

Two analyses were conducted: function analysis and lexical phrase analysis. First, macro-level discourse functions were identified using the MALDIF model for abstracts, which was developed for the purposes of this study. Second, AntConc version 3.4.4 was used to explore lexical phrases associated with these functions.

Two functions were found to be predominantly used in all four corpora of abstracts: presenting and evaluating the main findings (PEMF) and announcing the research (ATR). Introducing the topic (ITT) was more important for psychologists while applied linguists made more descriptions of methodology. MALDIFs were very similar in the research article and thesis abstracts.

Applied linguists had a tendency to use more ATR patterns in abstracts, suggesting a focus on own research. Psychologists tended to start abstracts with ITT, which suggests an attempt to situate the research in the field of study. Research article and thesis writers preferred ATR patterns more in abstracts.

Psychology abstracts contained more functional cycles than applied linguistics abstracts. The thesis abstracts contained more than four times as many cycles as the research article abstracts.

The comparison of LP use by discipline revealed both similarities and differences between

applied linguistics and psychology in terms of LP patterns and the obligatory elements.

The disciplinary and generic comparison of LP patterns showed similarities between disciplines in pattern totals (functions combined), but pointed to differences between RAs and TAs. The largest generic variation was seen in pattern 1 (9.80%). Pattern 1 LPs were found to be used more frequently compared to pattern 2 and 3 LPs in the comparative data of disciplines and genres.

The greatest degree of variability between disciplines and genres was found in PEMF. The widest range of differences for PEMF were seen in pattern 1 in the disciplinary as well as the generic data.

The disciplinary comparison presented variation in DTM LPs. Applied linguistics writers used at least twice more DTM LPs in all three patterns than psychologists did. The largest difference between disciplines was found in DTM pattern 2. DTM was the most frequent LP type in pattern 2 for applied linguistics. Another important generic difference was seen in ATR. ATR pattern 2 was three times more common in the TA corpus than in the RA corpus.

The comparison of subject types, NP subject, verb and verb complement also showed disciplinary and generic differences as well as similarities.

The study has implications for genre analysis and English for academic purposes.

Dedicated to my mother and father

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Abbreviations

AL	Applied Linguistics
ALRA	Applied Linguistics Research Article Abstracts
ALTA	Applied Linguistics Theses Abstracts
ATR	Announcing the research
ATS	Appraising the study
CARS	Create a research space
DTM	Describing the methodology
IAG	Indicating a gap
IMRD	Introduction-Method-Results-Discussion
IRT	Intercoder Reliability Test
ITT	Introducing the topic
JCR	Journal Citation Reports
KWIC	Keyword in context
L1	First Language
LP	Lexical Phrase
MALDIF	Macro level discourse function
NP	Noun Phrase
PEMF	Presenting and evaluating the main findings
PMF	Presenting the main findings
PRA	Psychology Research Article Abstracts
PSY	Psychology
PTA	Psychology Theses Abstracts
RA	Research article abstract
RPT	Referring to parts of text
SNR	Stating the need for research
TA	Thesis abstract
TTR	Type-token ratio

CHAPTER ONE

INTRODUCTION

1.1 Macro-level discourse functions and lexical phrases

This study aims to explore macro-level discourse functions (MALDIF) and their associated lexical phrases (LP) in research article abstracts (RAs) and thesis abstracts (TAs) in the fields of applied linguistics and psychology. LPs are taken here to be sentence builders and they constitute one type of pattern. The term 'pattern' is used as a general term that covers various types of sequence that are formulaic. Hunston and Francis (2000: 37) make a definition of pattern as:

> The patterns of a word can be defined as all the words and structures which are regularly associated with the word and which contribute to its meaning. A pattern can be identified if a combination of words occurs relatively frequently, if it is dependent on a particular word choice, and if there is a clear meaning associated with it.

Patterns serve as conventional usages in a particular genre and discourse community (e.g. Hyland, 2008b). They help the users of a particular language to speak or write according to the conventions of the discourse community, and therefore, they increase the possibility of the user being accepted as a member of the community (e.g. Wray and Perkins, 2000). It also simplifies the communication between the members of the discourse community (see Wray and Perkins, 2000; Conklin and Schmitt, 2008).

In recent years, there has been a significant increase in research on patterns. Different types of patterns have been studied extensively (e.g. Biber and Barbieri, 2007; Charles, 2006; Conklin and Schmitt, 2008; Gledhill, 2000; Hyland, 2008b; Hyland and Tse, 2005a,b; Koprowski, 2005; Shei, 2008; Wray, 2000; Wray, 2002). Descriptive studies in academic discourse have focused on collocations (e.g. Durrant, 2009; Gledhill, 2000), lexical bundles (e.g. Biber, Conrad, and Cortes, 2004; Hyland, 2008b), lexical phrases (e.g. Oakey, 2002), and patterns (e.g. Charles, 2006; Groom, 2005; Orasan, 2001; Römer, 2008). LPs are the least

studied type of pattern in academic discourse as well as other registers. To our current knowledge, there are only a few descriptive studies on LPs in academic written discourse. Oakey investigated the formal and functional variation of the LP *it is / has been _____ that X* (an LP of sentence builder category) across genres and disciplines in a corpus of 132 research articles and book extracts from the British National Corpus. In a small scale study, Ileri (2004) examined the LPs in the introductions of research articles in the field of Applied Linguistics. However, no attempts have been made so far to study LPs in RAs and TAs.

The term 'lexical phrase' was suggested by Nattinger and DeCarrico (1992) and it will be adopted in this study although with partial differences in the definition, as will be explained in 2.2.2 below.

Nattinger and DeCarrico (1992) have identified four types of LPs: polywords, institutionalised expressions, phrasal constraints, and sentence builders. Polywords (e.g. *in essence* as a summariser) and phrasal constraints [e.g. *for _____* (*for instance / example*) as an exemplifier] are word-level LPs, and institutionalised expressions (e.g. *how are you?* as a greeting) and sentence builders (e.g. *There's no doubt that X* as an evaluator) are at sentence level (see Table 2.5 in Chapter 2). This study will concentrate on only sentence builders as they are observed to be closely associated with macro level functions found in RAs and TAs. It seems necessary here to point to a distinction between macro and micro discourse functions and to describe what we mean by each. Macro-level discourse functions are those which signal the rhetorical organisation of discourse. Examples of macro-level discourse functions in RAs are *introducing the topic* (e.g. *Previous studies have shown [that-clause]*), *announcing the research* (e.g. *This study investigates [noun phrase]*) and *presenting the significant results* (e.g. *The results showed [that-clause]*). Micro-level discourse functions are those that organise discourse at a local level and helps discourse to be more coherent. A few examples of micro-level discourse functions in academic written discourse are exemplifiers (e.g. *for example*), summarisers (e.g. *In summary*), and relators (e.g. *however*). Compared to micro-level discourse functions, macro-level discourse functions present a higher association with sentence initial elements, which form the main structure of the

sentence. In the following sentence, it is easier to understand that the sentence announces the research by looking at the initial elements (*This study investigates)* than the other part (*the use of the word processor as a writing tool in the EFL classroom*).

1.1	This study investigates the use of the word processor as a writing tool in the EFL classroom. (TA017)

As we aim to look for patterns in MALDIFs in the present study, the patterns should then be searched for in the sentence initial position. Sentence builder LPs are a suitable choice for this aim as they form the main structure of a sentence where the subject and verb (also the complement depending on the verb) is found[1].

1.2 Purposes of the thesis

1.2.1 Theoretical purposes

The study has both theoretical and practical purposes. The theoretical purposes concerns both MALDIFs and LPs. It is expected to make a contribution to the theory of genre analysis in exploring to what extent the MALDIFs are realised using LPs in the RAs and TAs in applied linguistics and psychology. The MALDIFs in RAs and TAs are expected to contain LPs. As both MALDIFs and sentence builder LPs are related to elements in the sentence initial position, MALDIFs in RAs and TAs are expected to contain LPs. Also, research article and thesis writers are expected to follow the conventions of their discourse communities in the MALDIFs as well as in the LPs used for each MALDIF. An abstract plays a key role in attracting readers' attention to the research. A researcher should convince the reader that the research is worth further reading (Hyland, 2000: 64); this might result in their work being cited, which is seen as a sign of being accepted by the discourse community. Following the conventions of the community will probably rise the change of drawing the reader's attention.

This study will show if there is disciplinary and generic variation in MALDIFs in research article and PhD TAs in applied linguistics and psychology. Disciplinary and generic differences

1 See section 4.6 in Chapter 4 for a description of unit of analysis.

in discourse functions in abstracts have been shown in a number of studies. Hyland's (2000) results from 800 RAs show differences in move sequences across eight disciplines from soft and hard knowledge domains. Samraj (2005) also reported disciplinary differences in rhetorical moves between conservation biology and wildlife behavior abstracts. In their comparative data of rhetorical moves in abstracts, Ren and Li (2011) found generic differences between research articles and master dissertations. Although there are research on rhetorical moves in RAs, PhD TAs seem to be a neglected genre in studies on discourse functions. It is expected that this study will fill this gap in the research literature. It is also expected that the MALDIFs vary between disciplines as well as genres in terms of frequency of occurrence, sequencing of use and cyclicity.

This research aims to demonstrate if there is any disciplinary and generic variation in LPs in RAs and TAs in applied linguistics and psychology. Literature on patterns in academic texts (research articles and theses) provides evidence that patterns vary across disciplines. Hyland (2008b), for example, examined four-word lexical bundles in his 3.5 million-word corpus of research articles and postgraduate theses from four disciplines (two of which were from applied and pure sciences and others were from social sciences), and found that lexical bundles varied in both form and function across disciplines. LPs are another type of patterns and are also expected to vary across disciplines.

1.2.2 Practical purposes

The study has also some practical purposes. The findings of this study are expected to be useful for both research writing and reading. MALDIFs as well as LPs are considered to be important in writing RAs for novice research writers, in particular for those who are from non-English L1 backgrounds. Abstracts are generally considered to just summarise the accompanying text (e.g. Bhatia, 1993; Kaplan et al., 1994). However, an abstract is one of the most important sections of a research article where research article writers ‘marketise’ their studies (Hyland, 2000: 63). An abstract should persuade its audience about the value of the research, so that a further reading can follow. An abstract is also important in the pre-publishing stage. Editors and reviewers make their first judgments about a study based on

reading its abstract. An abstract that meets the expectations of the disciplinary community is more likely to be viewed sympathetically, which may increase its change of getting published. Following the disciplinary conventions associated with MALDIFs and LPs in abstracts is expected to raise the possibility of getting published as well as to promote the research. For thesis writing, using MALDIFs and LPs that are conventional in a disciplinary area, PhD candidates may make a good impression on the examiners by showing their mastery of the disciplinary conventions. It would be wrong to think that PhD thesis abstracts as well as theses are written just for a small number of people. After PhD, TAs might be visible on databases such as Proquest and Ethos, or on social networking websites for researchers such as Researchgate and Academia. At this point, the same rules as RAs apply to PhD TAs, which highlights the importance of conventions.

Both MALDIFs and LPs in research paper abstracts have also a significant effect in research reading for the audience of a field of study. Abstracts serve two functions in research reading. First, they give an idea about the accompanying text to the reader. This plays an important role on the reader's decision to read the associated text. Second, they inform readers about the research. An abstract is sometimes the only section of a research paper that is available to anyone interested in the subject. This is especially true for abstracts in journals whose publication language is other than English. These journals ask the research article authors to provide an English version of the abstract as this enables the study to be accessible to everyone interested around the world. A good abstract which follows the conventions of the discourse community has a higher chance to encourage readers to read further when the associated text is accessible. Also, using the conventions of the discipline, an abstract may describe the most significant points of a study well enough in a limited space and reach its audience when the associated text is not accessible.

On the one hand, MALDIFs and LPs are likely to help writers to write abstracts in a conventional way. On the other hand, they will help readers as readers who read an abstract which meets the conventions of the discipline will be able to build up expectations of how the text is organised and expressed. This consequently simplifies communication.

This study provides LP templates which are associated with macro-level discourse functions in abstracts for novice writers.

Previous research has shown that novice writers have difficulties in academic writing. Cortes (2004) compared lexical bundles in the academic writing of published authors and of undergraduate and graduate students in history and biology. The student writers were found to rarely use or not to use at all the bundles used by the published authors. Differences were also found in the functions of bundles used by students and those by published authors. Using a function-first approach in the analysis of linguistic patterns, Durrant and Mathews-Aydınlı (2011) explored the rhetorical moves and their associated forms in MA student essays and introductions of research articles. The research article authors showed disciplinary tendencies in their form preferences while the student writers did not.

In addition to expert-novice comparisons, research also addressed the role of native speaker status in the use of certain types of linguistic features in academic writing. Chen and Baker (2010) examined the use of lexical bundles in published texts and of those in academic texts written by L1 and and L2 students. Published authors used the widest range of bundles. Lexical bundles that occurred frequently in the published text corpus occurred rarely in the L1 and L2 corpora. L2 students overused some bundles which occurred rarely in the NS corpora or did not occur at all. O'Donnel et al. (2013) investigated the use of n-grams and phrase frames in the academic texts written by novice and expert writers who are native and non-native speakers of English. The published and graduate writers used more n-grams (3-grams, 4-grams and 5-grams) than the undergraduate writers. Larger differences were found for 4-grams and 5-grams. The published and graduate writers used more 5-p-frames than the undergraduates while the use of 3- and 4-p-frames were similar between them. The published writers used more AFL-frames (Academic Formula List frames) than the graduates and undergraduates. They conclude that expertise is important in the knowledge/use of AFL-frames while NS status has no effect.

Studies focusing on a comparison of native and nonnative uses of certain linguistic features reported differences between native and non-native speakers. Ahmadi et al. (2013) compared the frequency and function of lexical bundles in RAs written by Iranian writers and those by native speakers of English. The analysis targeted four-word bundles in 200 research articles. Their results revealed that the bundles used by non-native speakers (41 types) were more varied than those by native-speakers (18 types). Only three bundles were shared between the two groups. Non-native speakers' use of bundles were extensively associated with moves while move-associated bundles were less frequent in the native speaker corpus. The Iranian writers used more clause-level bundles while the bundles of native-speakers of English were mostly phrasal. Larsson (2017a) classified introductory *it* patterns in linguistics and literature texts and used this classification to identify their functions in academic texts written by native speaker and non-native speaker students. The comparison of the use of the introductory *it* patterns by the higher-graded NS and NNS students showed that attitude markers and hedges were the most preferred functions, where the non-native speakers used them less than the native speakers. The emphatic attitude markers, however, were found to occur more frequently in the NNS data. This is because of individual preferences (two students used more). The difference was significant for the hedges.

Writing difficulties of non-native writers were also explored in survey studies. Martin et al. (2014) investigated the attitudes, strategies and difficulties of Spanish researchers of medicine in publishing in English. The Spanish researchers stated that they had more difficulties in writing some sections of research articles than others as well as in the writing of texts other than the research article itself which are a part of the publication process. In a scale of 5, 'abstract' was found to be the seventh difficult part of a research article with a mean score of 2.80. The top four were discussion (3.69), response to peer reviewers' comments (3.01), theoretical framework (2.95) and introduction (2.91). The Spanish writers indicated that the main reasons of rejection of their papers were "supposed flaws in certain areas of the content of the research" (p. 63), "features of the writing of the paper" (p. 63) and "not having reflected the writing conventions expected by the journal" (p.63).

We also have evidence from real-world examples that academic writers need to learn the conventional language forms used in academic writing in an explicit way. A popular resource targeting such forms are provided by Manchester University which is called 'academic phrasebank'. The target users of the resource was thought to be non-native speakers of English, but it is reported in the preface of the resource that native speakers used it more than the non-native speakers (Morley, 2017).

It is clear from the previous research that novice writers' texts are different from the published authors' texts in terms of linguistic features. Although we can safely conclude that the differences are caused by that novice writers' texts do not meet the published authors' standards in terms of linguistic features, it might also be argued that different genre features are the main reason of the differences in the texts written by novice and published authors. A first concern here is what genre the student and published corpora include. The texts written by students and published authors should belong to different genres in order to say that they have different features and therefore we can call them different genres. However, some of the texts such as research article can be found in the published as well as in the student corpora (e.g. Cortes, 2004; O'Donnel et al., 2013). This means that their writing do not include similar language forms even if they write in the same genre, which suggests inexperience of student writers in academic writing.

A second concern for the argument regarding different genre features is the genre models that the novice writers refer to when they composed their own texts. We do not know whether they made an effort to follow the conventions of the genre that the texts they wrote belong to. It is also possible that they relied on their existing non-genre specific knowledge of academic writing. If we accept that they followed the targeted genre conventions, then we should expect the studies to make a comparison between the novice and published texts from the same genre. Such a comparison might be reasonable for a professional genre such as research article that has its own conventions which vary across disciplines. However, a comparison between novice and expert texts is not meaningful for student essays. As this is a student writing genre, the comparison shows the use of language

forms at different achievement levels, but when we think why students write 'essays' during their course of studies, we find reasons such as improving students' academic writing and acquiring disciplinary knowledge. In postgraduate courses, in particular, students are expected to write research articles at the end of this training. It is very likely that especially postgraduate students make an effort to learn the disciplinary conventions of research articles and use them in their writing, as the main publication genre that they will be writing throughout their academic careers would be the research article. To sum up, we discussed here the argument that student texts and published texts contain different language features as they belong to different genres and concluded that it is possible to see the differences in texts written by novices and experts as an indication that the novices are at lower developmental stages of academic writing.

Research article is one of the targeted genres of academic writing at the postgraduate level. Postgraduate students take input by reading the published texts in their disciplinary areas and they probably try to write their texts as closely as possible to the published texts. It has been shown in the studies comparing the student and published texts that input alone is not enough to produce texts similar to published texts. It is a possibility that text standards of student writers may reach to those of published authors in time by this input method; however, an explicit teaching of conventional forms in academic writing courses or a self-study of the forms in an appropriate corpus within their contexts would speed up the learning and use of the forms. The LP templates provided in the present study are intended to fulfil such a purpose. The function-specific templates accompanied by a discipline-specific corpus of abstracts can be used as a self-study material or in academic writing courses.

1.3 Outline of the thesis

Chapter 2 reviews the literature on discourse functions in abstracts. The review focuses on preferred moves as well as uncommon moves in research article and doctoral TAs, frequent sequential patterns followed in abstracts, common move cycles and embedded moves. Chapter 2 also includes a discussion of terminology of linguistic patterns and the reasons underlying the preference for using the term 'lexical phrase' for the type of linguistic pattern

in the present study. Then, I address the problems in identifying LPs and present the classification models for linguistic patterns. Later in the chapter, studies on linguistic patterns including LPs are reviewed paying particular attention to the relationship between LPs and discourse functions and the use of LPs across disciplines and genres. Lastly, we look at the models of analysis used to analyse macro-level discourse functions in abstracts and the chapter concludes with the list of research questions that are intended to answer in this study.

Chapter 3 presents the corpora compiled for the study and describes the selection process. The chapter also covers issues related to size, coding and formatting the corpus, and representativeness and balance.

Chapter 4 presents the model of Macro-Level Discourse Functions developed to analyse the macro-level discourse functions in abstracts. The chapter also presents the results of the preliminary analysis using the MALDIF model and the results of the intercoder reliability test.

In Chapter 5, I present the results of the analysis of macro-level discourse functions. The chapter presents results regarding frequency of occurrence of functions, sequences of use and cyclicity in all corpora (combined results), disciplines (applied linguistics and psychology) and genres (research article and doctoral TAs).

Chapter 6 presents the methods and results of the LP analysis. The results include disciplinary and generic comparisons of LPs and of the elements in an LP including types of subject, nouns in the subject position, verbs and verb tenses, and verb complement.

Finally, Chapter 7 outlines the methodological, theoretical and pedagogical contributions of the study, and discusses limitations, and finally concludes with recommendations for future research.

CHAPTER TWO

REVIEW OF THE LITERATURE

2.1 Introduction

This chapter reviews the literature on discourse functions and lexical phrases in abstracts. In section 2.2, I will, first, briefly overview research on discourse functions in academic discourse, especially in research articles and doctoral theses as well as master's dissertations. Then, I will review the literature in terms of preferred moves, sequential patterns, repeating cycles and move embedding in abstracts. In the last sub-section, I will discuss the terms 'obligatory' and 'conventional' which are often used to address the prominence of particular moves in genre research.

In sections 2.3, we discuss three problems in the literature of LPs: terms used to refer to linguistic patterns, problems in identifying LPs, and the classification models of LPs. We also look at the relationship between LPs and discourse functions as well as disciplinary and generic variation in the use of LPs in sections 2.4, 2.5 and 2.6. Sections 2.7 and 2.8 focuses on models of analysis for abstracts and the research questions of the study.

2.2 Discourse functions in abstracts

2.2.1 Rhetorical moves in the literature

A considerable amount of research has been published on rhetorical moves. Over the past two decades, research on rhetorical moves has focussed on different sections of research articles (RA), master's dissertations and PhD theses. The introduction section is one of the most researched section. Researchers have examined introductions in research articles (Samraj, 2002; 2005; Ozturk, 2007; Hirano, 2009; Loi, 2010; Zhang and Hu, 2010; Del Saz-Rubio, 2011; Kanoksilapatham, 2011; Sheldon, 2011; Atai and Samani, 2012; Chahal, 2014), PhD theses (Ono, 2017; Kawase, 2018), master's dissertations (Wuttisrisiriporn, 2017) and comparatively in research articles and master's dissertations (Peters, 2011).

Other studies have addressed rhetorical moves in literature reviews (RA: Jian, 2010; PhD: Kwan, 2006; Soler-Monreal, 2015), methods (RA: Lim, 2006; Peacock, 2011b), results (RA: Lim, 2011), discussions (RA: Holmes, 1997; Amirian et al., 2008; Amnuai and Wannaruk, 2013b), and conclusions (RA: Amnuai and Wannaruk, 2013a; PhD thesis: Bunton, 2005).

A few studies have conducted a move analysis on all sections of research articles excluding abstracts (Kanoksilapatham, 2005; 2015; Fryer, 2012), all sections of reserch articles and master's dissertations including abstracts (RA: Stoller and Robinson, 2013; Fazilatfar and Naseri, 2014; Tessuto, 2015; master's dissertations: Chen and Kuo, 2012), and also macro-structure of research articles which involves only sectional coding (Kwan, 2017). A small number of studies have investigated the rhetorical moves in the acknowledgements of postgraduate dissertations and theses (Hyland, 2004; Zhang, 2012).

There is also a growing body of research into functions in abstracts (see Table 2.1). Some studies have focussed on the functions in abstracts in a single discipline (Santos, 1996; Lorés, 2004; Cross and Oppenheim, 2006; Breeze, 2009; Tseng, 2011; Piqué-Noguera, 2012; Kanoksilapatham, 2013; Kim, 2014; Can et al., 2016; Tankó, 2017) while others pay particular attention to disciplinary variation (Hyland, 2000; Pho, 2008; Doró, 2013; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014) generic variation (Ren and Li, 2011) or both (Samraj, 2005; Arizavi et al., 2013). There are also researchers who have been interested in cross-cultural variation in move functions in abstracts (Martín, 2003; Ahmadi, 2009; Alharbi and Swales, 2011).

The corpora in these studies include abstracts from a wide range of disciplines including applied linguistics, biology, chemistry, educational technology, law, literature, marketing, medicine, philosophy, physics, psychology, sociology and wildlife behaviour. The corpus size changes between 12-800 abstracts. Studies with a focus on variation of functions across genres used three types of corpora containing RAs, PhD TAs and Master's dissertation abstracts. In the following sections, we will go into details of these studies and review their findings in terms of preferred moves, move sequences, and move cycles in particular

Table 2.1 Research on discourse functions in abstracts

Study	what is investigated?	discipline	language	genres	corpus size	empirical / theoretical	publication period	NS / NNS or expert / novice	Model of analysis	Unit of analysis
Ahmadi (2009)	rhetorical moves	biological science	English	RA abstracts	60 abstracts	not stated	1997-2007	NSs of English / NNSs of English (Iranian)	Bhatia's model (1993)[1]	not stated
Alharbi and Swales (2011)	pronoun use / promotional features / move structure	linguistics and language study (as a single field)	English and Arabic	RA abstracts	56 abstracts	mixed	1995-2004	NS of Arabic	Background-Present Research-Method-Results-Conclusion	not stated
Arizavi et al. (2013)	rhetorical structure	Persian literature, teaching English as a foreign language, veterinary medicine, microbiology, chemistry and geology	English	Master's dissertation abstracts / PhD thesis abstracts	120 abstracts (90 dissertation abstracts / 30 thesis abstracts)	mixed	2005-2009	NNSs (Iranian)	the IMRC/D and CARS Models	not stated
Breeze (2009)	rhetorical moves / sentence-level features	law	English	RA abstracts	200 abstracts	not stated	2006-2008		Introduction-Issue-Method-Findings-Discussion	not stated
Can et al. (2016)	rhetorical moves / move sequences / move cycles / move embedding	applied linguistics	English	RA abstracts	50 abstracts	not stated	2011-2013		introduction-purpose-methods-results- discussion/pseudo discussion	sentence / also clause and phrase
Cross and Oppenheim (2006)	rhetorical moves / thematic structure	protozoology	English	RA abstracts	12 abstracts	not stated	1994-2004		an adapted model from Endres-Niggemeyer (1998) and Santos (1996)[2]	not stated
Doró (2013)	rhetorical moves	linguistics and literature	English	RA abstracts	40 abstracts	not stated	2009-2011		Santos' model (1996)	sentence and beyond / also clause and smaller units
Hyland (2000)	rhetorical moves / move sequences	electrical engineering, mechanical engineering, physics, biology, philosophy, sociology, applied linguistics, and marketing	English	RA abstracts	800 abstracts	not stated	1997		Hyland's model (2000)	not stated
Kanoksilapatham (2013)	rhetorical moves / move sequences / move cycles	civil engineering	English	RA abstracts	60 abstracts	not stated	not stated		Swales' model (?)	probably sentence-level coding + below sentence level coding
Kim (2014)	rhetorical moves / move sequences	social sciences	English	RA abstracts	415 abstracts	not stated	2012-2014		Background-Aim-Methodology-Results-Conclusion	sentence / also below sentence level coding
Lorés (2004)	rhetorical structure	linguistics	English	RA abstracts	36 abstracts	not stated	2000-2001		the IMRD and CARS Models	not stated
Martín (2003)	rhetorical structure /rhetorical moves / move embedding	experimental phonetics / experimental psychology	English and Spanish	RA abstracts	160 abstracts	not stated	not stated		the IMRC and CARS model	not stated

Pho (2008)	rhetorical moves / move embedding / linguistic features	applied linguistics / educational technology	English	RA abstracts	30 abstracts	empirical (data-based)	2005-2006		Santos' model (1996) (only the moves, not the submoves)	sentence and beyond, clause, phrase and word
Piqué-Noguera (2012)	rhetorical moves / linguistic features	business	English	RA abstracts	160 abstracts	not stated	2001-2010		Weissberg and Buker (1990)[3]	not stated
Ren and Li (2011)	rhetorical moves / move sequences	applied linguistics	English	RA abstracts / Master's dissertation abstracts	50 abstracts	not stated	2007	RA writers vs Chinese dissertation writers	Hyland's model (2000)	not stated
Saeeaw and Tangkiengsirisin (2014)	rhetorical moves / move sequences /move embedding / linguistic features	environmental science / applied linguistics	English	RA abstracts	200 abstracts	empirical	2010-2013		Hyland's model (2000)	clause and phrase
Samraj (2005)	rhetorical moves	wildlife behaviour / conservation biology	English	RA abstracts and introductions	24 abstracts + 24 introductions	not stated	1995	ns + nns writers	Bhatia's model (1993) and the CARS Model	not stated
Santos (1996)	rhetorical moves / linguistic features	applied linguistics	English	RA abstracts	94 abstracts	not stated	1990-1992		Santos' model (1996)	not stated
Suntara and Usaha (2013)	rhetorical moves / move sequences / move embedding / linguistic features	linguistics / applied linguistics	English	RA abstracts	200 abstracts	empirical	2009-2012		Hyland's model (2000)	sentence (also within-sentence coding)
Tankó (2017)	rhetorical moves /linguistic features	Literature	English	RA abstracts	135 abstracts	mostly theoretical	2006-2014		self-developed[4]	clause
Tseng (2011)	rhetorical moves / move structures / verb tenses	applied linguistics	English	RA abstracts	90 abstracts	empirical (data-based)	2005-2007		Santos' model (1996) (labels are from Swales and Feak (2004))	sentence (also clause and phrase in some cases)

1. Bhatia (1993): introducing the purpose-describing the methodology-summarising the results-presenting the conclusions

2. Cross and Oppenheim (2006): relation to other research-purpose-methodology-summarising the results-discussing the research

3. Weissberg and Buker (1990): background-purpose-methodology-results-conclusion

4. Tankó (2017): topic-background-niche-purpose-method-outcome-conclusion-implications

disciplines/genres. It is important to note that not all these studies looked at all the aspects of move analysis that we cover in this section. Therefore, each sub-section contains information that is available in the studies.

2.2.2 Rhetorical moves in abstracts

In this section, we will look at previous research on abstracts to review the common move functions in abstracts of research articles and postgraduate work. First, we will look at moves which were commonly used in abstracts as well as moves which were found in abstracts in addition to these common moves. Then, we will review studies investigating the move structures in abstracts. The last part of this section includes a short discussion about traditional and structured abstracts.

2.2.2.1 Five common moves in literature

The results of the studies reviewed in this section show that there are five common moves in abstracts although with varying degrees of importance: introduction, purpose, method, results and conclusion (see Table 2.2). Different names are used for these five moves across studies. Some studies prefer a structural terminology and use single-word names for moves such as 'introduction', 'purpose' and 'results'. Other studies opt for functional terms such as 'presenting the research', 'describing the methodology' and 'summarising the findings'. Although rare, it is also possible to see studies where a combination of structural and functional terms were used to name moves.

The findings of previous research indicate that 'results' (90% on average) and 'purpose' (86% on average) are prominent moves in abstracts across disciplines. The 'method' move (73% on average) has also been shown to be an essential move in abstracts. The introduction (53% on average) and conclusion (53% on average) have been found to occur only in half of the abstracts.

A comparison of the soft and hard science disciplines indicates higher percentages for the results move in the hard science domain (97% on average) than in the soft science domain

Table 2.2 Move Functions in Previous Work (Percentage of abstracts containing particular moves)

Study	Disciplines	Topic	Cent. claim	I	Gap	P	M	R	C	Imp	S	Pro	Lmt	Total abs.
Breeze (2009)	law			40%		100%	85%	86%	77					200
Can et al. (2016)	applied linguistics			54%		96%	100%	92%	84%					50
Cross and Oppenheim (2006)	protozoology			33%		67%	100%	100%	67%					12
Doró (2013)	linguistics			65%		100%	95%	75%	35%					20
Doró (2013)	literature			78%		75%	75%	58%	15%					20
Hyland (2000)	philosophy			78%		57%	7%	90%	9%					100
Hyland (2000)	sociology			58%		84%	41%	99%	18%					100
Hyland (2000)	applied linguistics			46%		87%	42%	96%	19%					100
Hyland (2000)	marketing			62%		91%	46%	95%	34%					100
Hyland (2000)	electrical engineering			33%		87%	66%	94%	24%					100
Hyland (2000)	mechanical engineering			30%		94%	66%	92%	13%					100
Hyland (2000)	physics			32%		77%	62%	96%	19%					100
Hyland (2000)	biology			32%		71%	63%	100%	40%					100
Kanoksilapatham (2013)	civil engineering			60%		68%	93%	92%	67%					60
Kim (2014)	social sciences			66%		79%	62%	81%	43%					60
Martín (2003)	ExPh & ExPsy - English			99%			83%	86%	89%					80
Martín (2003)	ExPh & ExPsy - Spanish			100%			81%	41%	73%					80
Pho (2008)	applied linguistics			45%		100%	100%	100%	80%					20
Pho (2008)	educational technology			30%		100%	90%	100%	50%					10
Piqué-Noguera (2012)	business			61%		84%	71%	86%	49%					160
Ren and Li (2011)	RA abstracts in AL			60%		96%	60%	100%	52%		0%	0%	0%	25
Ren and Li (2011)	dissertation abstracts in AL			100%		100%	100%	90%	80%		70%	20%	40%	25
Saeeaw and Tangkiengsirisin (2014)	environmental science			52%		86%	82%	100%	70%					100
Saeeaw and Tangkiengsirisin (2014)	applied linguistics			54%		94%	91%	95%	72%					100
Samraj (2005)	conservation biology		58%	17%	50%	83%	50%	100%	75%					12
Samraj (2005)	wildlife behaviour		8%	42%	17%	83%	50%	100%	100%					12
Santos (1996)	applied linguistics			43%		99%	98%	80%	62%					94
Suntara and Usaha (2013)	linguistics			45%		79%	80%	92%	57%					100
Suntara and Usaha (2013)	applied linguistics			44%		83%	86%	87%	69%					100
Tankó, G. (2017)	literature	43%		55%	11%	85%	53%	87%	15%	2%				135
Tseng (2011)	applied linguistics			41%		96%	97%	91%	74%					90

I: Introduction, P: Purpose, M: Methods, R: Results, C: Conclusion, Imp: Implication, S: Structure, Pro: Promotion, Lmt: Limitation
AL: applied linguistics, ExPh & ExPsy: experimental phonetics & experimental psychology

(87% on average). The proportions of the results are well-balanced among the hard disciplines, ranging between 92% and 100%, suggesting that presenting the research results is of great importance in the hard knowledge domain. The range of the results move is between 41% -100% in the soft knowledge domain. It is above 80% for most of the soft disciplines. There are a few exceptions. Doró (2013) analysed the rhetorical structure of abstracts from the fields of linguistics and literature using Santos' five move model with slightly changed move labels. The corpus consisted of 40 RAs from the 2009-2011 issues of two journals publishing both linguistics and literature research. Three quarters of the linguistics corpus contained summarising the findings while the same move was found in 58% of the literature corpus. Martín (2003) examined the rhetorical moves in 160 English and Spanish RAs in experimental phonetics and experimental psychology to explore if there was any variation in abstracts written in English and Spanish in terms of rhetorical structures. The rhetorical moves were analysed using the IMRC model and the introduction unit was analysed further using the CARS model. The results move was not very frequent in the Spanish abstracts (41%) when compared to English abstracts (86%). It was also the least frequent move in the Spanish corpus.

The 'purpose' move seems to be more prominent in the soft disciplines (89% on average) than in the hard disciplines (80% on average). The percentages change between 57% and 100% in the soft knowledge domain and 67% and 94% in the hard knowledge domain. The percentages are higher than 75% for most of the soft (above 75%) and hard (above 77%) disciplines. Here we should mention a few exceptions. Hyland (2000) examined the move structures of 800 RAs published in the 1997 issues of ten journals in hard (electrical engineering, mechanical engineering, physics, and biology) and soft sciences (philosophy, sociology, applied linguistics, and marketing), and their variation across disciplines. The proportion of the purpose move for philosophy (57%) and biology (71%) abstracts was below the average for the hard and soft domains. Cross and Oppenheim (2006) identified the rhetorical moves and thematic structure of 12 RAs to explore to what extent they follow the general journal guidelines for abstracts. The corpus texts were selected randomly from the protozoology abstracts published between 1994-2004 in the CABI database. Following

Endres-Niggemeyer (1998) and Santos (1996), an adapted five-move pattern was used to analyse textual structures of RAs. These five moves are Move 1 relation to other research, Move 2 purpose, Move 3 methodology, Move 4 summarising the results, and Move 5 discussing the research. Cross and Oppenheim found that a purpose statement was missing in one third of the corpus. Kanoksilapatham (2013) investigated the structural organisation of 60 civil engineering RAs and found the purpose move occurring only in 68% of the abstracts.

The results for the 'method' move in previous work on abstracts showed that it occurred in 75% (on average) of the soft disciplines and in 70% (on average) of the hard disciplines. If we look at the range in each domain, we find percentages changing between 50% and 100% in the hard sciences and a more wider range of 7%-100% in the soft science domain.

The highest occurrences of the 'method' were found in environmental science, civil engineering and protozoology in the hard science domain while the proportions were no more than 66% for other hard disciplines. Saeeaw and Tangkiengsirisin (2014) compared the rhetorical moves and linguistic features in 200 RAs in environmental science and applied linguistics. They found the method move in 82% of the environmental science abstracts. Kanoksilapatham (2013) found that a great proportion of the civil engineering abstracts contained a methodology move (93%). Cross and Oppenheim (2006) demonstrated that methodology appeared in all protozoology abstracts.

The method has an occurrence of above 71% in a majority of the soft fields. We observe some low percentages in Hyland (2000), Ren and Li (2011), Kim (2014) and Tankó, G. (2017). Hyland's results show that nearly two thirds of the hard disciplines had a method move whereas only one third of the soft disciplines made descriptions of methods. A method statement occurred around 40% of sociology, marketing, applied linguistics abstracts while the percentages were extremely low in philosophy, appearing only in 7% of the philosophy abstracts. Tankó (2017) found 53% of the 135 literature RAs contained a method statement. Ren and Li (2011) compares the rhetorical moves in 50 research articles and master's

dissertation abstracts in applied linguistics. The RAs were from the 2007 issues of five leading journals in applied linguistics. The dissertation corpus included 25 English abstracts randomly chosen from applied linguistics dissertations written by Chinese students. They found that only 60% of the RAs described the methods. Kim (2014) analysed the rhetorical moves and move sequences in 415 RAs in social sciences and found that roughly one third of the texts omitted methods.

The most noticeable difference between the hard and soft disciplines is in the introduction move. An introduction appeared in 60% (on average) of the soft-science abstracts, ranging from 30% to 100%, while only an average of 37% of the hard-science abstracts offered an introduction, ranging from 17% to 60%.

The highest occurrences of the introduction were found in four studies where the occurrences went above 78% in soft-discipline abstracts. Ren and Li (2011) found that all the master's dissertation abstracts in applied linguistics contained an introduction. In Martín's (2003) cross-cultural study, introduction was the most frequent move in the corpus, occurring in 99% of the English and in 100% of the Spanish abstracts in experimental phonetics and experimental psychology. Hyland (2000) reported that 78% of the philosophers made an introduction. Similary, 78% of the literary writers in Doró's study (2013) used an introduction in their abstracts.

The lowest figures for the introduction were reported by Pho (2008) and Breeze (2009). In an analysis of move structures of 30 RAs, Pho (2008) reported that situating the research occurred in 30% of the educational technology abstracts and 45% of the applied linguistics corpus. For applied linguistics, similar figures were also reported in Santos (1996), Hyland (2000), Tseng (2011) and Suntara and Usaha (2013). Breeze (2009) explored the macrostructure of 200 law RAs and found that the 'introduction' move occurred in only 40% of the corpus.

In the hard knowledge domain, the highest figures for the introduction move were found in Kanoksilapatham (2013) and Saeeaw and Tangkiengsirisin (2014). 60% of the civil engineering abstracts in Kanoksilapatham's study offered a background. Saeeaw and Tangkiengsirisin found an introductory move in 52% of the environmental science abstracts. The lowest figures for introduction was reported in Samraj (2005). Samraj investigated the rhetorical structure of RAs and introductions in wildlife behaviour and conservation biology. The study addresses the relationship between these two genres, and the variation of this relationship across disciplines. The corpus consisted of 24 abstracts and 24 introductions from research articles published in 1995. Only 17% of the conservation biology corpus offered an introduction.

About half of the soft and hard science writers included a conclusion move in their abstracts (53% on average in each domain). The conclusion move ranged between 9% and 89% in the soft science disciplines. The highest percentages for the conclusion were noted by Martín (2003), Can et al. (2016), Pho (2008) and Ren and Li (2011. Martín found 89% of the English abstracts in experimental phonetics and experimental psychology contained a conclusion move, which was the highest occurrence of the conclusion in the soft fields. 84% of the applied linguistics abstracts offered a conclusion in Can et al.'s study. Pho and Ren and Li also reported a high occurrence of the conclusion move in applied linguistics RAs (80%) and dissertation abstracts (80%).

Hyland (2000), Doró (2013) and Tankó (2017) reported the lowest figures for the conclusion. Hyland found very low amounts of the conclusion move in philosophy (9%), applied linguistics (19%), sociology (18%) and marketing (34%). In Doró's corpus, 'discussing the findings' was the least frequent move used by the literary writers (15%) as well as by the linguists (35%). The conclusion appeared only in 15% of Tankó's literature corpus.

The range of the conclusion move was between 13% and 100% in the hard science domain. We observe the lowest amounts for the conclusion in Hyland's study (2000), specifically in mechanical engineering (13%), physics (19%), electrical engineering (24%) and biology (40%).

All the other hard disciplines contained higher amounts of the conclusion (above 67%). The highest amount was found in Samraj (2005) where she reported that all wildlife behaviour writers added a conclusion in their abstracts.

Hyland (2000) compared the results of 1997 corpus of 800 abstracts with the results of his 1980 corpus of 240 abstracts from the same disciplines. The comparative results showed a great increase in the use of the introduction in the soft science domain, especially in marketing, philosophy and sociology. Although the overall results in the hard science domain did not indicate a big difference, the disciplinary comparisons showed noticeable tendencies in the abstracts of physicists and biologists towards including an introduction. There has also been a recognisable increase in the conclusion move in the two domains. The applied linguists, marketing researchers, biologists and mechanical engineers have started to include more purpose statements in their abstracts.

2.2.2.2 Additional move functions in literature

Apart from the five common moves in abstracts, other moves found in abstracts include claiming centrality, making topic generalisations, reviewing items of previous research, niche, counter-claiming, indicating a gap, question-raising, continuing a tradition, indicating RA structure, implications, promotion and limitation. We observe that these moves are mentioned in four studies. Tankó (2017) identified three different moves in literature RAs, which are topic (43%), niche (11%) and implications (2%). Ren and Li (2011) used Hyland's five-move model (2000) to identify rhetorical moves in abstracts. In addition to the five moves in Hyland's model, they found three new moves that occurred only in the dissertation abstracts. These are structure (70%), limitation (40%) and promotion (20%).

In Samraj (2005) study, abstracts were analysed by using both Bhatia's (1993) model and Swales' CARS Model (1990). Samraj's results include three moves from the CARS model: background information, centrality claims and gaps. Their frequencies were not as high as the frequencies of the moves from Bhatia's model (i.e. purpose, methods, results,

conclusions). The most frequent occurrence of the CARS moves (7 abstracts) was seen in the centrality claims used in the conservation biology corpus.

Martín (2003) used the IMRC model to analyse the rhetorical moves in abstracts. He analysed the introduction unit further using the CARS model. The move functions in Martín's study, which are different from the five common moves in abstracts, are claiming centrality, making topic generalisations, reviewing items of previous research, counter-claiming, indicating a gap, question-raising, continuing a tradition and indicating RA structure. There were more topic generalisations and gap instances than the other moves.

The existence of these extra moves in some studies but not in others raises the question why they appear only in some studies. The range of moves identified in abstracts depends on the model used. These extra moves were found in studies which used a model including more than five moves. Other studies used a five-move model which does not have such moves. However, most of these extra moves were covered in one of the five moves in these studies. For example, the 'topic' and 'niche' moves in Tankó's study are usually included in the 'introduction' move and the 'implications' move is generally a part of the discussion move. What we see here is a specification of the introduction and discussion moves. We see a similar specification of the introduction move in Samraj's results. Background information, centrality claims and gaps are all covered in the introduction move. Similarly, all the moves except indicating RA structure mentioned above in Martín's study are descriptors of the introduction. The limitation and promotion moves in Ren and Li's study belong to 'discussion'. 'Indicating RA structure' in Martín's study and similarly 'structure' in Ren and Li's study seem to be separate moves.

Although the presence of the extra moves is related to the model of analysis and the detail of the categories, it is also possible that causes related to different writer populations are in effect. For example, Ahmadi (2009) compared the textual organisation of 60 RAs from 1997-2007 issues of two journals in biological sciences. 30 of the texts were written by native speakers of English and 30 abstracts were written by Iranian non-native speakers of English.

Bhatia's (1994) model was used to identify the moves. Ahmadi found that the Iranian writers did not use some steps as much as the NSs of English. The post-analysis interview data point to factors supporting that the absence of some steps in Iranian texts is not linked to cultural preferences.

2.2.2.3 The structure of abstracts in literature

A few studies investigated the move structure of abstracts. Two studies explored structure in terms of frequency of abstracts following one of these structures: IMRD, IMRC/D, CARS, mixed, or none. In another study, move structure was investigated in terms of number of moves in abstracts such as five-move abstracts, four-move abstracts, etc. Only the number of moves are given, but we don't know what moves each structure contains.

Lorés (2004) investigated the textual organisation and thematic structure of 36 RAs in the field of linguistics using the IMRD and CARS Models. The majority of the abstracts (61%) were found to follow the IMRD structure. About one third of the corpus fit to the CARS structure (31%). 8% of the writers had a preference for a mixed type (i.e. IMRD + CARS).

Arizavi et al. (2013) analysed the textual organisation of master's dissertation (90 texts) and PhD thesis (30 texts) abstracts which were written in English by Iranian postgraduate students. The abstracts come from six disciplines including Persian literature, teaching English as a foreign language (TEFL), veterinary medicine, microbiology, chemistry and geology. Three quarters of the abstracts followed the IMRC/D structure. The CARS structure was found in 7% of the corpus. Around 10% of the abstracts used a mixed (the CARS and IMRC/D) structure. The structure of a small group of abstracts was none of these. These abstracts probably had a more diverse range of structures, which we might name as 'other' The generic comparison of these results also show that the IMRC/D was the most frequently used structure in both dissertation and thesis abstracts. The dissertation writers preferred the mixed type (13%) and the CARS (8%) while each of these were used in just one abstract in the TA corpus. 17% of the TAs falls in the 'other' category.

Arizavi et al. (2013) found that over 80% of the abstracts in the TEFL, chemistry, microbiology and veterinary medicine followed IMRC/D structure. In geology and literature, only half of the abstracts were of IMRC/D type. Half of the geology writers preferred a mixed type in their texts. A quarter of the literature abstracts followed the CARS structure while around a quarter did not have a particular structural pattern.

The proportion of moves in the IMRC/D abstracts was highly balanced. 'Introduction' (28%) and 'methods' (27%) were slightly more frequent than 'results' (23%) and 'discussion' (23%). The dissertation and thesis abstracts contained similar amounts of these moves.

In their cross-linguistic study, Alharbi and Swales (2011) compared the English (29 texts) and Arabic (27 texts) versions of RAs in terms of use of first person pronouns and promotional elements, and the number of rhetorical moves. Two-move and three-move abstracts were more common in the two data set than four-move and five-move abstracts.

2.2.2.4 Traditional versus structured abstracts

Kim (2014) argues that structured abstracts are more informative than the traditional one-paragraph abstracts. He suggests an automatic way of mapping traditional abstracts into structured abstracts. One problem with this argument is that a relationship is established between structured abstracts and informativeness. A structured abstract might be thought to be more informative than a traditional abstract because a structured abstract has sub-sections for each move. The move structures of traditional abstracts have been found to follow different sequential patterns and have missing moves (e.g. Hyland, 2000). Because of the nonstandard patterns, traditional abstracts are thought as not so informative as the structured abstracts. Writing an informative traditional abstract is partly related to the expertise of the writer. The same thing is also true for structured abstracts. The fact that an abstract has section headings for moves does not mean that the writer can include all the necessary information for each section. Expertise has also an important effect in the 'informative' role of an abstract.

Second, the argument accepts that the 'informative' type of abstracts are better. It might be argued that adding every bit of detail of importance provides helpful information to the reader. However, a question remains if an abstract should be 'informative'. Research has shown that a great majority of traditional abstracts are of informative or indicative type, and that there is also a preference for a mixed type (e.g. Piqué-Noguera, 2012). Here we need to think about the function of writing an abstract. Although an abstract is a short description of the research, we cannot deny its promotional function. When writing an informative, indicative or a mixed type abstract, a writer who is aware of this 'promotional' function of abstracts might try some strategies to promote the research. The missing moves or varying structural patterns can be thought as promotional strategies rather than that an abstract is lacking in informativeness.

A third problem with Kim's argument is that it prescribes a one-type structure. Although we do not know how researchers react when they are asked to provide a structured abstract in their paper submissions to journals, it is clear that this would probably damage the creative presentation styles of research. There is a good example for the importance of user preferences about Twitter's implementation of a new feature. Recently Twitter has expanded the number of characters per tweet since more characters are needed for some languages. Some users strongly disagreed this expansion. For a 140-character tweet, people have generated some creative short-cut ways of expressing their messages and they did not want to lose this creative twitter language when the space was expanded. An improvement in an area might be useful, but it may not be welcome by the users. In the case of abstract writing, a structured abstract might be easier to write as it has sub-headings for each move. It might also be easier to read such an abstract because as a reader you know where to find each piece of information about the study. However, all move embeddings, cycling moves, fake discussion sentences, a speedy start with a purpose sentence, gap indications, and much more would be in danger of extinction when the researchers are required to write structured abstracts. This might likely decrease the promotional effect of an abstract. Either informative or indicative, or a bare summary or promotional, an abstract should reflect the

writer's style and preferences. In other words, researchers need to have the freedom to choose how to compose their RAs.

2.2.3 Move sequences in abstracts

Table 2.3 shows the move sequences used in abstracts across different disciplines. Before looking at the related studies, we should bear in mind that each study uses different terms for moves. In Table 2.3, we used standard move names such as 'introduction', 'purpose', 'method', 'results' and 'conclusion'. Here in text, we will refer to specific terms used for moves in individual studies.

Previous research on sequential patterns of moves has revealed some common patterns in abstracts (see Table 2.3). The most frequent ones are P-M-R-C (27% on average), I-P-R-C (19% on average), I-P-M-R-C (17% on average) and P-R-C (15% on average). Apart from the four common patterns, we have also observed three other sequences occurring in some disciplines. These are the P-M-R (10% on average), I-P-M-R (10% on average) and I-R (7% on average) sequences.

The P-M-R sequence is quite similar to the P-M-R-C sequence; the only difference is a missing conclusion in the former. These two sequences can be seen as a single pattern where the conclusion is an optional move. Taking such an approach in grouping move sequences is possible as the proportion of the conclusion move is much lower than the other three (see section 2.2.2.1). A similar resemblance also exists between the I-P-M-R and I-P-M-R-C sequences. It is also possible to put these two sequences together with an optional conclusion.

In Can et al.'s (2016) applied linguistics corpus, the most frequently used sequences were I-P-M-R-D (18%), P-M-R-D (16%), I-P-M-R (12%) and P-M-R (4%). Introduction was the opening move in 46% of the abstracts. The purpose move opened half of the abstracts. Only two abstracts started with a method sentence.

Table 2.3 Move sequences in abstracts (Percentage of abstracts following particular sequences + common sequences in abstracts)

	Saeeaw & Tangkiengsirisin (2014)	Saeeaw & Tangkiengsirisin (2014)	Can et al. (2016)	Hyland (2000)	Hyland (2000)	Hyland (2000)	Hyland (2000)	Hyland (2000)	Hyland (2000)	Hyland (2000)	Hyland (2000)	Kim (2014)	Ren and Li (2011)	Ren and Li (2011)	Kanoksilapatham (2013)	Suntara and Usaha (2013)	Suntara and Usaha (2013)	Tseng (2011)	Martín (2003)	Martín (2003)
	ES	AL	AL	Phil	Soc	AL	Mkt	EE	ME	Phy	Bio	SS	ALRA	ALDis	CE	Ling	AL	AL	ExPh & ExPsy - English	ExPh & ExPsy - Spanish
I-P-R-C	6%	8%		35	35	23	28	13	10	5	16		28%							
P-M-R-C	20%	32%	16%	4	27	26	21	44	45	45	27	9%	32%		P-M-R-D	1st	1st			
I-P-M-R-C	23%	25%	18%	1	19	18	21	7	16	9	21	10%	28%		B-P-M-R-D [1st]	4th	2nd			
P-R-C	6%			15	12	19	10	23	14	22	17									
Others				8	7	10	20	10	12	18	14									
I-R				37	0	4	0	3	3	1	5									
4 moves in the IMRC Model																			67.5%	25%
4-move seq. without a background																		39%		
5-move sequences																		22%		
I-M-R		3%																		
I-M-R-C	6%	2%																		
I-P												6%								
I-P-C		1%																		
I-P-M-C		1%																		
I-P-M-R	8%	11%	12%									7%				3rd	3rd			
I-P-R	4%											5%								
I-P-M-R-C-S														1st						
M-P-R-C	3%																			
M-R	1%	1%													M-R					
M-R-C	5%														M-R-D					
P-I-M-R		2%																		
P-I-M-R-C	2%																			
P-I-R-C		1%																		
P-M-R	13%	13%	4%									9%			P-M-R	2nd	4th			
P-R	3%																			

ALDis: applied linguistics - dissertations, ALRA: applied linguistics - research articles, AL: applied linguistics, Bio: biology, CE: civil engineering, EE: electrical engineering, ES: Environmental science, ExPh & ExPsy: experimental phonetics & experimental psychology, Ling: linguistics, ME: mechanical engineering, Mkt: marketing, Phil: philosophy, Phy: physics, Soc: sociology, SS: social sciences

Saeeaw and Tangkiengsirisin (2014) found three sequences occurring frequently in the environmental science and applied linguistics abstracts: I-P-M-Pr-C, P-M-Pr-C and P-M-Pr. While applied linguists preferred the P-M-Pr-C (32%) sequence more than the I-P-M-Pr-C (25%), the environmental scientists used similar amounts of each of these sequences (I-P-M-Pr-C: 23% and P-M-Pr-C: 20%). Roughly half of the abstracts started with an introduction in environmental science and applied linguistics. The purpose move opened less than half of the abstracts in both corpora. The methods move opened 9% of the environmental science abstracts while this was only 1% in applied linguistics.

Kim's (2014) social sciences corpus presented a variety of patterns, most of which was characterised by an initial background move. These most frequent move sequences were B-A-M-R-C (10%), A-M-R-C (9%), A-M-R (9%), B-A-M-R (7%), B-A (6%), B-A-R (5%). A background opened 66% of the abstracts while 31% of the abstracts started with an aim statement. The opening move in the remaining nine abstracts was the method.

Hyland (2000) compared move patterns across eight disciplines from soft and hard sciences. The frequent move pattern in hard sciences was the Purpose-Method-Product [Conclusion] pattern which occurred in 40% of the hard science abstracts. This is probably because the high occurrence of the method move (64%) in the hard disciplines. This same pattern occurred in 20% of the soft disciplines. When we look at the frequency of the method move in soft science abstracts, we see that it constitutes 34% of the soft discipline corpus.

The Introduction-Purpose-Product [Conclusion] sequence was the most common pattern in the soft science disciplines. 30% of the soft science abstracts followed this sequence. This sequence occurred only in 11% of the hard disciplines. The introduction move was about twice as frequent in the soft disciplines as in the hard disciplines. Therefore, it is not surprising that this pattern was more common in the soft science abstracts.

A five-move pattern involving the B-P-M-R-D sequence was also the preferred structure in Kanoksilapatham's (2013) civil engineering sample. The other common patterns were P-M-R, M-R-D, M-R and P-M-R-D.

Suntara and Usaha's (2013) results indicated that the P-M-Pr-C was the preferred structure for the linguistics and applied linguistics abstracts. Other frequent move patterns were P-M-Pr, I-P-M-Pr, I-P-M-Pr-C in linguistics and I-P-M-Pr-C, I-P-M-Pr, P-M-Pr in applied linguistics respectively.

Tseng (2011) analysed the move structures of 90 RAs in applied linguistics. The corpus comes from data-based empirical research articles published between 2005-2007. Four-move sequences without a background (A-M-R-C) move (39%) were more common than the five-move sequences (B-A-M-R-C) (22%) in the applied linguistics abstracts. The opening move was 'aim' in 58% of the corpus while 'background' opened 34% of the abstracts. Only 8% of the abstracts started with a method move.

Ren and Li (2011) reported four structures for applied linguistics abstracts. The article writers' abstracts demonstrated three frequent move structures: purpose-method-product(-conclusion) (32%), introduction-purpose-method-product(-conclusion) (28%) and introduction-purpose-product(-conclusion) (28%). In the dissertation corpus, a six-move structure was the most common one: introduction-purpose-method-product-conclusion-structure.

Martín (2003) found that 67.5% of English abstracts contained all four moves in the IMRC Model while only 25% of the Spanish corpus had these four units. The 'introduction' unit, which was analysed further with the CARS model, was found to contain a great amount of purpose statements. Therefore, it is possible that at least a part of the I-M-R-C abstracts were of the I-P-M-R-C type.

Santos (1996) analysed the discourse organisation of 94 RAs in applied linguistics. The opening move was presenting the research in 61 abstracts (65%) and situating the research in 30 abstracts (32%).

Taken together, all these studies reviewed here provide evidence that abstract writers usually prefer five-move or four-move patterns in their abstracts. The five-move sequence contain all the common moves found in abstracts and follow a linear order which is presented in most models, i.e. the I-P-M-R-C sequence. The four-move abstracts commonly followed a P-M-R-C, I-P-R-C and to a smaller extent I-P-M-R patterns. Three-move patterns were also observed following the sequences P-R-C and P-M-R.

In terms of opening moves in abstracts, three opening moves were observed: introduction, purpose and method. On average, the purpose (49%) seems to open slightly more abstracts than the introduction (46%). An average of 5% of the abstracts were found to start with a method move.

2.2.4 Cyclicity and move embedding in abstracts

There has been little information about the cycling moves in abstracts in the studies reviewed in this chapter. We can mention two studies here. In one study, Can et al. (2016) stated that 'purpose-method' was the most common move cycle in applied linguistics RAs. Their results also show the recurring of the method move in the 'method-results-method-discussion' cycle. Kanoksilapatham (2013) reported that methodology (17%) and results (13%) were the most common cycling moves in civil engineering.

In the light of these limited results regarding cyclicity, we might draw some inferences about the type of recurrence of moves. One type is the recurrence of two or three moves exactly in the same order at least two times such as purpose-method-purpose-method. Another one is that one of the paired moves recurs while the other one changes as in method-results-method-discussion. Another possible type is the cycling of individual moves with no patterned combination.

Turning now to research on embedded moves in abstracts, evidence from the previous research demonstrated that move embedding occurred the most frequently between purpose and method moves and between method and results moves. Pho (2008) found that describing the methodology move was embedded in one of these two moves in applied linguistics and educational technology abstracts: presenting the research or summarising the findings. Saeeaw and Tangkiengsirisin (2014) reported that applied linguists tended to use merged moves more than environmental scientists. They found the method move merged with either the purpose or the product moves in applied linguistics and environmental science abstracts. Suntara and Usaha (2013) also reported that method move was usually found to be embedded in the product move in linguistics and applied linguistics abstracts. It was also found to be embedded in the purpose move.

Cross and Oppenheim's (2006) results showed that methodology was an independent unit in one-third of the protozoology abstracts (4 out of 12), and that it was embedded in the summarising the results move in half of the instances and in the purpose in 2 instances.

13% of the sentences in Can et al.'s (2016) corpus of applied linguistics abstracts contained embedded moves. The purpose+method combination occurred in 11% of the sentences and 58% of the abstracts. The method+results combination appeared in 2% of the sentences.

In Santos' (1996) applied linguistics corpus, describing the methodology appeared as an independent move in 27 abstracts (out of 92 abstracts). It was merged with presenting the research in 64 instances.

The method move in Martín's study (2003) was independent in roughly half of the English (48%) and Spanish (51%) corpora of experimental phonetics and experimental psychology, that is, it was the only move occurring in a sentence. Move embedding was observed between introduction and methods moves. The merging of these two moves occurred in 47% of the English and 43% of the Spanish abstracts. The introduction and method combination within the same sentence was observed only in Martín's study. It should be

noted that Martín used the IMRC model which fails to include a separate purpose move. However, a further analysis of the introduction unit using the CARS model indicated high amounts of the purpose-related moves. Martín stated that the merging of the method move occurred either with 'outlining purposes' or 'announcing present research' moves in the CARS model. Martín also found a small amount of move embedding between methods and results moves. This makes up 5% of the English corpus and 6% of the Spanish corpus.

Apart from the common embedded move combinations mentioned above, there are also a few rare ones. Saeeaw and Tangkiengsirisin (2014) mentioned the embedding of the introduction and purpose moves in environmental science and applied linguistics abstracts. Can et al. (2016) found two sentences containing result and discussion, and one sentence containing the introduction+purpose+method combination in their applied linguistics corpus. Cross and Oppenheim (2006) reported that summarising the results was merged with relation to other research in two occurrences in the protozoology abstracts.

2.2.5 Obligatory versus conventional moves

A common practice in genre research is using cut-off points to interpret the extent of prominence of particular moves. Some researchers explicitly state the cut-off frequencies/percentages above which the moves are accepted as obligatory or conventional, and below which they are seen as optional. For example, Kanoksilapatham (2005), Suntara and Usaha (2013) and Can et al. (2016) accept a move conventional when it occurs in at least 60% of the abstracts. Below that point, a move is regarded as optional.

It has been shown in previous research that the most frequent moves do not always occur in all abstracts in a corpus. For example, in Tankó (2017), 13% of the abstracts did not have an outcome statement and 15% of them failed to announce the purpose. These are the most frequent two moves in Tankó's study. Breeze (2009) found the results move in 86% of the law abstracts while only 58% of the literature abstracts contained the result move in Doró's study (2013). These results suggest that the term 'obligatory' for a move is not used in the literature in the sense that an obligatory move is equal to 100%. It is quite understandable

that even the moves with the highest occurrences do not occur in all the abstracts in a corpus. The disciplinary preferences and the personal preferences of the writers also affect the proportion of the moves in a given corpus. However, the term 'obligatory' is problematic because it is used to categorise moves which do not occur in all the abstracts in a corpus, but those moves are still called 'obligatory'. Also, the word 'obligatory' gives a sense that the research article writer is obliged to include a move in the abstract which is prescribed by authorities such as the publisher or the editor. Although this is a term used just to interpret the prominence of moves in a corpus, we can still look for a better term that aids an accurate interpretation of the results of a move analysis. Some researchers prefer the term 'conventional' instead of 'obligatory'. It is a more suitable term to use as, one, it does not connote an occurrence of a move in the whole corpus, and, two, it has reference to the disciplinary preferences in the use of rhetorical moves.

Having reviewed the literature on discourse functions in abstracts, we now turn to LPs in the next section.

2.3 Lexical phrases

2.3.1 Terminology

Research on linguistic patterns provides us with an extensive list of terms that refer to particular types of patterns or that are used as a general term referring to any sequence which is identified to form a pattern according to a set of criteria. The terms which have a direct relevance to the present study are shown in Table 2.4 below along with their descriptions and examples (a full listing of the terms that are related to patterns can be found in Appendix 2.1). The table contains eight terms which are more general terms compared to the rest. From these terms, I will use the term 'pattern' as a general term as it is a corpus linguistics term associated with recurrence of strings. The terms 'formulaic language' which is used as a mass noun as well as 'formulaic sequence' and 'formulaic expressions' were rejected as they refer to psycholinguistic processes in linguistic patterns. While 'fixed expressions including idioms' has a narrow sense, 'conventionalised language forms' is a less established term. The terms 'multiword units' and 'multiword items' are also

broader terms which are defined similarly with others; however, I reject to use them as the word 'multiword' seems to bring the syntactic composition of the unit rather than its frequency to the foreground.

Table 2.4 Terms used to refer to patterns

Term	Study	Description	Examples
Academic clusters	Hyland (2008a)	"These are extended collocations which appear more frequently than expected by chance, helping to shape meanings and contributing to our sense of coherence in a text" (Hyland, 2008a: 41) "the frequently occurring word combinations" (Hyland, 2008a: 42) "words which follow each other more frequently than expected by chance, helping to shape text meanings and contribute to our sense of distinctiveness in a register" (Hyland, 2008a: 42)	*on the other hand, it is possible that, is likely to be, is defined as the, the end of the, as a result of, it should be noted that* (four-word clusters)
Collocation	Durrant (2009); Gledhill (2000); Sinclair (1991)	"sets of two or more words which appear together more frequently than their individual frequencies would lead us to expect (Hoey, 1991; Jones & Sinclair, 1974)." (in Durrant, 2009: 158)	*statistically significant, to determine, suggest that, was measured, this study, consistent with* (Durrant, 2009)
Conventionalized language forms	Yorio (1980)	A general term for different types of sequences such as idioms, routine formula, euphemism, quotations, proverbs, and aphorism, memorized discourse, stereotyped forms/ combinations, connotative meanings, response cries, collocations. (Yorio, C. A., 1980)	
Fixed Expressions including Idioms (FEIs)	Moon (1998)	A general term what Moon describes as "particular sorts of collocation" (p.30) which are not fully frozen, non-compositional to some extent, holistic units.	
Formulaic Expressions	Simpson (2004); Van Lancker-Sidtis and Rallon (2004)	"They often contain lexical items with nonliteral or nonstandard meanings…. FEs have a unique coherence not present in novel utterances. Word selection and word order are determined; intonation is usually stereotyped, in that choices for sentence accent are limited." (Van Lancker-Sidtis & Rallon 2004: 208)	
Formulaic Language	Weinert (1995); Wray and Perkins (2000); Wray (2002)	The term is used as a "neutral mass noun" (Wray, 2008, p. 8) to refer to formulaicity in a language.	

Formulaic Sequence	Conklin and Schmitt (2008); Wray (2000, 2002)	" a sequence, continuous or discontinuous, of words or other elements, which is, or appears to be, prefabricated: that is, stored and retrieved whole from memory at the time of use, rather than being subject to generation or analysis by the language grammar" (Wray, 2002: 9)	
Lexical Bundles	Biber and Barbieri (2007); Biber and Conrad (1999); Biber, Conrad, and Cortes (2003); Biber, Conrad, and Cortes (2004); Nesi and Basturkmen (2006); Hyland (2008b)	"the most frequent recurring lexical sequences in a register" (Biber et al., 2004: 376) "these are words which follow each other more frequently than expected by chance, helping to shape text meanings and contributing to our sense of distinctiveness in a register." (Hyland, 2008b: 5)	*I want to know; well that's what I, in the case of , the base of the* (Biber et al., 2004: 377) *On the other hand, in terms of the, in relation to the, in terms of their, of the present study, of the hong kong* (Hyland, 2008b: 12)
Lexical Phrases	DeCarrico and Nattinger (1988); Koprowski (2005); Li and Schmitt (2009); Nattinger and DeCarrico (1992); Oakey (2002); Schmitt and Carter (2000); Yu (2009)	"chunks of language at varying length … they are multi-word lexical phenomena that exist somewhere between the traditional poles of lexicon and syntax, conventionaized form/function composites that occur more frequently and have more idiomatically determined meaning than language that is put together each time. These phrases include short, relatively fixed phrases, or longer phrases or clauses, each with a fixed, basic frame, with slots for various fillers. Each is associated with a particular discourse function…." (Nattinger and DeCarrico, 1992: 1)	*in other words, it depends on X, my point (here) is that X (*Nattinger and DeCarrico, 1992: 64-65)
Multiword Items	Moon (1997)	"a vocabulary item which consists of a sequence of two or more words (a word being simply an orthographic unit). This sequence of words semantically and/or syntactically forms a meaningful and inseparable unit." (Moon, 1997: 43)	
Multiword Units	Schmitt (2000)	"a string of words with a single meaning" (Schmitt, 2000: 97)	
Patterns	Groom (2005); Orasan (2001); Hunston and Francis (2000)	"The patterns of a word can be defined as all the words and structures which are regularly associated with the word and which contribute to its meaning. A pattern can be identified if a combination of words occurs relatively frequently, if it is dependent on a particular word choice, and if there is a clear meaning associated with it." (Hunston and Francis, 2000: 37)	*it is clear that* (Groom, 2005: 266)
Phraseological patterns	Charles (2006)	"recurrent associations of words and structures" (Charles, 2006: 311)	*It is thought, Skinner argues* (Charles, 2006: 313)

All the other terms in the list refer to a particular type of pattern. From among these terms, I will use the term 'lexical phrase' to describe the kind of phenomenon that will be investigated in the present study. The main reasons for preferring the term lexical phrase lie in the fact that an LP is associated with a function in discourse as well as it is an established term in the literature.

The reason why 'lexical phrase' is the most suitable term to use can be explained better by a comparison of the term LP to the other terms. LPs are different from 'lexical bundles' in three ways. First, lexical bundles do not constitute a grammatically complete unit as LPs do. For example, *the fact that the* (Biber et al. 2004: 384) is a phrase level stance bundle which does not form a complete grammatical unit as it does not contain a subject and a verb. On the other hand, *The (current) study examined [noun phrase]* is a sentence builder LP which is grammatically complete in the sense that it has a subject and verb as well as an open slot object (noun phrase). As the focus of this study is sentence builder LPs, an LP forms the structure of a clause. In this study, I limit the unit of analysis to 'independent clause'.[1]

Second, a lexical bundle has to consist of adjacent words and does not allow insertion of additional words or variation in any word. However, LPs can have optional points and both the optional and obligatory elements are quite variable. In the LP, *The (current) study examined [noun phrase]*, 'current' is an optional pre-modifier. We also found 'present', 'case' and 'second' were used as noun pre-modifier in this LP (announcing the research pattern 1)[2]. In the corpus, we can see instances where nouns such as 'research', 'article' and 'paper' are also used as the head noun in the subject position. The verb position is also variable. Apart from 'examine', we find verbs such as 'explore', 'investigate' and 'present'. Even the article is variable. There are instances where 'this', 'a' or 'my' are used. Using noun phrases in the open slot is the most frequent verb complement type (71%) in this LP; we can also see whether or how clauses.

1 The unit of analysis is explained in section 4.6 in Chapter 4.
2 See Chapter 6 for the findings of lexical phrase analysis.

The third difference is about the types of functions. If we look at functions that lexical bundles serve in academic discourse, we can see that they are different from those which are associated with LPs in abstracts in this study. Hyland (2008a) uses the term 'academic clusters' which is a variation of lexical bundles that are only found in academic discourse. He uses three major categories to classify academic clusters used in research articles, PhD theses and master's dissertations according to their functions: research oriented, text-oriented and participant-oriented clusters. The sub-categories include functions such as location, procedure, description, resultative signals, structuring signals and stance features. Although some examples of these clusters are very similar to LPs (e.g. *these results suggest that* as a resultative signal), these functions are associated with sequences smaller than a clause in a great majority of the cases. In the present study, we focussed on sentence builder type of LP in abstracts which is closely related to independent clauses. Therefore, LPs are associated with functions that needs to be looked in independent clauses. Some of the LP functions in abstracts are introducing the topic, announcing the research and presenting and evaluating the main findings.

LPs are also different from collocations. Sinclair (1991: 170) defines a collocation as "the occurrence of two or more words within a short space of each other in a text". It is clear that a collocation is related to the association of two or more words and that these words are not necessarily adjacent. Durrant (2009) gives examples for positionally variable collocations where the collocating words occur next to each other, some other words are inserted between them, or they occur in different order in text: *there were no* ***significant differences****; there were* ***significant*** *physiological* ***differences****;* ***differences*** *were not* ***significant***. Although LPs allow insertion of words, it is difficult to find that elements of an LP are used in a different order in our corpus of scientific abstracts. This is because the sentence builder LPs in this study have a more fixed grammatical structure than collocations. While LPs are sentence-level sequences, this is not an obligation for collocations even though there are some examples of extended collocations (i.e. lexical bundles) (Biber, 1999; Hyland, 2008b; Oakey, 2009) which are similar to LPs.

The term ‘phraseological patterns’ is the same thing as ‘pattern’; the only difference is the defining adjective ‘phraseological’ which is probably used to distinguish it from other types of patterns (e.g. grammatical). When we look at the examples Charles (2006) gives, we see that they are very similar to LPs: *It has been reported that* and *Skinner argues that*. She defines phraseological patterns as “recurrent associations of words and structures” (p, 311). This definition does refer neither to form nor to function. However, the term ‘lexical phrase’ is defined as a sentence builder for the purposes of this study and it is associated with discourse functions.

The term ‘lexical phrase’ which is suggested by Nattinger and DeCarrico (1992) is chosen for the particular type of pattern that is explored in this study. Although their definition of LP is a good starting point, there are still problems in it. First, they define LPs as multi-word units, however, some of the examples they give for LPs such as *nevertheless*, *goodbye*, *however*, *moreover*, *well*, *now*, *only*, and *but* are all single orthographical words. Second, they describe LPs as sequences with slots. However, it is not clear what a slot is. In some examples, they use a type of slot as in *for* ____ where paradigmatic choices determine what to go in the slot position, and in others there are *X*, *Y*, and *Z* which they call slots again. In the latter case, it is not clear what the X, Y, and Z stand for. In *I’m a great believer in X*, X is at the final position and it is not explained whether it stands for a single word or multiple words, or what the variations of X are. If X can be substituted with anything, the phrase can be something like *I’m a great believer in luck* where there is only one word in X position or *I’m a great believer in looking forwards than looking backwards* where X is realised by five words. In either the slots as in *for* ____, or the slots like X, Y, and Z, a full listing of variations is not provided for the slots. Therefore, it is vague what a slot is filled with.

The third problem in Nattinger and DeCarrico’s definition of LPs is about the frequency of LPs. It seems that no frequency measures or cut-off points have been determined to decide if a word string is an LP although they define it as a frequent unit.

The problems in Nattinger and DeCarrico's definition also makes the identification of LPs problematic. In the following section, we will look at these problems in identifying LPs and provide a definition of LP at the end.

2.3.2 Identification of lexical phrases

There are four problems in identifying LPs. The first problem in identification is what types of words an LP includes. As the term suggests, an LP contains lexical or content words as well as function words. As this study targets sentence builders, it is hard to find LPs which consists of only content words or of only function words. Sentence builder LPs consist of a combination of content and function words.

LPs constitute a meaningful unit and the second problem arises at this point in deciding what constitutes a meaningful unit. Is it a syntactically defined unit such as a phrase or is it something beyond this? In the following extract from the data, 'of this article', for example, is a prepositional phrase. However, it does not stand as a meaningful unit as the meaning is not restricted only to these three words. The unit can only be complete in terms of meaning if we extend it to the sequence "The aim of the article is [to-infinitive clause]".

2.1	The aim of this article is to report on a positioning analysis of a small story about the imagined 'better life' of a migrant, pre-service teacher. (AAAL001: 2)

As a result, we can say that the unit of meaning (Sinclair, 2004: 24) might be completed in more than one phrase.

The third problem relates to the fixedness of form. This includes whether to allow insertion of additional words within a phrase and to accept variation in a part-of-speech category in the phrase. In the following two examples, we see two phrases which have the similar form and the same function of announcing the research, but the only difference between the two is an insertion of the word 'present' in example 2.3.

2.2	The study investigates [noun phrase]

2.3	The present study investigates [noun phrase]

In the LP analysis, these two were treated to belong to the same LP. The word 'present' was accepted as an optional element.

The following three examples have a similar form which begins with 'This study' and each includes a different verb. All three sequences are associated with the function of 'announcing the research' and share the same form. They are considered to belong to the same LP which have variation in verbs.

2.4	This study investigates [noun phrase]

2.5	This study examines [noun phrase]

2.6	This study explores [noun phrase]

A fourth problem of identifying LPs is continuity. In the following sentence, the LP 'Results yielded' is interrupted by the insertion of 'from multifaced Rasch measurement'. This part describes the head noun (results) in the noun phrase subject. Although this is not frequent enough to be an obligatory element in the LP, it is indicated as 'post-modifier'. Post-modifiers are optional and might be very discipline-specific expressions. Therefore, it is hard to find patterns in the post-modifier positions, which makes them optional and highly flexible points in LPs.

2.7	Results from multifaceted Rasch measurement yielded two main findings. (AASSLA008: 8)

As this study investigates sentence builder type of LPs in scientific abstracts, we aim to define this type of LP in abstracts. We define it as follows:

A sentence builder lexical phrase in abstracts forms the structure of an independent clause. Lexical phrases are word strings which consist of a combination of content and function words. These strings constitute a meaningful unit and are distinctive to a macro-level discourse function in abstracts. Obligatory elements are subject and verb as well as complement depending on the verb. A lexical phrase may include many optional points such as pre-modifier or post-modifier of a noun in the subject position, or adverbs before verbs. A lexical phrase allows insertion of additional words within a phrase and variation in both the obligatory and optional elements.

In Appendices 6.1 to 6.68, LPs are given as tables which include optional points, variations and open slots (for topic-specific subjects and verb complements).

2.3.3 Classification models for lexical phrases

Classifications of patterns including LPs are generally based on either structure or function. In their pioneering work on LPs, Nattinger and DeCarrico (1992: 37-45) propose a four-category structural classification of LPs (see Table 2.5). These are polywords, institutionalised expressions, phrasal constraints, and sentence builders.

Table 2.5 Nattinger & DeCarrico's Structural Classification of Lexical Phrases

Polywords	word-level phrases that have completely frozen and continuous forms - They can be both canonical and non-canonical.	canonical: *in a nutshell*, *by the way*, and *beside the point* non-canonical: *as it were*, *by and large*, and *all in all*
institutionalised expressions	sentence length and fixed -Most of them are canonical and continuous.	canonical: *nice meeting you*, *give me a break*, and *how are you*? non-canonical: *what, me worry?*, *long time no see*, and *be that as it may*.
phrasal constraints	word-level - They allow variability of differing degrees. Most phrasal constraints are continuous. They can be both canonical and non-canonical	canonical: *as far as I_*, *see you_*, and *_as well as_)* non-canonical: *the_er the_*er, and *for better or (for) worse)*.

sentence builders	sentence level lexical phrases that form frames for whole sentences - They are highly variable, and often discontinuous. They are mostly canonical.	canonical: *I think (that) X*, *let me start by / with X*, and *that reminds me of X*). non-canonical: *the_er X, the_er Y*

They suggest another classification of LPs which is based on functions (Nattinger and DeCarrico, 1992: 59-65). This classification consists of three main categories: social interactions, necessary topics, and discourse devices (see Table 2.6).

Table 2.6 Nattinger & DeCarrico's Functional Classification of Lexical Phrases

Category	Sub-category	Function & Example
Social Interactions	Conversational maintenance	Summoning: *good morning, do you live around here?* Responding to summons: (*I'm) fine, thanks, (and you)?* Nominating a topic: *what's X?* Clarifying: 1.audience: *excuse/pardon me?* 2.speaker: *how shall I put it?* Checking comprehension: *all right?* Shifting a topic: *by the way* Shifting turns: *could I say something here?* Closing: *I must be going* Parting: *see you later*
	Conversational purpose	Expressing politeness: *thanks (very much)* Questioning: *do you X?* Answering: *yes, (there/it/they is/are) (X)* Requesting: *may I X?* Offering: *would you like X?* Complying: *I'd be happy/glad to* Refusing: *of course not* Complimenting: *NP + BE/LOOK + (intensifier) + Adj* Asserting: *I think/believe that X* Responding: 1.acknowledging (simple reinforcers): *(and then) what happened (next/then/after that)?* 2.accepting: *(yeah,) I know* 3.endorsing: *that's great* 4.disagreeing: *yes, but (I think that) X* Expressing gratitude: *thanks (very much/a lot) (for X)* Expressing sympathy: *I'm (very) sorry about/to hear (about) X*
Necessary Topics		Autobiography: *my name is ____* Language: *do you speak ____?* Quantity: *lots of ____* Time: *when is X?* Location: *where is ____?* Weather: *it's (very) ____ (today)!* Likes: *I like/enjoy ____ (a lot)* Food: *serve breakfast/lunch/dinner* Shopping: *how much is ____?*

Discourse Devices	Logical connectors: *nevertheless* Temporal connectors: *and then* Spatial connectors: *around here* Fluency devices: *you know* Exemplifiers: *for example* Relators: *the (other) thing X is Y* Qualifiers: *it depends on X* Evaluators: *at least* Summarisers: *my point (here) is that X*

Nattinger and DeCarrico's (1992) functional classification is a generalised scheme. The model is suggested to account for LPs both in spoken and written discourse; however, it is misleading to say that it applies to any kind of discourse. In the case of academic writing, discourse devices would be the only category that is relevant as discourse devices perform functions in written transactional discourse while social interactions and necessary topics are related to spoken discourse. Nattinger and DeCarrico offer a further categorisation for discourse devices. They use a macro/micro distinction in discourse devices and they also make a sub-categorisation in macro discourse devices which are 'global macro organisers' and 'local macro organisers'. They define macro organisers as:

> markers of the overall direction of discourse … they signal the organisation of high-level information: marking topics, shifts in topics, summary of topics, exemplification, relationships between topics, evaluations, qualifications, and asides. (1992: 90).

Micro organisers are defined as "signals of low-level information" and three types are listed: pause fillers, fluency devices and conjunctions (p. 104). In the present study, we focused on macro-level discourse functions of LPs. However, the functional groups in this category are still problematic to use in the present study. The problem arises as some of the functions which are given in the 'macro-organisers' category seem to serve micro-level rather than macro-level functions in research article and thesis abstracts. The solution is to work on a functional model which will have 'macro-level' discourse functions that are associated with sentence builders in abstracts.

Moon (1998: 217) also proposes a functional classification of textual functions of what she terms fixed expressions including Idioms (FEIs) (see Table 2.7). The model includes five categories (in which FEIs are grouped according to text functions in spoken or written texts.

Table 2.7 Moon's Classification of Text functions of Fixed Expressions including Idioms (FEIs)

Category	Function	Example
informational	Stating proposition, conveying information	rub shoulders with in the running catch sight of SOMETHING for sale
evaluative	Conveying speaker's evaluation and attitude	kid's stuff a different/fine kettle of fish near the knuckle it's an ill wind (that blows nobody any good)
situational	Relating to extralinguistic context, responding to situation	excuse me! long time no see knock it off! talk of the devil
modalising	Conveying truth values, advice, request, etc.	I kid you not you know what I mean to all intents and purposes if in doubt, do not
organisational	Organising text, signalling discourse structure	by the way for instance talking of – be that as it may

Moon's classification does not differentiate between macro- and micro-level functions. Also, when we look at the examples, we can see that they are associated more with spoken discourse. For the sentence builder LPs with a macro-level discourse function in abstracts, we need a more specialised model which is designed to use in abstracts. Such a model is developed adapting from studies on rhetorical organisation of abstracts which is presented in Chapter 4.

2.4 Relationship between lexical phrases and discourse functions

The definition of LPs suggests that LPs are in a close association with discourse functions. The inference that can be drawn from this is that an investigation of the relationship between LPs and discourse functions should be a common research purpose in studies of LPs. However, the problem is that there is only a small number of research on LP type of patterns. In the case of descriptive studies of LPs in academic discourse, we can mention two studies here. In one of them, Oakey (2002) explores the LP *it is / has been* _____ *that X* in research articles and book extracts from three disciplines. In the other one, Ileri (2004) investigates LPs in research article introductions in a single discipline. Although both studies have a functional focus, what makes them different is their approach to the investigation of the relationship between LPs and functions that they perform in related genres. Oakey starts with a sentence builder that has a high potential to be an LP in the genres that he looks at, and assigns functions to phrases which perform a function in discourse after a frequency analysis. Ileri, however, follows a different approach in her study in which she first identifies LP functions in research article introductions, and then identifies LPs for each function. This difference in approaches in these two studies is related to the types of the studies. Oakey examines a specific phrase in his corpus; therefore, it might be easier to decide what function each instance of the phrase performs afterwards. In Ileri's study, neither the patterns nor the functions of LPs are known at the beginning. Instead of looking for repeated patterns in her corpus and identifying their functions later, she adopted an opposite method which made the analysis easier.

It will be useful to talk about studies which examine the relationship between other types of patterns and discourse functions in academic discourse. Biber et al. (2004) investigates lexical bundles in a corpus of texts from classroom teaching, textbooks, conversation, and academic prose which come from six disciplines. This investigation is an exploratory one in which Biber et al. look for repeated four-word bundles, and determine their functions in a post-analysis. A similar post-function analysis can be seen in Gledhill's (2000) study of collocations in which he examines what functions the collocations of frequent grammar words serve in research article introductions. Function-form relationship is also explored in

studies which look at other types of patterns with a phraseological focus. In a corpus-driven investigation of *that* patterns, Römer (2008) attempted to identify patterns which have an evaluative role in linguistic book reviews. Hyland and Tse (2005a) also examined evaluative functions of *that* patterns in research articles, and in research articles, master's dissertations, and PhD theses in a further investigation (2005b).

A frequency analysis of repeated patterns in these studies seems to have created an environment in which a function analysis is made possible in a post-position in the research process. This is a very common approach in function-based studies. One possible reason for that might be that there is not an established categorisation of functions in the studied genre. Another reason might be that the researcher looks for the sequences for a single function. Identifying the forms first might make the function analysis easier by grouping similar patterns and determining the functions of each group. Such approaches might work well in studies in which micro-level functions are examined. However, an analysis of macro-level functions will be problematic in this approach since the analyst needs to refer to the larger context of each instance of a sequence to accurately determine its function.

We will turn our attention to the variation in the use of LPs and other patterns across disciplines and to studies which looked at variation of patterns across genres in the following sections.

2.5 Disciplinary variation in the use of lexical phrases

Previous research into linguistic patterns has investigated patterns in various disciplines including applied linguistics (Le and Harrington, 2015), psychology (Esfandiari and Barbary, 2017), history (Groom, 2010), telecommunications (Pan et al., 2016), pharmacology (Grabowski, 2015b), mathematics (Cunningham, 2017) and law (Breeze, 2013). A number of studies have focussed on variation of patterns between disciplines (Peacock, 2011a; Hyland and Jiang, 2016; 2018; Durrant, 2017; Jiang, 2017). There have been studies which examined the use of patterns in abstracts from various disciplines such as applied linguistics, biology, business studies, computer science, economics, electrical engineering, marketing,

mechanical engineering, medicine, physics, public administration, sociology and social sciences (Hyland and Tse, 2005a; 2005b; López-Arroyo and Méndez-Cendón, 2007; Akbas, 2012; Ahmadi et al., 2013; Khedri et al., 2013; Omidian et al., 2018).

However, as far as I am aware, there has been no research which investigated LPs distinctive to macro-level discourse functions in abstracts. Therefore, we will first review studies on genre research which have examined linguistic realisations of rhetorical moves. These studies present results similar to LPs although they are not in the form of a comprehensive list of common patterns per move. Secondly, we will look at studies that have examined other types of patterns in abstracts. In contrast to the approach used in this study and genre research (function-first approach), these studies mostly prefer a form-first approach and investigate a certain type of form. Overviewing these studies in addition to those of genre research will help us to get a better picture of what patterns are commonly found in abstracts. As one of the research questions of the present study is about the variation of LPs across disciplines, this section will address disciplinary variation of patterns in abstracts.

It is important to note that previous studies on patterns do not contain all type of information such as frequency of patterns or elements of a pattern per function. Therefore, in this section, we will cover what information is available in the literature. Also, not all studies look at disciplinary variation of patterns. We will present results of studies which provided information about disciplinary variation, but we will also review studies which presented results for patterns in a single discipline to see the profile of patterns in different disciplinary areas.

A number of researchers who examined realisations of rhetorical moves have presented results with regard to common constructions in abstracts as well as elements in these constructions. The term ‘constructions’ is used here in the general sense to refer to a linguistic string of any length with a syntactic structure, and not in a specialised sense such as that used in Construction Grammar (Goldberg, 2003).

Breeze (2009), who examined sentence-level features of rhetorical moves in law RAs, found that declarative openings (*we / this paper examines*) occurred in 55% of the law abstracts. Breeze (2009) also found that the embedded purpose statements (e.g. *This article discusses the roles of….*) occurred in 89% of the abstracts. The verb complement/object in embedded purpose statements were commonly nominalised. Personal pronouns 'we' and 'our' were used in 51% (101 out of 200) of the abstracts while 'I' occurred in 10% (19 out of 200) of the abstracts.

Breeze also presented results with regard to verbs used to describe author's actions. The most common verbs used with pronoun subjects (we/I) were: find (27 occurrences), show (16 occurrences), argue (5 occurrences) and examine (5 occurrences). The constructions using the impersonal subject included usages of the verbs both in the active and passive forms. There is a wider range of common verbs used with an impersonal subject: examine (41 occurrences), discuss (25 occurrences), suggest (23 occurrences), analyse (17 occurrences), argue (12 occurrences), consider (12 occurrences), present (12 occurrences), focus (10 occurrences), note (7 occurrences), state (7 occurrences), assess (6 occurrences), contribute (5 occurrences), explain (5 occurrences), evaluate (5 occurrences) and offer (5 occurrences). It seems that the law researchers preferred to use 'find' and 'show' with personal pronoun subjects while they used 'examine' and 'argue' more with impersonal subjects.

Piqué-Noguera (2012) reported that the construction *this paper/study/research + a reporting verb* (such as investigate, report and explore) occurred in 54% of the business RAs and that 29% of the abstracts started with this combination.

Piqué-Noguera looked at the most commonly used reporting verbs in business RAs. These are 'use' (88 occurrences), 'suggest' (45 occurrences), 'examine' (39 occurrences), 'find' (29 occurrences), 'show' (27 occurrences), 'discuss' (22 occurrences) and 'demonstrate' (22 occurrences). Of these, 'show' (81%), 'find' (86%) and 'demonstrate' (55%) were found to be closely associated with the results move, 'suggest' (58%) and 'discuss' (55%) with the

conclusion, and ‘examine’ (69%) with the purpose. The verb ‘use’ seems to be shared between the method (38%) and results (33%) moves. The writers did not have a strong preference for a specific reporting verb in the background move, but ‘show’, ‘suggest’ and ‘use’ were slightly more frequent than ‘examine’, ‘find’, ‘discuss’ and ‘demonstrate’.

A number of studies provided results for patterns in the purpose and results moves as well as the method and conclusion moves. Santos (1996) presented results for Move 2 (presenting the research) - Submove 1A (indicating main features) and Move 4 (summarising the results) in applied linguistics RAs. The frequent pattern for Move 2 - Submove 1A was deictic item + inquiry type or genre + reporting verb. The most frequent elements were: this (67 times) / the (16 times) + study (39 times) / paper (25 times) / article (6 times) + investigate (20 times) / examine (15 times) / report (11 times). In Move 4, the common verbs in past passive sentences were found to be ‘find’, ‘observe’ and ‘show’. The common head nouns in the subject position include ‘results’, ‘analyses’ and ‘data’.

Martín (2003) reported results of the frequent items / words in the announcing present research (Move 3 - Step 1B) and results moves in English RAs in experimental phonetics and experimental psychology. The writers were found to use the deictic items ‘the’ and ‘this’, head nouns such as ‘paper’, ‘study’ and ‘experiment’ in the subject position and a present tense verb (past tense were also possible) in announcing present research. The common subject + verb combinations used in the results move were ‘the findings’, ‘the analyses’, ‘the results’, etc. + ‘show’, ‘reveal’, ‘indicate’ (in the past tense). Passive voice was also common in presenting the results.

Suntara and Usaha (2013) identified the dominating linguistic pattern used as the sentence construction in the purpose move in linguistics and applied linguistics RAs. The pattern is *this/the + study/article/paper etc + examines/reports/investigated etc*. The disciplinary preferences in the elements of this pattern for the purpose move were very similar. The common nouns in this pattern were ‘study’, ‘article’, ‘paper’, ‘research’, ‘experiments’ and

'case study'. The common verbs used were 'examine', 'investigate', 'report', 'explore', 'attempt to', 'describe', 'focus on' and 'present'.

Suntara and Usaha also identified the pattern in the product move, which showed disciplinary similarities. The frequent nouns/pronouns in the subject position of the product move constructions were 'result', 'finding', 'analyses', 'data', 'paper', 'study' and 'it'. Personal pronouns were more common in linguistics than in applied linguistics. The common reporting verbs were 'show', 'indicate', 'reveal', 'suggest', 'find' and 'provide'. The use of *that*-complement clauses was a characteristic feature in the product statements.

Suntara and Usaha found that the nouns 'finding(s)' and 'result(s)' were used frequently in the subject position in the conclusion move. 'Finding(s)' occurred 18 times in linguistics and 9 times in applied linguistics. 'Result(s)' had an occurrence of 7 in linguistics and 5 in applied linguistics. Other nouns in the subject position of the conclusion constructions were 'paper', 'article', 'experiment', 'analysis', 'study', 'conclusion', 'discussion', and 'implications'. First person pronouns and *that*-complement clauses were typical features in the conclusion statements. Verbs used with *that*-complement clauses were more varied in linguistics than in applied linguistics.

As in the product move, the personal pronouns (I / We) in the method move were also reported to be used more frequently in linguistics (17 instances) than in applied linguistics (9 instances).

Saeeaw and Tangkiengsirisin (2014) analysed the constructions used in the purpose, method and product moves in environmental science and applied linguistics RAs. The purpose move was characterised by the pattern *this/the + study/article/paper etc + examine/investigate/report on etc*. 'Study' was the most preferred head noun in the subject position in both corpora, with a higher occurrence in applied linguistics (60 times) than in environmental science (37 times). Applied linguists also used 'article' and 'paper' more frequently than environmental scientists in the subject position. The most commonly used

verbs were ‘examine’ (26 times) and ‘investigate’ (22 times) in applied linguistics and ‘investigate’ (38 times) and ‘evaluate’ (9 times) in environmental science. The top verb ‘examine’ in applied linguistics was only used five times in the purpose move by environmental scientists. In environmental science, inanimate subjects such as ‘experiment’, ‘questionnaire’ and ‘survey’ were commonly used with passive verbs in the methods move. Applied linguists used both inanimate and animate subjects (e.g. *participants, learners*) with passive verbs. The common construction in the product move were *results/findings/analysis + show/indicate/find + that-complement*. ‘There’ and ‘it’ subjects were also found in product statements. In the product move, the head noun ‘results’ was the most frequently used word in the subject position in environmental science (52 times) and applied linguistics (44 times). Applied linguists used ‘findings’ frequently (21 times) in this pattern whereas there were only two occurrences of ‘findings’ in the environmental science corpus. The reporting verb ‘show’ was the most common verb in environmental science (32 times) as well as in applied linguistics (38 times). Other common verbs were ‘find’ and ‘indicate’, which occurred in similar amounts in the two corpora.

Pho (2008) identified the type of grammatical subject used in each move in the RAs corpus in applied linguistics and educational technology. In situating the research, other reference subjects (e.g. *Swales (1990)*, *previous studies*) were found to occur in 20 out of 23 cases. Writers preferred reference to writer’s own work-micro research outcome (e.g. *the findings*, *the results*) and objects of research and their attributes (e.g. *the participants*, *the variables*) in summarising the findings and discussing the research. Objects of research and their attributes were commonly used in describing the methodology. About 65% of the subjects in the presenting the research move were reference to writer’s own work - macro-research outcome (e.g. *this paper*, *this study*).

Pho also found that *that*-complement clauses were common in summarising the findings and discussing the research in the applied linguistics and educational technology abstracts. Self-reference words (e.g. *I*, *we* and *the researcher*) were commonly found in the discussing the research move.

If we now turn to verb tenses, aspects and voice in patterns, a few researchers presented results of related to these for common moves in abstracts.

Santos (1996) reported that the preferred tenses for situating the research were the present simple and present perfect. In Submove 1A (indicating main features) of Move 2 (presenting the research), two tenses were observed to occur: the present tense and the past tense. The writers used the present tense with 53 verbs using the pattern *this/the + study/paper/article + investigate/examine/report*. These present tense verbs were used with head nouns in the subject position which referred to either genre such as 'paper' and 'article', or to the type of inquiry such as 'study', 'investigation', 'examination', 'experiment', 'analysis' and 'survey'. The past tense was used with 19 verbs and the head nouns in the subject position used with these verbs was related to the type of inquiry in all instances.

The past tense was used in 35% of the Submove 2 (hypothesis raising) of Move 2. Statements of describing the methodology were in the past tense in 96% of the cases and 70% of these were in the passive. The summarising the results was characterised by the past simple, which was used in 78% of the verbs. 22% of the verbs were in the present simple. A clear preference was observed for active verbs, which constitute 77% of all the verbs of summarising the results. The passive constituted 23% of the verbs.

Tseng (2011) identified verb tenses used in each move in applied linguistics RAs. A great majority of the background (94%) and conclusion (86%) were in the present tense. About two thirds of the aim statements (68%) were also in the present tense. The writers preferred the past tense for the method (76%) and results (62%) moves. 56% of the background statements in the present tense were in the present perfect. Tseng also looked at the status of authors' nativeness in the preferences of verb tense and found that 79% of the native speakers (NS) of English who announced an aim in the abstract used the present tense while only 55% of the non-native speakers (NNS) of English employed the present tense in the aim statements. Results were presented using the past tense by 59% of the NS writers and 69%

of the NNS writers who included results in their abstracts. The present tense is used by 94% of the NS writers who provided a conclusion while only 78% of NNS writers did so.

Tankó (2017) found that the literature research article writers used the present tense in the topic, background, method, outcome and implications moves in abstracts. He also found that the present simple was preferred in purpose and conclusion moves. The background statements also included the present perfect with passive verbs. The present perfect was used more frequently than the present simple in the niche sentences.

Pho (2008) reported that applied linguists used the present simple with active verbs in 74% of the situating the research move in RAs whereas educational technologists used the present perfect with passive verbs in 63% of the situating the research. Both writers preferred the present simple as well as the past simple in presenting the research and the past tense in describing the methodology and summarising the findings. The passive verbs were common in describing the methodology. The present tense was preferred in discussing the research in the two corpora.

Suntara and Usaha (2013) identified the use of verb tenses for each move and found that the present tense was dominantly used in the purpose move in applied linguistics (51 cases) and linguistics (46 cases) RAs. There were also some instances of the past tense (8 cases in applied linguistics and 10 cases in linguistics). A majority of the writers used the present simple in the product move; the frequency was higher in linguistics (52 abstracts) than in applied linguistics (38 abstracts). The past simple in the product move was also common in applied linguistics (32 abstracts) while only 13 linguistics abstracts contained the past simple in the product move. There were some abstracts where the present and past simple were used together in the product move (20 abstracts in applied linguistics and 23 abstracts in linguistics).

The preferred tenses for the introduction were the present simple, present perfect and past tense in the two corpora. The most common tense in the two disciplines was the past tense

with passive voice in the method move. In the conclusion move, the writers commonly used the present simple.

Saeeaw and Tangkiengsirisin (2014) presented results for the preferred tenses in each move in environmental science and applied linguistics RAs. For the introduction, the present simple and present perfect were preferred in both corpora. The present perfect was found to occur more commonly in applied linguistics. Environmental scientists used the past tense both with the active or passive voice in the purpose move while applied linguists preferred the present tense with the active voice. The two groups of writers used the past tense in the methods and the product moves. Passive verbs were common in the method statements.

Turning now to research on other patterns in abstracts, previous research in abstracts has focussed on evaluate *that*-clauses, phraseological structures, lexical bundles and metadiscourse.

Hyland and Tse (2005a) compared the use of evaluative *that* patterns in RAs (240 abstracts) across six disciplines (applied linguistics, biology, business studies, computer science, electrical engineering and public administration). The evaluative *that* patterns were found to occur the least frequently in the electrical engineering abstracts (2.1 times per 1,000 words) while the frequencies were between 6.4 and 8.5 times per 1,000 words for the other disciplines. The abstracts in computer science (8.5 times per 1,000 words) and business studies (8.0 times per 1,000 words) contained the highest number of evaluative *that* constructions. The top five predicates of *that* were 'show', 'suggest', 'demonstrate', 'prove' and 'indicate' in the hard sciences, which constituted 61% of all predicates in the hard science abstracts. The soft field writers used commonly 'suggest', 'argue/argument', 'show', 'indicate' and 'find/found' as the *that* predicates, which made up 64% of all *that* predicates in the soft science abstracts.

López-Arroyo and Méndez-Cendón (2007) compared the phraseological structures (e.g. *Further study is needed*) of medical RAs in English (234 texts) and Spanish (192 texts) and

found that the phraseology of the English medical abstracts was fixed and formulaic while the Spanish abstracts included more variation and less patterning in phraseological structures.

Ahmadi et al. (2013) carried out a study on lexical bundles in 200 RAs in applied linguistics. They compared the use of four-word lexical bundles by native speakers (NS) of English and Iranian writers who were non-native speakers of English. The lexical bundles were found to be more varied in Iranian writers' abstracts (41 bundles) than in the NS writers of English (18 bundles). Only three bundles were shared with the two groups of writers: *the results of the*, *as a foreign language* and *of English as a*. In contrast to the NSs of English, the Iranian writers used bundles which were associated with rhetorical moves. Most of the NS bundles were nominalised while the Iranian writers preferred mostly the clause-level bundles.

Using a form-first approach, Omidian et al. (2018) identified the lexical bundles in a large corpus of RAs containing 5910 texts from six disciplines (biology, mechanical engineering, physics, applied linguistics, marketing, and sociology). The analysis of the bundles was followed by a classification of bundles by rhetorical move functions. They found 198 types (5759 tokens) of bundles in abstracts. The method move was more patterned in the hard disciplines than in the soft disciplines in terms of lexical bundles. The hard science abstracts (biology, mechanical engineering, physics) contained more bundles with a greater number of types (153 types and 572 tokens) in the methods move than the soft science abstracts (applied linguistics, marketing, and sociology) (105 types and 201 tokens). There was more bundle patterning in the introduction, purpose and conclusion moves of the soft science abstracts (type-token ratio: .46, .21 and .38 respectively) in comparison to the hard science abstracts (type-token ratio: .52, .28 and .61 respectively) while the bundles in the results move showed disciplinary similarities (type-token ratio: .21 in the hard disciplines and .19 in the soft disciplines).

Akbas (2012) compared the use of metadiscourse in three groups of master's dissertation abstracts (n=90) in the social sciences. These are a) texts in Turkish written by native

speakers of Turkish, b) texts in English written by native speakers of Turkish (nonnative writers of English) and c) texts in English written by native speakers of English. The total use of metadiscourse was found to be the lowest in the Turkish abstracts (26.7 times per 1,000 words). The English abstracts written by native speakers of English contained the highest amounts of metadiscourse use (51.4 times per 1,000 words) whereas the metadiscourse in the English texts written by native speakers of Turkish had an occurrence of 34.7 per 1,000 words. The interactional metadiscourse presented higher frequencies than the interactive metadiscourse in all three groups. The widest difference between the three groups of writers were observed in the interactional metadiscoure. The interactional metadiscourse had an occurrence of 32.2 per 1,000 words in the texts of NSs of English while the English texts by NNS (18.9 times per 1,000 words) and the Turkish texts (16.7 times per 1,000 words) were nearly half of the amount of the texts of NS of English.

Khedri et al. (2013) investigated the interactive metadiscourse markers in 60 RAs from applied linguistics and economics. Overall, the applied linguistics abstracts contained more interactive metadiscourse markers (53.61 times per 1,000 words) than the economics abstracts (43.64 times per 1,000 words). The most common type of metadiscourse markers was the transition markers (e.g. *equally*, *in the same way*, *therefore*, *however* and *in contrast*) in the applied linguistics (17.49 times per 1,000 words) and economics corpora (23.05 times per 1,000 words). This was followed by code glosses (e.g. *this is called*, *in other words*, *this can be defined as* and *for example*), endophoric markers (e.g. *See Figure 2* and *as noted above*), frame markers (e.g. *to summarize*, *I argue here*, *the paper proposes*, *first*, *next* and *let us return to*) and evidentials (e.g. *X states that* ... and *according to*). The frequency of these four categories of metadiscourse ranges between 12.28 times per 1,000 words and 2.74 times per 1,000 words. Applied linguists used more metadiscourse in each category compared to economists, but the largest differences between disciplines were observed in frame markers (9.30 times per 1,000 words in applied linguistics and 3.29 times per 1,000 words in economics) and endophoric markers (10.42 times per 1,000 words in applied linguistics and 5.76 times per 1,000 words in economics).

It is also useful here to mention a few studies which explored patterns in academic genres other than abstracts. In a study of two introductory *it* patterns, Groom (2005) found that there was a significant variation in the sequences in which the two introductory *it* patterns resided across the disciplines of history and literary criticism. Similarly, Charles' (2006) analysis of the phraseological patterns of reporting clauses with *that*-complementation in a corpus of MPhil and doctoral theses revealed that there were differences in these patterns across politics/international relations and materials science. A variation in forms and functions across three disciplines (social science, medicine, and technical / engineering) can also be seen in Oakey's (2002) study of the LP *it is / has been* _____ *that X* in a corpus of academic texts from the British National Corpus.

2.6 Variation of LPs across genres

Linguistic patterns have been investigated in various genres including research articles (Pérez-Llantada, 2014), research article introductions (Cortes, 2013; Lu et al., 2018), academic books and book chapters (Liu, 2012; Gray and Biber, 2013), MPhil and PhD theses (Charles, 2011), book reviews (Römer, 2010), academic textbooks (Vincent, 2013) and undergraduate essays (Ädel and Erman, 2012). Some researchers have addressed the variation of patterns across genres (Grabowski, 2015a; Kawase, 2015; Larsson, 2016; 2017b; Liu and Deng, 2017; Jiang and Ma, 2018; Wang, 2018). Patterns such as evaluative that (Hyland and Tse, 2005a; 2005b), lexical bundles (Ahmadi et al., 2013; Omidian et al., 2018), metadiscourse (Akbas, 2012; Khedri et al., 2013) and phraseological structures (López-Arroyo and Méndez-Cendón, 2007) have also been explored in abstracts.

However, as mentioned in the previous section, no previous study has investigated LPs distinctive to macro-level discourse functions in abstracts. Here again, we will review studies from genre research which, following a function-first approach such as in the present study, investigated the realisations of rhetorical moves. We will also review studies following a form-first approach which investigated other types of pattern in abstracts. Our focus in this chapter will be on variation of patterns across genres. It is hoped that the review will present a profile of genre-specific uses of patterns in previous work.

The genre studies that we reviewed in the previous section presented results only for RAs. There is no findings for the patterns in the PhD TAs that we can compare genre-specific uses of patterns. However, it would be useful to summarise the findings to see the general patterns and move-specific uses in RAs.

The construction *this paper/study/research + a reporting verb* has been found to occur frequently in RAs. Piqué-Noguera (2012) reported that this pattern was found in 54% of the business RAs and that it appeared in the opening of the abstract in 29% of the cases. Breeze (2009) also reported a common use of declarative openings (*we / this paper examines*) in law abstracts (55%). Breeze identified verbs that describe author's actions and found that verbs such as *find*, *show*, *argue* and *examine* were used with personal pronoun subjects and that verbs such as *examine*, *discuss*, *suggest, analyse,* argue, *consider*, *present* and *focus* were commonly used with impersonal subjects. Breeze also looked at personal pronouns in abstracts and found that 'we' and 'our' occurred in half of the abstracts and 'I' occurred in 10% of the abstracts.

Previous research has shown that a construction such as *the/this + study/paper/article + examine/investigate/report* is frequent in the purpose move (Santos, 1996; Martín, 2003; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014). The common nouns in the subject position in this purpose pattern were *study*, *paper*, *article*, *experiment* and *research*. The common verbs used in the pattern were *examine*, *investigate*, *report*, *explore*, *attempt to*, *describe*, *focus on*, *present* and *evaluate*.

The common pattern in the results move were reported to be *the results/findings/analyses + show/reveal/indicate* (Santos, 1996; Martín, 2003; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014). The head nouns such as *results*, *analyses*, *findings*, *paper* and *data* were found to occur frequently in the subject position in the constructions of the results move. Verbs such as *find*, *observe, show, reveal, indicate*, *demonstrate* and *use* were commonly found in this pattern. The use of passive verbs (Santos, 1996; Martín, 2003) and *that*-complement clauses (Pho, 2008; Suntara and Usaha, 2013; Saeeaw and

Tangkiengsirisin, 2014) were used frequently in the constructions of the results move. The use of *there* and *it* in the subject position were also reported in previous research (Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014).

In the method move, nouns such as *experiment*, *questionnaire* and *survey* in the subject position were reported to be used with passive verbs (Saeeaw and Tangkiengsirisin, 2014). Animate subjects (e.g. *participants, learners*) were also common in the method statements. The use of personal pronouns (I/we) were also common in the subject position (Suntara and Usaha, 2013). Piqué-Noguera (2012) found the verb 'use' was common (38%) in the method move constructions.

The pattern *finding(s)/result(s)* + *suggest/discuss + that-complement clause* were found to occur in the conclusion move (Suntara and Usaha, 2013; Piqué-Noguera, 2012). Common nouns in the subject position include *paper*, *article*, *experiment*, *analysis*, *study*, *conclusion*, *discussion* and *implications*. First person pronouns and self-reference words (e.g. *the researcher*) were commonly used in the subject position (Pho, 2008; Suntara and Usaha, 2013). Piqué-Noguera (2012) reported that *suggest* (58%) and *discuss* (55%) occurred highly frequently in the conclusion statements.

Pho (2008) reported that other reference subjects such as *Swales (1990)* and *previous studies* were the most common type of grammatical subject in the introduction. Piqué-Noguera (2012) found that *show*, *suggest* and *use* occurred slightly more than *examine*, *find*, *discuss* and *demonstrate* in the introduction move.

Turning to preferences of verb tenses per move, previous studies have shown that the introduction move in RAs is characterised by the present tense. In terms of verb aspect, the present simple and present perfect were preferred for the introduction move (Santos, 1996; Pho, 2008; Tseng, 2011; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014; Tankó, 2017). Pho (2008) found that the present simple with active verbs occurred in 74% of the situating the research move in applied linguistics RAs. The present perfect was found to

be more common in some studies. Tseng (2011) found that 94% of the verbs in the background move in applied linguistics RAs were in the present tense and 56% of these were in the present perfect. Pho (2008) reported that the present perfect with passive verbs were used in 63% of the situating the research move in educational technology abstracts.

The common tense for the purpose move in RAs has been reported to be the present in previous research (Santos, 1996; Pho, 2008; Tseng, 2011; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014; Tankó, 2017). Pho (2008) and Tankó (2017) found that the present simple was more common in the purpose move in applied linguistics, educational technology and literature RAs. Although the writers' first preference was for the present tense in the purpose statements, the use of past tense was also reported by Santos (1996), Pho (2008), Tseng (2011) and Suntara and Usaha (2013). In Saeeaw and Tangkiengsirisin's study (2014), however, the past tense was the most preferred tense in the purpose move in environmental science abstracts.

The past tense has been found to be the most common tense for the method move in previous studies (Santos, 1996; Pho, 2008; Tseng, 2011; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014). The past tense in the method move was accompanied by the passive voice (Santos, 1996; Pho, 2008; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014). The use of past tense in the method move in applied linguistics RAs was reported to occur in 96% of the cases by Santos (1996) and in 76% of the cases by Tseng (2011). In only one study, Tankó (2017) reported that present tense verbs were used commonly in the method move in the literature RAs.

The verbs in the results move have been observed to be mostly in the past tense in previous studies (Santos, 1996; Pho, 2008; Tseng, 2011; Saeeaw and Tangkiengsirisin, 2014). 78% of the verbs in the results move were in the past simple in Santos' study. Tseng reported 62% of the verbs in the results move were in the past tense. There are also results for the use of present tense in the results move (Santos, 1996; Tseng, 2011; Suntara and Usaha, 2013;

Tankó, 2017). The present tense was the most common tense in the results move of RAs in literature (Tankó, 2017), linguistics and applied linguistics (Suntara and Usaha, 2013).

Previous research has shown that writers preferred to use the present tense in the conclusion move (Pho, 2008; Tseng, 2011; Suntara and Usaha, 2013; Tankó, 2017). Tseng reported the occurrence of the present tense in 86% of the verbs in the conclusion move in applied linguistics RAs. If we look at the verb aspect, Suntara and Usaha stated that applied linguists used the present simple in the conclusion. Tankó also found that the present simple was used in the conclusion by the literature writers.

If we now turn to other patterns in abstracts and other academic genres, Hyland and Tse (2005b) examined the evaluative *that*-clauses in abstracts (n=465) of research articles, master dissertations, and doctoral theses from six disciplines (applied linguistics, biology, business studies, computer science, electrical engineering and public administration) and found that the article writers (6.9 times per 1,000 words) used the evaluative *that*-clauses more frequently than the student writers (4.1 times per 1,000 words) in abstracts.

Badrani and Ebrahimi (2017) identified the grammatical subject and verb tenses used in independent clauses in 50 doctoral TAs in applied linguistics. The most frequently occurring subject types were 'introducing part of study' (58%) (e.g. *the findings*) and 'research-related objects' (32%) (e.g. *a multiple-method approach*). The thesis writers preferred the past simple in the statements of aim, method and results and the present simple in the background and conclusion moves.

Gray and Biber (2013) tested two methodological approaches in identifying discontinuous frames (phrase frames). One is identifying p-frames using the results of lexical bundle analysis. The other is to directly identify the p-frames in a corpus. As a second goal of the study, they explored the distribution and linguistic features of lexical bundles and p-frames in academic prose and conversation. They examined the four-word lexical bundles and p-frames (variable slots of 1*34 and 12*4) in the academic writing subcorpus (academic books

and research articles, 5.3 million words) and the subcorpus of American English conversation (4.5 million words) from the Longman Spoken and Written Corpus. Gray and Biber's findings showed that the direct method of identifying p-frames led to capture a more comprehensive list of p-frames than the bundles-to-frames approach did. Conversation was found to contain more 4-p-frame types than academic prose at different frequency levels: 40 times per million words and in at least five texts, 5 times per million words and in at least five texts, one time per million words and in at least five texts. The 4-p-frames types were more varied than the 4-word lexical bundles at the same frequency levels in the academic prose and conversation corpora. When the frequency requirement was set as 40 times per million words, 80% of the p-frames in conversation was found to be fixed (type-token ratio: <.30) while half of the p-frames in academic prose was variable (type-token ratio: .30-.70).

Following a function-first approach, Durrant and Mathews-Aydınlı (2011) investigated the rhetorical moves and the forms associated with these moves in MA student essays (n=94) and research article introductions (n=94). The results for the indicating structure (IS) category of the rhetorical moves demonstrated that the article writers used more 'what' (93%) and 'where' (98%) constructions in the IS than the essay writers did (85% and 88% respectively). There were three 'what' constructions: text+verb (e.g. *This paper begins with …*), passive (e.g. … *will be discussed* in detail.) and pronoun+verb (e.g. *We conclude with* a discussion …). The 'where' constructions were 'text' (e.g. *The next section* will focus on …), 'adverbials' (e.g. *In section two* …) and 'verb' (e.g. … *will be followed* by an analysis of …).

Groom (2005) sought to explore pattern/meaning associations of two introductory it patterns (*it* v-link ADJ that- and *it* v-link ADJ to-inf) in four corpora (history research articles, history book reviews, literary criticism research articles, and literary criticism book reviews). His analysis of the data showed that there was a significant variation across research articles and book reviews. Oakey (2002), who studied LPs in a corpus of research articles and book extracts, also reported that the LP *it is / has been* _____ *that X* varied in both form and function across the two genres.

It seems necessary here to talk about what should be understood by the term 'genre'. Swales and Feak (2009: 1) define genre as the "name for a type of text or discourse designed to achieve a set of communicative purposes". Based on this definition, they see the research article as a genre and the various sections of it as part-genres. Therefore, they use the term part-genre for RAs. However, each section of the research article carries a different communicative purpose and therefore can be accepted as genres themselves. In the case of RAs, it seems reasonable to treat abstracts differently from the other sections of the research articles. Abstracts can stand together with as well as separate from the research articles themselves, in either case they function as informing the reader about the research done. It is also questionable whether it is a part of the research article because research articles do not have an abstract in some disciplines such as music, literature, or philosophy. In this study, I will treat abstracts as a separate 'genre' and look at whether there are generic differences between the RAs and PhD TAs in terms of LPs.

2.7 Abstracts: Models of analysis

There are four different models that are used to analyse the structure of research article abstracts by genre analysts in the last two decades. These are Santos's (1996) and Hyland's (2000) five-move models, the traditional IMRD (Introduction-Method-Results-Discussion) Model, and Swales' (1990) CARS (Create a Research Space) Model. These can be seen in Table 2.8 below.

Table 2.8 Overlaps among moves in four models of rhetorical structure of abstracts

Hyland's Model	Santos' 5-move Model	IMRD	The CARS Model
Introduction	Move 1 Situating the research	Introduction	Move 1 Establishing a territory Move 2 Establishing a niche
Purpose	Move 2 Presenting the research	Introduction	Move 3 Occupying the niche (Steps 1A/1B)
Method	Move 3 Describing the methodology	Method	
Product	Move 4 Summarising the results	Results / Discussion	Move 3 – Step 2 Announcing principal findings
Conclusion	Move 5 Discussing the research	Discussion	
			Move 3 – Step 3 Indicating RA structure

The five moves in Santos' model are situating the research, presenting the research, describing the methodology, summarising the results, discussing the research. Some of these moves (situating the research, presenting the research, and discussing the research) contain sub-moves (see Chapter 4 for details of the model). Hyland's model also involves five moves: introduction, purpose, method, product, and conclusion. The moves in the IMRD model are thought to mirror the sections of the research article. Swales' model, on the other hand, was originally developed for research article introductions. However, there are a number of studies which used the CARS Model to analyse rhetorical structure of RAs (e.g. Lorés, 2004; Samraj, 2005; Martin, 2003). The model includes three moves which are establishing a territory, establishing a niche, occupying the niche and each move includes a number of steps (see Chapter 4 for details).

There is a large degree of overlaps among moves in all four models although each model uses different names for moves. It is quite noticeable that there are one-to-one correspondence between the moves in Hyland's and Santos'. There are also strong overlaps between the moves in these two and IMRD models. In the case of the CARS Model, however, we see only a partial match with the other models. It is not surprising that the CARS Model does not fully correspond to the other models as it is designed to reflect the structure of introductions. Therefore, it is expected to match only the introductory moves in abstracts. However, there is still one step in the CARS Model which is related to the findings, that is, announcing principal findings. This step corresponds to the results/product move in other models. Also, 'indicating research article structure' is another step in move 3 in the CARS model which is not found in the other models.

A model was adapted from Santos' five-move model and Swales's CARS model to analyse LP functions in the research articles and PhD TAs. I will use this model, that is, the model of macro-level discourse functions (MALDIF)[1] to analyse the functions in both the research articles and PhD TAs. This analysis will help us to answer the first two research questions

1 See section 4.4 for details of the MALDIF model and section 4.5 for background of the model in Chapter 4.

below. It will also give us independent clauses coded according to functions[1]; thus, we will be able to look for LPs associated with these functions (research questions 3 and 4).

2.8 Research questions

The study aims to answer the following research questions.

1. Is there variation in macro-level discourse functions between applied linguistics and psychology abstracts in terms of frequency of occurrence, sequencing of use and cyclicity?
2. Is there variation in macro-level discourse functions between research article and thesis abstracts in terms of frequency of occurrence, sequencing of use and cyclicity?
3. Do LPs associated with particular discourse functions vary between applied linguistic and psychology abstracts?
4. Do LPs associated with particular discourse functions vary between research article and thesis abstracts?

In order to answer these questions, a corpus of abstracts was assembled and two levels of analysis were conducted: function analysis and LP analysis. The function analysis will show disciplinary and generic variation in macro-level discourse functions in abstracts. The LP analysis will help to find out if there is any disciplinary and generic variation in the use of LPs. The results of these two analyses are presented in Chapters 5 and 6.

2.9 Summary of Chapter

In this chapter, research on discourse functions in abstracts have been reviewed. These studies have shown that there are five preferred moves in abstracts: results, purpose, method, introduction and conclusion. The results and purpose moves have been found to occur more frequently than the other moves. The literature have also shown that the most frequently occurring sequences in abstracts are P-M-R-C, I-P-R-C, I-P-M-R-C and P-R-C.

1 See section 4.6 for explanations and examples of unit of analysis in Chapter 4.

Although studies reviewed in this chapter contain very limited information about cycling moves, it has been found that recycling occurs in the 'purpose-method' cycle as a repetition of a combination of moves and in methods and results as a single-move repetition. The embedded moves have been found to occur between purpose and method and between method and results.

This chapter has also reviewed research on LPs in abstracts. The terminology of linguistic patterns and the problems in identifying LPs were discussed. The term 'lexical phrase' was chosen for the type of pattern investigated in the present study because an LP is an established term in the literature which is in close relationship with a discourse function. We discussed the four problems with regard to the identification of LPs, which are related to types of words included in an LP, the issue of forming a meaningful unit, fixedness of form and continuity. Based on the discussion, we defined the sentence builder type of LP for the purpose of this study as:

> A sentence builder lexical phrase in abstracts forms the structure of an independent clause. Lexical phrases are word strings which consist of a combination of content and function words. These strings constitute a meaningful unit and are distinctive to a macro-level discourse function in abstracts. Obligatory elements are subject and verb as well as complement depending on the verb. A lexical phrase may include many optional points such as pre-modifier or post-modifier of a noun in the subject position, or adverbs before verbs. A lexical phrase allows insertion of additional words within a phrase and variation in both the obligatory and optional elements.

We also reviewed studies which looked at relationship between lexical phrases and discourse functions and variation of lexical phrases across disciplines and genres. Lastly, we overviewed the models used to analyse the rhetorical functions in abstracts.

CHAPTER THREE

THE CORPUS

3.1 Introduction

In this chapter, we cover issues about corpora and size, selection process in the corpus design, coding and formatting the corpus, and representativeness and balance. In section 3.2, the four corpora constructed for this study are introduced. The size of the corpora is presented and issues related to size are also discussed in this section. In section 3.3, we look at the criteria and decisions concerning the selection of journals, universities, and abstracts. Section 3.4 describes two name codings and a functional coding on the corpus data as well as the different file formats used to store the texts. In section 3.5, we discuss the issues of representativeness and balance.

3.2 Corpora and size

3.2.1 The Research Article and Thesis Abstracts Corpora

In this section, we will shortly describe the corpora used in this study. The details of the selection process will be given in section 3.3. We used four corpora to research MALDIFs and LPs distinctive to these functions in abstracts. As this is a comparative study of disciplines and genres, we used two disciplines and two genres to construct the corpora. Our corpora contain research article and doctoral thesis abstracts from applied linguistics and psychology. The research article abstracts corpora are named as the ALRA (Applied Linguistics Research article Abstracts) and PRA (Psychology Research article Abstracts). Each of the ALRA and PRA corpora consists of 160 abstracts selected from the 2005-2010 issues of eight leading journals in applied linguistics and psychology (see Table 3.1 for details of the journals used in the ALRA and PRA corpora). The abstracts for these two corpora were downloaded from the online databases of the University of Birmingham library.

The two thesis abstracts corpora are the ALTA (Applied Linguistics Thesis Abstracts) and PTA (Psychology Thesis Abstracts). Each of the ALTA and PTA corpora contains 80 abstracts coming from PhD theses completed between 2005 and 2010 in British and American

universities (see Table 3.2 for information about the universities where the TAs came from). The TAs were obtained from two databases. The British TAs were obtained from the E-Theses repository of the University of Birmingham, which was partnered with Ethos (Electronic Thesis Online Service) and thus enabled access to theses produced in British universities. The American TAs were obtained from Proquest.

Table 3.1 Journals which the ALRA and PRA corpora come from

Corpora	Journal
ALRA*	Applied Linguistics English for Specific Purposes Language Learning Studies in Second Language Acquisition
PRA**	Developmental Psychology Journal of Experimental Psychology-General Journal of Personality and Social Psychology Psychological Science

* Applied Linguistics Research Article Abstracts
** Psychology Research Article Abstracts

Table 3.2 Universities where the ALTA and PTA corpora come from

Corpora	UK Universities	US Universities
ALTA*	University of Birmingham University of Essex University of Nottingham University of Reading	Northern Arizona University University of Arizona University of Hawaii Pennsylvania State University
PTA**	University of Birmingham University of Cambridge University of Essex University of Exeter	Stanford University University of California-Berkeley University of Illinois at Urbana-Champaign University of Michigan

* Applied Linguistics Thesis Abstracts
** Psychology Thesis Abstracts

3.2.2 Size of the Corpora

The study is based on four corpora of 480 research article and PhD TAs in the fields of applied linguistics and psychology, amounting to 102,462 words in total.[1] Details of the abstracts used in the study are presented in Table 3.3 below.

1 See Appendices 3.1 to 3.4 for the sources of abstracts used in the corpora.

Table 3.3 Details of the abstracts in the corpus

Discipline	Research article abstracts			Thesis abstracts		
	Number of abstracts	Number of words	Average Length	Number of abstracts	Number of words	Average Length
Applied Linguistics	160	28,241	176.51	80	24,568	307.10
Psychology	160	26,402	165.01	80	23,251	290.64

In corpus studies, it is important to use a corpus which is in appropriate size for the purposes of the study. At this point, we should address the question of whether this corpus size is sufficient for such a study which uses a specialised corpus. We can talk about size in two ways: size in terms of number of words and size in terms of number of texts. We will be looking at each one in turn.

First, for corpus size in terms of number of words, Bowker and Pearson (2002) suggest that a corpus which is anywhere between a few thousand and a few hundred thousand words can give useful results for a Language for Special Purposes (LSP) study. The corpus sizes in studies on academic discourse which involve analysis of form and function support this suggestion. Hyland (2000) used a corpus of 127,000 words to examine move structures and persuasiveness in 800 RAs from eight disciplines in hard and soft knowledge domains. Gledhill (2000) investigated collocational contexts and discourse functions of frequently occurring grammatical words in his research article introductions corpus. The corpus consisted of 150 research article introductions from thirteen journals in the field of Pharmaceutical Sciences. The number of words used in the corpus was nearly 60,000 words. Orasan (2001) investigated patterns in research articles and conference papers in terms of lexical, grammatical, and discourse levels. The corpus contained 917 abstracts from six disciplines constituting 146,489 words. Hyland and Tse (2005b) investigated the frequencies, forms, and functions of evaluative that in abstracts of research articles and postgraduate dissertations written by non-native writers. Their corpus consisted of 465 abstracts from research articles, master dissertations, and PhD thesis that came from six disciplines. The corpus included a total number of 105,000 words.

Second, it should be noted that the number of words per text and the number of disciplines used in the corpus might affect the number of texts used in the corpus. It is observable from the above-mentioned studies that the number of texts used in the corpus ranges between 150 and 917. While Gledhill's corpus is from a single discipline, other three use texts from multiple disciplines. Their corpora contain 75-150 texts and roughly 15,000-60,000 words per discipline on average. From all these figures, we can conclude that a corpus of 480 texts from two disciplines totalling 102,462 words is within the normal range for our specialised corpus of scientific abstracts.

Corpus research manuals and the previous research practices give an idea about the ideal size for a specialised corpus. The fact that we use a corpus to research language for special purposes determines the corpus size. Apart from this, the type of the analysis is also a determining factor in the size of the corpus. When there is a huge amount of manual analyses that the researcher has to do, then the corpus size needs to be considered carefully. All of the four studies above contain manual analyses. This was probably one of the factors in the process of decision making about corpus size. We will carry out two analyses in the corpus which are a functional analysis of macro-level discourse functions (MALDIF) in abstracts and LP analysis. The MALDIF analysis is a fully manual analysis which is based on the functional coding of each independent clause. The LP analysis also requires a highly labor-intensive work although a part of the analysis is automated. The load of non-automated analyses was also taken into consideration in this study and the corpus size were kept within hundred-thousands, but not within millions level.

3.3 Selection Process in the Corpus Design

3.3.1 Selection of Journals

Three criteria were used in collecting abstracts for the research article corpora. These are related to prestige and international style of journals, and journals publishing empirical research. First, abstracts that came from journals with a high esteem in applied linguistics and psychology were selected. Two different options were available to determine the journals which had a high esteem in both disciplines. One was referring to expert opinion,

more specifically asking people in the disciplinary area to rate the leading journals in the discipline. The other option was to use measures of impacts of journals. We preferred the latter option for two reasons. First, impact measures are more objective than the expert opinion as they are based on numerical data. Second, it is easier to obtain impact measures than expert opinion. As I am not familiar with psychology journals, I tried to obtain expert opinion about the leading journals in psychology. Eleven experts in psychology were sent lists of psychology journals obtained from the Journal Citation Reports (2009) by Thomson Reuters. The lists contained journals from four sub-disciplines of psychology, which are clinical, experimental, developmental and social. The experts were asked to select the journals which they thought to be the leading ones on spreadsheets. The number of responses were no more than two. One expert gave only the names of the leading journals in her field of expertise, which were very specific. She also indicated that the citation rates in her field were not very high. The other expert indicated the top journals in clinical and experimental psychology, but not in developmental and social psychology as they were not her research area. The unsatisfactory results with the expert opinion directed us to consider impact measures, which seemed as a better option.

There are two different impact indicators for journals: journal impact factor and 5-years journal impact factor. They basically give citation frequencies of journals for a time period which is used as an indication of the degree of esteem of a given journal in a subject area (see Garfield 2005). Journal impact factor is a standardised measurement that gives the ratio between the citations of the current year to articles published in the previous two years and the number of articles published in those two previous years (Hubbard and McVeigh 2011: 133). 5-year journal impact factor does the same thing for a five-year period while journal impact factor gives 2-year impact factor for a journal (Thomson Reuters[1]). This study used 5-year journal impact factor to determine esteem of journals which the abstracts were selected from because it is considered a more reliable way of demonstrating citation frequencies of a particular journal than journal impact factor as the 5-year journal impact factor gives a measurement for a longer period of time. This is important in the social

1 See http://ipscience-help.thomsonreuters.com/incitesLive/glossaryAZgroup/g4/7768-TRS.html (accessed 4 June 2017)

sciences because the process of conducting a research is longer in the social sciences than the hard sciences, and therefore it may take longer for a study to be cited by researchers studying on the same topic.

The journals which the RAs came from were selected from among the journals with a high 5-year journal impact factor according to 2009 Journal Citation Reports (JCR) produced by Thomson Reuters. The seven of the journals in both disciplines are among the top 25 journals in the list. Only one journal in applied linguistics (i.e. English for Specific Purposes) was at a lower rank in the list (i.e. 36th). The journals in applied linguistics were given in the subject category of linguistics in JCR. Therefore, a limited number of journals were available to choose from the top 25 journals in the list and the fourth one that met the criteria came from journals lower in the list. (See Table 3.4 below for impact factor and 5-years impact factor of journals in the data.)

The JCR search options allow to search for journals in a disciplinary area as well as in sub-disciplines. In some cases, journals of related disciplines are listed in a single entry. We found applied linguistics journals in the linguistics entry and selected those which published applied linguistics studies, but there were different sub-disciplinary lists for psychology. We decided to use four of these sub-disciplinary lists as we needed four journals from each of the psychology and applied linguistics disciplines. Although four journals from a single discipline would be more representative of the sub-discipline, it might end up journals with a narrow subject area. This would be less representative of psychology in general. It is also questionable how representative a corpus using one journal from each of the four sub-disciplines of psychology is when we consider the number of sub-disciplines and journals in each one. We had to be conservative about the corpus size for practical purposes, and therefore, we set a limit to the number of journals as well as the number of abstracts from each journal.

Preliminary data for the psychology theses were found to cover four areas of psychology: clinical, developmental, experimental and social psychology. Therefore, the RAs were also

aimed to be chosen from four recognised journals in these four areas of psychology. However, the research article corpus for psychology were decided to include only three of these areas (i.e. developmental, experimental and social psychology) as a search for journals of clinical psychology did not turn out any results that met the criteria for compilation of corpus data. Initially, one journal for each of these three areas was planned to be selected for the corpus. It was still needed to use one more journal for the psychology RA corpus to maintain consistency in size and number of sources between the corpora as all the abstracts in other three corpora came from four journals or universities. Selecting one more journal from those three areas of psychology would reduce the representativeness of each subject area. As a solution to this problem, a journal (i.e. Psychological Science) from another area of psychology was selected. This is a journal from multidisciplinary psychology which covers topics in various areas of psychology. Only the abstracts of studies in developmental, experimental, and social psychology were included into the data.

Table 3.4 Impact factor and 5-years impact factor of journals

Journal	Impact Factor	5-year Impact Factor
Applied Linguistics	1.469	1.991
English for Specific Purposes	0.795	1.102
Language Learning	0.984	1.738
Studies in Second Language Acquisition	1.323	2.881
Developmental Psychology	3.555	4.953
Journal of Experimental Psychology-General	4.701	7.960
Journal of Personality and Social Psychology	4.732	7.480
Psychological Science	5.090	6.648

As a second criterion, abstracts were selected from journals which had an international style. Two options were available to determine that the journals to be used in the study had predominantly an international style: asking people in the subject area or looking at the membership of the editorial board of journals. The latter one was preferred to determine international style. This is considered to indicate more clearly that the journals have an international style as the members of the editorial board are from various universities around the world and each member affects the style of the journal in his own way, which will lead to the formation of an international style.

The third criterion is related to the selection of journals from the lists of 5-year journal impact factor. In this selection, review journals were rejected as the data of this study was designed to include abstracts of only data-based studies.

3.3.2 Selection of Universities

Four criteria were used in the selection of universities where the abstracts for the PhD thesis corpora would be collected. The following is the list of criteria used in this selection:

-universities where the PhD theses have an international style
-major UK and US universities
-universities which have applied linguistics (or related departments) and psychology departments
-universities where applied linguistics and psychology TAs are available online in the Proquest database and the ETheses repository

First, the criterion of internationality was also used in the thesis corpora. Theses can be considered international when they are produced either in universities where English is the medium of instruction or in countries where English is the first language. The latter one is adopted as a measure of internationality in this study as it is considered that there are a larger amount of theses produced in English-speaking countries than English-medium universities. Although TAs were intended to be international, it was limited to British and American universities only as it was not very possible to access abstracts by universities in countries other than the UK and US and those found were not very recent. Nevertheless, British and American theses can still be considered international in one respect. Both British and American universities offer doctoral programmes that are open to international students, which means that PhD thesis authors come from different national backgrounds although the supervisors are either British or American nearly in all cases.

As a second criterion, PhD theses that were completed in major universities in the UK and US were selected. As I was not familiar with the major universities with a psychology

department in the US, I used the world university rankings for 2010 by Times Higher Education. All four US universities given in Table 3.2 for psychology were in the top 100 in the psychology subject list.

Third, universities were selected, obviously, from among those which have applied linguistics and psychology departments. We might expect that the name of the departments should contain these disciplinary terms. However, department names did not include the exact wording for applied linguistics. For example, it was 'Department of English' at the University of Birmingham[1]. The department involved both applied linguistics and literature units together at the time of data collection. In such cases, our decision was to accept departments/universities where applied linguistics theses were written.

The fourth criterion was the online availability of the TAs in the Proquest database and the ETheses repository of the University of Birmingham where the abstracts were downloaded. Therefore, we selected universities where we could find applied linguistics and psychology TAs in the Proquest database and the ETheses repository.

3.3.3 Selection of Abstracts

In this section, we will look at the decisions we took about the selection of research article and thesis abstracts. A short list of the issues related to the decisions is given below. The first of these issues concerned only the selection of RAs whereas the other four were taken into consideration in the selection of RAs and TAs.

-multiple authors in RAs
-abstracts from recent journal issues and recently submitted theses
-abstracts from empirical research
-qualitative or quantitative research
-native-speaker status of authors

1 The department was divided later and the two departments were named as the 'Department of English Language and Applied Linguistics' and the 'Department of English Literature'.

First, a factor which affected the decision in selecting abstracts was whether RAs by multiple authors would be included into the data. We decided to include multiple-author abstracts as they were considered to have a unity in style and discourse organisation as much as single-author abstracts. This unity, in a sense, is approved by the reviewers of these journals. They would have caught any diversity existent in a paper with multiple authors, and such a study would not have been published in that way.

Second, RAs were selected from the recent issues of the journals considering that they would better show the current conventions of academic discourse. It is important for the purpose of this study to explore the conventional uses of MALDIF structures and LPs by today's discourse community. Therefore, older issues were avoided as much as possible. The same decision was also applied in the selection of TAs. Abstracts were chosen from among theses which were submitted recently.

As a third decision, this study concerns only the abstracts of empirical (i.e. data-based) research as LPs as well as discourse functions might differ between data-based and theoretical research papers. Fourth, no distinction was made between qualitative and quantitative research in selecting abstracts not to narrow down the scope of the study. Finally, a decision was also made on the language of authors. Abstracts of research articles and theses by native and non-native speakers of English were included into the corpus. Non-native authors as well as native authors were considered to follow the conventions of their disciplinary communities as the papers of research article authors were published with the approval of the reviewers and the theses of doctoral researchers were approved by the thesis committees.

3.4 Coding and Formatting the Corpus

Starting from downloading abstracts through the analysis stages, the corpus texts were saved in different formats. A few codings were also made: a simple name coding of abstracts and sentences, and a functional coding at the clause level.

First, at the stage of compilation of the corpus, abstracts were downloaded from the databases and saved as pdfs. We, then, transferred them to word documents (rtf) and gave a code to each abstract. The code consisted of a number of letters and digits. Here are a few examples: AAESP001, APDP025, TA007, TP040. In this coding, the first letter stands for research article (A) or thesis (T), the second letter for applied linguistics (A) or psychology (P), the letters after the second letter for the journal name, and the digits at the end for the abstract number (see Appendices 3.1 to 3.4 for details).

Saving the texts in rtf files provided a number of functionalities. The spell checker function of the word processor enabled to detect spelling mistakes. These spelling mistakes were easily corrected and issues caused in formatting during the copy/paste stage were solved in the word documents. We needed to know the total number of words per corpus and in all corpora as well as the number of words per abstract. The word document also gave the total number of words in an abstract. Thus, these were entered on a spreadsheet table and all the totals were calculated easily.

Second, a coding was made at the sentence level. This was done in the initial stage of the first analysis. As the MALDIF analysis was done on spreadsheets, the corpus text was copied and pasted on spreadsheets. Each sentence was pasted on a separate cell and given a code. The code contained the article code and a last digit for the sentence number. For example, AAESP005-1 stands for the first sentence in the fifth research article from the journal of English for Specific Purposes in applied linguistics.

The sentence coding was followed by the functional analysis at the clause leve. In the MALDIF analysis, independent clauses were coded according to their macro-level discourse functions. The functions of the clauses were typed into the cell next to the sentence cell (see Table 4.4 in Chapter 4 for an example).

Third, the corpus data was saved into text files after the MALDIF analysis. Independent clauses from an abstract with the same function were saved into the same text file. The text

file format was preferred at this stage because we needed to use a corpus analysis tool (AntConc) for the second analysis, i.e. LP analysis, and the software can only read text files.

3.5 Representativeness and Balance

The issues of representativeness and balance are a big concern in corpus studies. Although it is hard to say that the corpora used in this study are fully representative of the RA and TA genres of applied linguistics and psychology, we made some effort to increase the level of representativeness of the corpora. We also tried to keep the four corpora balanced.

The ALRA corpus contains 160 RAs from four journals of applied linguistics. The 160 PRA abstracts are also from four journals in psychology. Also, the two corpora have similar number of words (see Table 3.3). Despite these equal numbers, we can say that the ALRA corpus is more representative of the RA genre in applied linguistics than that the PRA corpus is representative of the RA genre in psychology. The abstracts in the ALRA corpus were chosen from a list of journals in the linguistics entry in the JCR. However, the JCR produced numerous lists for psychology sub-disciplines. We only selected one journal from four different sub-disciplines of psychology.

The level of representativeness in the theses abstracts corpora were more balanced between the ALTA and PTA corpora. The abstracts in the ALTA corpus were chosen from four British and four American universities. The same thing was also done for the PRA corpus. Each corpus contains 80 abstracts in total and the total number of words are quite similar (see Table 3.3).

When we look at the balance between the RAs and TAs, we see that the thesis corpora are half of the research article corpora in number of texts; however, the number of words are quite close to each other, only the thesis corpora contain a few thousands less words than the research article corpora. Here, we tried to keep the number of words in balance rather than the number of texts. Two factors played a role in this decision. First, the total number of articles published and thesis submitted per year was one of the factors in this decision.

While a journal publishes sixteen articles on average per year, it is hard to find sixteen theses submitted in the same year in a single department. Second, the online availability of theses, also, affected the number of the TAs. It was easy to access the RAs from journal websites. The new issues are immediately made available online. However, the accessibility of the TAs was only possible when the abstracts were made available in Proquest and Ethos, which was observed that it took some time.

Overall, we can say that the corpora are balanced in terms of the number of journals/universities, texts, and words used, but it is hard to talk about representatives of the genres of RA and TA in applied linguistics and psychology. The texts in the corpora come from 2005-2010 years, which makes only a six-year period. We do not know the exact number of research articles published or theses submitted during this period. As Hunston (2002: 28) argues, it is difficult to predict the extent of representativeness of a corpus when we do not know what the 'whole' is.

It is true that we put a limit to corpus size and limited the number of journals/universities and texts as well as the number of words. This may look lowering the standards in terms of the representativeness; yet, it was an obligatory sacrifice for practical purposes. The size of the corpora had to be kept in manageable limits as there was a heavy load of the manual analysis.

3.6 Summary of Chapter

In this chapter, the corpora used in this study were introduced and the decisions shaping the corpus construction process were described. The corpus size, and coding and formatting procedures were presented. Finally, issues related to representativeness and balance were discussed.

The ALRA and PRA corpora were compiled from the 2005-2010 issues of eight prestigious journals in applied linguistics and psychology. Each corpus contained 160 texts and nearly equal number of words.

The ALTA and PTA corpora were collected from doctoral theses in applied linguistics and psychology completed between the 2005-2010 in major British and American universities. The TA corpora were half in size of the RA corpora in terms of number of text, but the number of words were nearly equal.

CHAPTER FOUR

THE ANALYTICAL FRAMEWORK

4.1 Introduction

This chapter is about the analysis of the MALDIFs (Macro Level Discourse Function) in abstracts. First, I describe the aim of the analysis, and then present the preliminary analysis and results of the intercoder reliability test, both of which helped to detect the problems in the model of analysis. In these sections, multiple revisions made in the model will be reported. In section 4.4, the final revised version of the model (the MALDIF model) is described. This is followed by sections where the background of this model is given and the unit of analysis is explained.

4.2 Aim of the analysis

The analysis of MALDIFs has two aims. First, it aims to identify the functions which are evident in research article and thesis abstracts in applied linguistics and psychology. This identification of functions will enable us to explore LPs for each function in the LP analysis. In a sense, we can see the analysis of MALDIFs as a prerequisite to being able to conduct LP analysis. In the LP analysis, we will be looking at LPs which are distinctive of MALDIFs. To do this, we first need to find out the MALDIFs in abstracts. As a second aim, the analysis will help us to answer research questions 1 and 2. We will, specifically, explore disciplinary and generic variation in MALDIFs in abstracts in terms of frequency of occurrence, sequencing of use and cyclicity.

4.3 Preliminary analysis

A small sample of the corpora was analysed using the MALDIF model for abstracts[1]. This preliminary analysis was intended to help us to see the problems, if any, and fix them before performing them on all four corpora.

1 See section 4.4 for the final version of the MALDIF model. The background of the model can be found in section 4.5.

The MALDIF analysis was carried out on spreadsheets (see Appendix 4.1). There were three columns in a spreadsheet: one for sentence code, one for the sentence, and one for the function. The function of each clause was typed into the cell next to the sentence cell. When there were more than one clause in the sentence cell, the function of each clause was typed into the function cell and separated with a stroke (see example 4.46). Also, each alternating clause in the sentence cell was indicated in bold type.

After the preliminary analysis was completed and the model of analysis was refined, the full data (480 abstracts) was analysed using the final revised version of the MALDIF model. A second analysis was conducted again on the whole data for the purpose of checking for, and correcting errors that occurred in the first analysis.

4.3.1 Sample

The sample for the preliminary analysis consisted of 48 abstracts (10% of the corpora) in total, of which 32 were from research articles and 16 from theses. Half of the texts in both research article and thesis sample were from applied linguistics and the other half were from psychology. The details of the sample are shown in Table 4.1.

Before going into details of the selection of texts for the sample, we will first look at the sample size issue in studies testing intercoder reliability. Lombard et al. (2002) recommends a minimum of 10% of the full data to be used as the sample for intercoder reliability tests in studies using content analysis. A sample size that makes up 10% of the whole corpus seems to be the minimum requirement in studies exploring functions or rhetorical moves in abstracts and sections of the research article. It is observed, however, that studies in this area use different sizes for the pilot tests.

Hyland (2000) used 10% of his corpus of 800 abstracts to carry out a pilot analysis of rhetorical moves. Pho's (2008) sample for her study of rhetorical moves in abstracts consisted of 20% of a total of 30 abstracts. Suntara and Usaha (2013) tested intercoder reliability of move analysis in 25% of the corpus comprising 200 research article abstracts.

The samples sizes were higher in Salager-Meyer's (1992) and Fazilatfar and Naseri's (2014) studies. In Salager-Meyer's (1992) study, 56% of the 84 abstracts were put into a pilot test of intercoder reliability. Fazilatfar and Naseri (2014) conducted a pilot move analysis in 50% of 30 research articles in applied linguistics. Ren and Li (2011), however, used all of the 50 abstracts in the reliability test of the move analysis.

Although the range of percentages in the above studies is so wide, it does not mean that samples with a size of 10% contain a very small number of texts and those with 100% contain a huge number of texts. Hyland's sample consists of 80 texts that make up 10% of the whole set, while Ren and Li's sample is made up of all of the 50 texts in the whole corpus. The number of texts in the studies mentioned above ranges between 6 and 80. In the present study, the testing of the MALDIF model was conducted on 10% of the full corpus data (480 abstracts). Although 10% might seem the minimum amount, a sample size with 48 texts falls within the range of sample sizes in terms of number of texts that were suggested by the practices in the literature.

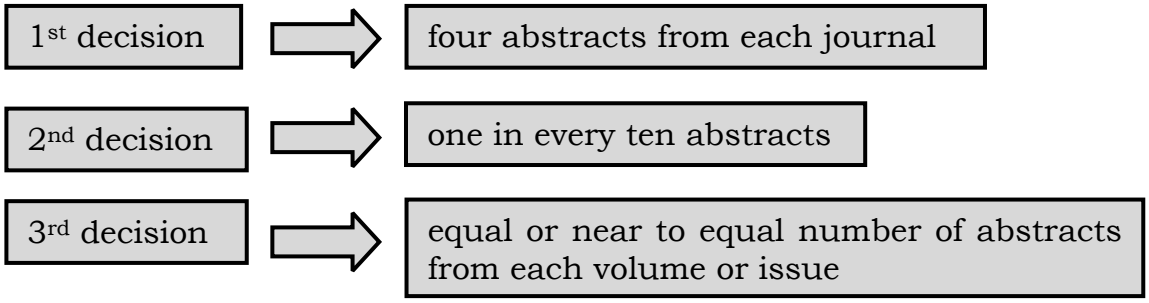
Table 4.1 Sample for the preliminary analysis

Corpus	No of texts for the sample	Text code			
ALRA	16	AAAL009	AAESP002	AALL003	AASSLA001
		AAAL019	AAESP012	AALL013	AASSLA011
		AAAL029	AAESP022	AALL030	AASSLA021
		AAAL039	AAESP032	AALL038	AASSLA031
PRA	16	APDP001	APEPG007	APPSP001	APPS006
		APDP011	APEPG017	APPSP011	APPS016
		APDP021	APEPG027	APPSP021	APPS026
		APDP031	APEPG037	APPSP031	APPS036
ALTA	8	TA004	TA023	TA044	TA064
		TA013	TA034	TA051	TA079
PRA	8	TP008	TP028	TP046	TP066
		TP011	TP031	TP059	TP071
Total	48				

The texts were selected semi-systematically. Random selection was avoided because there was a risk that the sample might include too many abstracts from the same journal or university, or from the same discipline. Even if care was taken to take an equal number of texts from each corpus, there was still a risk of not taking an equal number of texts from each journal, volume or issue, and university or year. This would definitely have been a problem in terms of the representativeness of the sample. A semi-systematic selection was preferred to ensure that the sample should represent the whole better.

From the research article abstracts corpora (ALRA and PRA), four abstracts were taken from each of the eight journals (four of which were from applied linguistics and four from psychology). There were 40 abstracts in the ALRA and PRA corpora from each journal and I aimed to select one in every ten abstracts. In this selection, an attempt was also made to take an equal (or near to equal) number of abstracts from each volume or issue. These decisions taken for selection of abstracts from the research article corpora are shown in diagrammatic form in Figure 4.1 below.

Figure 4.1 Decision diagram of the selection of texts from the research article corpora



In the thesis abstracts corpora, on the other hand, one abstract was selected from each set of abstracts (ten from each university) from sixteen universities (half of which were from applied linguistics and the other half were from psychology). The submission year of the theses were between 2006-2010 in the thesis abstracts corpora. The selection was made to include abstracts from each year. More abstracts were taken from the years with more thesis submissions.

4.3.2 Preliminary function analysis

The sample was analysed using the earliest version of MALDIF model (see Table 4.2).[1] Analysis with this model presented some problems. These problems as well as the revisions I made to the model are explained below. Table 4.2 shows the earliest version of the MALDIF model which contained nine categories.

Table 4.2 The first version of the MALDIF Model

No	Function
1	Claiming centrality
2	Making topic generalisations
3	Indicating a gap
4	Announcing the research
5	Describing the methodology
6	Presenting the significant results
7	Discussing the results
8	Evaluating the study
9	Indicating research article structure

4.3.2.1 Making topic generalisations

This category was problematic for two reasons. First, it was not clear what this category exactly involved. In this very first version of the model, topic generalisations was described as "a neutral kind of general statement" (Swales, 1990: 146) which caused confusion in the analysis due to the vagueness it involved. Therefore, it was necessary to replace this definition with a more specific one. A closer examination of the instances which were classified as making topic generalisations revealed that the authors made topic generalisations in four ways: by stating general research findings, by providing background information, by making comments, and by presenting a problem. Taking account of these findings of the preliminary analysis, the category was redefined as:

1 The final version of the MALDIF model is described in section 4.4. The background of the model can be found in section 4.5.

These are statements which introduce the research topic in abstracts. They include claiming importance of the topic, providing background information related to the topic and presenting a problem as well as author's comments and general research findings.

Apart from the above mentioned ways of introducing the topic, the definition includes another way of realising this function, which is claiming importance of the topic. The reasons for adding it to this category are presented in the claiming centrality section below.

The second problem in making topic generalisations was about the name of the category. The name was also vague as to its content. It was replaced with 'Introducing the topic' to make it clearer.

4.3.2.2 Claiming centrality

In the preliminary analysis, only two cases of claiming centrality were found in the sample, which was a problem in terms of finding enough patterns. One way of overcoming this problem was to keep it as a separate category and discard it from the main analysis should we not be able to find enough occurrences in the whole corpora. Another way was to merge it with another function. The second way was preferred and 'claiming centrality' was merged with 'introducing the topic'. Authors use centrality claims to highlight the importance of the topic and they generally do this at the introduction of the topic stage. Therefore, what claiming centrality does is not so different from introducing the topic. It is necessary to explain the merging method here. 'Introducing the topic' was kept as the category name and 'claiming the importance of the topic' was added to the description. The word 'importance' was preferred to 'centrality' to establish a wider coverage of reference. The word 'centrality' implies that the research topic is a central one in the field and that it has been studied extensively. However, it is very likely that a topic may not be a central one in a research area but still an important one. Here 'importance' is used in the sense that the research topic is an important one in the research area which is worth studying and the number of research done on the topic is a necessary but not the only factor in determining the importance of a topic.

4.3.2.3 Presenting the significant results and Discussing the results

The model of MALDIFs for abstracts included two categories which referred to results. In one of these, authors were expected to present the significant results of the study. In 'discussing the results', authors evaluate these results and explain their meaning to the audience. The preliminary analysis showed that none of the abstracts contained 'results' as such. Results are generally expressed with numbers and it is not common to come across numbers relating to research results in abstracts. The preliminary analysis showed that the abstracts contained the 'discussing the results' function, but not the 'presenting the significant results'. Also, what was called 'results' in the 'discussing the results' category in the model was found to be 'findings' in the analysed sample (see example 4.1 in section 4.3.3.2 for this). This created two problems: no occurrence of results in the data but existence of a category where results were presented in the model and unclarity of reference of 'discussing the results' to 'findings'. As a solution, 'presenting the main findings' was used instead of 'discussing the results'. The definition was slightly changed in a way that would also cover results. 'Results' were included into the definition of the category just in case the rest of the data might contain some.

The category description was revised as follows:

> The main findings tell us what the results mean. The authors do it by interpreting results, comparing results with the literature, accounting for results and judging results. Authors also state the most important results of the research numerically including statistics.[1]

4.3.2.4 Evaluating the study

The word 'evaluating' sounded repetitive as it was also used to describe the category. 'Evaluating' was replaced with 'appraising' in the category name to eliminate the repetitiveness.

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1 This definition is based on rhetorical moves in results, discussion and conclusion sections of research articles in Ruiying and Allison's (2003) study. See also sections 4.3.3.2 and 4.4.5 for a revised description of the function.

4.3.2.5 Indicating research article structure

The first problem about this category was the category name. It was noticed that it left the word 'thesis' out. A part of the corpus data included thesis abstracts and the model needed to be applicable to both research article and thesis abstracts, so the category was renamed as 'indicating research article/thesis structure'.

The second problem arose with the definition of the category. The preliminary analysis revealed that only two abstracts from the PTA corpus contained sentences that indicated the structure of the thesis. In all of the instances of this function in these two abstracts, there was a direct reference to related chapters and the function co-occurred with another function. On the other hand, the other three corpora contained no examples of reference to structure. In the research article abstracts and applied linguistics thesis abstracts, the sentences which were categorised as 'indicating research article/thesis structure' were observed not to demonstrate the organisation of research articles and theses. In these sentences, the authors announce to the reader that what they prefer not to present in the abstract such as discussing the results or implications of the study are presented extensively somewhere in the research article or thesis. Therefore, they serve as implicit references to parts of text (see examples 4.33, 4.34, 4.35, and 4.36 in this chapter). This was also found in psychology thesis abstracts, but with an additional purpose of indicating the structure of the thesis.

These results of the preliminary analysis of MALDIFs emphasised the need to decide how these two cases would be treated. One option was to categorise examples of each of these two purposes separately under two functional categories (i.e. indicating research article/thesis structure and referring to parts of text) and the other option was to classify them under a single category. It was decided to put all instances of implicit reference to parts of text and explicit references to the structure of texts in the same category. 'Referring to parts of text' were used for the category name which included both types of reference.

4.3.3 Intercoder reliability test

After the sample was analysed and the model was improved taking the findings of the analysis into account (see Table 4.3 for the revised model), the analysis was revised according to the revised model (the second version). Using the revised model (the second version), the same texts were coded independently by two applied linguists who were also lecturers in English Language Teaching.

Table 4.3 The second version of the MALDIF Model

No	Function
1	Introducing the topic
2	Indicating a gap
3	Announcing the research
4	Describing the methodology
5	Presenting the main findings
6	Appraising the study
7	Referring to parts of text

Following the completion of the analyses by the coders, the number of cases which were analysed the same by the coders was calculated. In this calculation, only the cases which were coded exactly the same by the coders were accepted as agreement. For example, the following case (Table 4.4) was accepted as a case of disagreement as the coder categorised the 'sentence' as indicating a gap while I labelled just one 'clause' of the sentence as such.

Table 4.4 An example analysis by two coders

		My analysis	Coder 1
TA051-1	Much research on requests has been carried out among L1 Chinese adults, L1 Chinese children, L1 children, L2 adults, and L2 children, **but no studies to date have simultaneously examined Chinese children's requests in Chinese (L1) and English (L2).**	ITT **/ IAG**	**IAG**

In calculating the extent of agreement among the coders, we used the method of percentage of agreement (also called percent agreement)[1]. One reason underlying the decision for using this method is pragmatic: it is a fairly easy calculation. The other is that percentage of agreement is the most commonly used method for measuring agreement among coders in intercoder reliability tests of rhetorical move analyses (see Salager-Meyer, 1992; Hyland, 2000; Pho, 2008; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014).

It should be noted that most studies on rhetorical moves in scientific texts do not include intercoder reliability results. In studies which test intercoder reliability, we observe a few different practices to report the results. In one method, there is a bare statement indicating a high level of agreement among the coders. No numerical result is reported here. Another method was giving an overall value of agreement, which is the most common practice. A third method is reporting agreement values for each category in the analysis. Two types of measurement are used to calculate agreement: percentage and kappa. There seems to be a preference for percentage measure in the area.

Although no established ranges seems to exist for intercoder reliability in the area of genre analysis, we observe that there is a tendency to accept values changing between 84% and 95% as an acceptable indicator for agreement. Hyland (2000), reported 84% of agreement with a second coder in the analysis of rhetorical moves in abstracts. Pho (2008), on the other hand, reported over 90% of agreement between four raters in coding rhetorical moves in research article abstracts. Salager-Meyer (1992) achieved an agreement of 95% in the analysis of moves in abstracts. Intercoder agreement is over 95% in Suntara and Usaha's (2013) study on rhetorical variation between linguistics and applied linguistics.

As different from studies which use percentage measures, Crookes (1986) used kappa measures (Fliess, 1971) to calculate intercoder reliability. Crookes reported the results of a

1 See Lombard et al. (2002) for a review of different methods of calculating intercoder reliability. Also see McHugh (2012) for calculation of percentage of agreement. See also Harris at al 1997 for a fuller discussion of intercoder reliability in qualitative studies.

study where he attempted to validate the analysis of rhetorical moves in the introductions of scientific research papers. The intercoder agreement in the three samples from the corpus (three quarters of the whole corpus) was above a kappa value of 0.6.

Instead of giving an overall value of intercoder agreement, some researchers prefer to measure the agreement values for categories in the analysis. Saeeaw and Tangkiengsirisin (2014) reported agreements changing between 90% and 100% for five rhetorical moves in research article abstracts in environmental sciences and applied linguistics. On a study of rhetorical moves in research article and master's dissertation abstracts, Ren and Li (2011) reported four discrepancies in the analyses of the coders, which were solved after discussion. Although the total number of coded units were not given, the agreement level was anticipated to be high even before the discussion. Fazilatfar and Naseri (2014), on the other hand, used kappa to measure agreement on individual move categories in applied linguistics research articles and found kappa values ranging between 0.38 and 0.94.

All these studies seem to validate the reliability of the analysis. Although the intercoder reliability test fulfils such a function in this study, our purpose of running such a test was different. The intercoder reliability test was carried out to help identify problematic categories in the model of analysis which was developed to identify macro-level discourse functions in abstracts.

If we look at the percentage of agreement in all the sample, we can say that in 82% of the cases, I agreed with both the first and the second coder. As can be seen from these percentages, there were different codings in the analyses, in 18% of the cases. I used the 'negotiated agreement' method (Campbell et al. 2013) and discussed the disagreements with each coder and we reached an agreement in most of them. 98% of agreement was reached with coder 1 and the agreement with coder 2 was improved to 99% after discussion. These agreement levels are congruent with those reported in previous research. Results of the intercoder reliability test (IRT) are shown in Table 4.5 below.

Table 4.5 Results of the IRT

	Before Discussion			After Discussion		
	No of agreements	% of agreements	No of disagreements	No of agreements	% of agreements	No of disagreements
Coder 1	322	82	71	384	98	9
Coder 2	321	82	72	389	99	4
Total*	393			393		

* Total indicates the total number of cases in the sample.

Here it is also useful to look at the figures for each function to see the strength of the agreement for individual functions. Table 4.6 below shows the results of the IRT for each function.

Table 4.6 Results of the IRT for each function

Function *	Coder 1						Coder 2						
	Before Discussion			After Discussion			Before Discussion			After Discussion			
	A**	%***	D****	A	%	D	A	%	D	A	%	D	Total
ITT	45	96	2	47	100		46	98	1	47	100		47
IAG	3	38	5	8	100		6	75	2	7	88	1	8
ATR	55	81	13	65	96	3	60	88	8	67	99	1	68
DTM	52	79	14	64	97	2	51	77	15	66	100		66
PMF	133	92	11	143	99	1	130	90	14	143	99	1	144
ATS	16	70	7	21	91	2	7	30	16	23	100		23
RPT	14	82	3	17	100		13	76	4	17	100		17
ATR & DTM		0	7	7	100		3	43	4	7	100		7
RPT & ATR	2	40	3	5	100		3	60	2	5	100		5
RPT & PMF	2	67	1	2	67	1	2	67	1	3	100		3
Unclear		0	5	5	100			0	5	4	80	1	5
Total	322		71	384		9	321		72	389		4	393

* ITT= Introducing the topic, IAG= Indicating a gap, ATR= Announcing the research, DTM= Describing the methodology, PMF= Presenting the main findings, ATS= Appraising the study, RPT= Referring to parts of text
** Agreement (Raw frequency of agreed cases)
*** Percentage of agreement
**** Disagreement (Raw frequency of disagreed cases)

It can be seen from Table 4.6 that the percentage of agreement was low for some of the functions before discussion. However, after the discussion, complete agreement was reached in more than half of the functions (IAG with coder 1, DTM, ATS and RPT & PMF with coder 2 and ITT, RPT, ATR & DTM and RPT & ATR with both coders); and for less than half of the functions, the percentage of agreement was above 88% except for RPT & PMF (67%). Although 67% of agreement for RPT & PMF seems to be a little low, we can still accept it as normal since the frequency of cases is limited to three.

ITT and PMF are two functions that hold the highest percentage (96% and 92% with coder 1 and 98% and 90% with coder 2 respectively) of agreement even before the discussion with the coders. These are followed by ATR, DTM and RPT which had percentages between 76% and 88% before the discussion. We reached more than 96% of agreement in ATR and DTM and total agreement in RPT after the discussion. The figures for IAG and ATS seems to be very low for one of the coders in the before-discussion results, being 38% with coder 1 in IAG and 30% with coder 2 in ATS. However, the disagreed cases were discussed with the coders and reached 100% agreement. Table 4.6 also includes three dual functions, which are ATR & DTM, RPT & ATR and RPT & PMF. The percentage of agreement was very low for these dual functions before discussion although it was improved to 100% except RPT & PMF for one of the coders. This result is not unexpected if we take into account that they were not the main functional categories in the model of analysis. They emerged from the analysis and were categorised separately although their frequency of occurrence was found to be low in the analysed sample.

The discussion with the coders indicated a few more problems with indicating a gap and presenting the main findings. These problems and how they were resolved are described below.

4.3.3.1 Indicating a gap

Authors use this function to show the audience why there is a need to do research on that topic and they explain this need by indicating a gap in the previous research or raising a

question or by less frequent ways like counter-claiming or continuing a tradition. Swales (1990) categorises these as 'establishing a niche' in the CARS Model. 'Establishing a niche' was rejected in the model of MALDIFs because of its metaphorical status. Instead, it seemed reasonable to name the category by the most frequently occurring type of realising this function in the data, i.e. indicating a gap. This was considered to reflect the purpose of the function better. However, this name was also seen as problematic as it is not a general term to cover all the ways of realising the function which in turn might cause that it is thought to refer only to indicating a gap. As a solution, the category was renamed as 'stating the need for research' (SNR).

4.3.3.2 Presenting the main findings

This category is problematic for three reasons. First, the description of the category still refers to 'results' (such as interpreting results, comparing results with the literature, accounting for results and judging results[1]), although the category name was changed to include 'findings' in the first revision of the model. These earlier modifications in this category were explained in section 4.3.2.3. We mentioned before that no 'results' were found in the sample for the preliminary analysis. Therefore, what is interpreted is 'findings', not results. We see this in the example from the ALTA corpus below.

(4.1)	Low proficiency Syrian Arabic participants did not fluctuate between definiteness and specificity, but over-used *the* in indefinite generic and relative clause contexts, suggesting transfer from L1. (TA013-8)

What we see in the underlined part in the above sentence is a short summary of the main points, which are findings. The second part interprets the 'finding' given in the first part. However, this is expressed as 'interpreting results' in the description of the category. The word 'result' was changed to 'finding' in the definition in order to solve this problem.

1 These were taken from Ruiying and Allison's (2003) work on rhetorical moves in applied linguistics where these four descriptive terms are steps of commenting on results move. 'Judging results' is 'evaluating results' in the original.

Second, the definition included only evaluating findings, but it was found that abstracts also contain a short summary of findings in the analysis. Therefore, the category description was changed as follows.

> The main findings tell us what the results mean. The authors give a short summary of the main findings of the study and they evaluate those findings in a number of ways: interpreting findings, comparing findings with the literature, accounting for findings and judging findings. Authors also state the most important results of the research numerically including statistics.[1]

The third problem is about the category name. This category involves 'presenting the main findings', but it also includes interpreting, explaining and judging the findings as well as comparing them with the literature. The word 'evaluating' was added to the name of the category which gave us 'presenting and evaluating the main findings' (PEMF).

Taking these final changes into account, the MALDIF model was revised once more and tested again in a follow-up analysis by the same coders (see section 4.3.4 below for the follow-up IRT). Here is the third version of the MALDIF model after the changes:

Table 4.7 The third version of the MALDIF Model

No	Function
1	Introducing the topic
2	Stating the need for research
3	Announcing the research
4	Describing the methodology
5	Presenting and evaluating the main findings
6	Appraising the study
7	Referring to parts of text

4.3.4 Follow-up intercoder reliability test

As the model of MALDIFs for abstracts was revised after the intercoder reliability test (see Table 4.7), it was essential to conduct a follow-up test to see if the analysis of the same texts

1 This definition is based on Ruiying and Allison's (2003) rhetorical moves in research articles.

by different coders would give the same results. The same coders were asked again to analyse this sample according to the revised model.

A smaller sample than the first sample was used for this follow-up test, which included a total of 12 texts (different from those in the first sample) from the four corpora (see Table 4.8 for details).

Table 4.8 Sample for the follow-up IRT

Corpus	No of texts for the sample	Text code
ALRA	4	AAAL008 AAESP028 AALL015 AASSLA040
PRA	4	APDP013 APEPG005 APPSP016 APPS023
ALTA	2	TA006 TA070
PRA	2	TP035 TP057
Total	12	

I took one text from each journal in applied linguistics and psychology and one text from a British university and one text from an American university in each discipline. Taking account of these decisions, the selection was made using an online random number generator (www.random.org). In selecting texts from journals, I set 1 as the minimum and 40 as the maximum value in the generator as there were 40 abstracts from each journal. When I clicked on the generate button, the system generated a randomised number between 1 and 40. I generated 8 numbers for each of the eight journals using these values. For the selection of the thesis abstracts, first I set the same values again as I did for the research article abstracts and had two numbers generated for applied linguistics and psychology abstracts

from British universities. Then I changed the minimum value to 41 and the maximum value to 80 to get random numbers for abstracts from American universities in both disciplines.[1]

After the sample was analysed independently by the three coders (the researcher herself and the two other coders), the analyses were compared. In the calculation of the agreed cases, the same procedures were used as the first IRT. Table 4.9 below shows the results of the follow-up IRT.

The results of this follow-up analysis shows higher percentages of agreement than the first IRT even before the discussion of the disagreed cases. 95% of the cases were analysed the same with coder 1 while 90% of agreement was established with the second coder. We agreed on most of the disagreements in the post-analyses discussion and the percentages increased to 98% with coder 1 and 99% with coder 2.

Table 4.9 Results of the follow-up IRT

	Before Discussion			After Discussion		
	No of disagreement	No of agreement	% of agreement	No of disagreement	No of agreement	% of agreement
Coder 1	5	87	95	2	90	98
Coder 2	9	83	90	1	91	99
Total number of cases		92			92	

Table 4.10 below shows the results of the follow-up IRT for each function. Overall, the percentages are considerably high both before and after discussion, suggesting that the model of analysis is a reliable one in analysing research article and theses abstracts in applied linguistics and psychology.

A closer look at the disagreed cases revealed that none of the disagreements except for those of PEMF were caused by the existence of problems in the model. These disagreements

1 The abstract codes were between 1-40 for the British theses and between 41-80 for the American theses.

might have been caused by the ambiguity of cases themselves. However, the disagreements in PEMF refer to some problems in the model. This concern was confirmed by the coders in the discussion. They reported that the definition of ATS also refer to findings which caused them to categorise some cases as ATS instead of PEMF. The part of the definition of ATS which created confusion is 'summarising the main points from the perspective of the overall study'[1]. The PEMF category might include specific findings as well as more general ones and these general findings carry the potential risk of being confused with ATS. One solution was to remove the expression 'summarising the main points from the perspective of the overall study' from the definition of ATS, which will limit ATS to expressing significance or limitations, recommendations for further research and drawing implications. Another solution was merging it with PEMF. This latter one was preferred to simplify the model and the analysis. The revised PEMF is described in section 4.4.

Table 4.10 Results of the follow-up IRT for each function

Function*	Coder 1						Coder 2						
	Before Discussion			After Discussion			Before Discussion			After Discussion			
	A**	%***	D****	A	%	D	A	%	D	A	%	D	Total
ITT	8	100		8	100		8	100		8	100		8
SNR	2	67	1	3	100		3	100		3	100		3
ATR	13	87	2	15	100		11	73	4	14	93	1	15
DTM	12	100		12	100		12	100		12	100		12
PEMF	46	96	2	46	96	2	43	90	5	48	100		48
ATS	4	100		4	100		4	100		4	100		4
RPT	2	100		2	100		2	100		2	100		2
Total	87		5	90		2	83		9	91		1	92

* ITT= Introducing the topic, SNR= Stating the need for research, ATR= Announcing the research, DTM= Describing the methodology, PMF= Presenting and evaluating the main findings, ATS= Appraising the study, RPT= Referring to parts of text
** Agreement (Raw frequency of agreed cases)
*** Percentage of agreement
**** Disagreement (Raw frequency of disagreed cases)

This follow-up analysis revealed another result regarding dual functions. Contrary to the first analysis, this second sample were found to include no dual functions. This might be due to

1 This definition is adapted from Move 5 (summarising the study) in Ruiying and Allison (2003).

the small size of this second sample. This is not surprising if we consider that the frequencies for dual functions were very low in the first sample. As mentioned before, these do not occur in the model as the main functional categories. They were not integrated into the model after the observation of their existence in the data as the frequencies were low.

In the following section, the final revised version of the MALDIF model is described and ways of realising each function are illustrated with examples from the corpus.

4.4 Model of analysis

In chapter 2, we reviewed the existing models of analysis for abstracts. Although these models are very useful for identifying rhetorical moves in abstracts, they do not offer the best solution for the purposes of this research. The reasons why these models were not used were explained in section 4.5 where the background of the MALDIF model was given.

A new model was developed to analyse macro level discourse functions in research article and thesis abstracts, which consists of six categories (Table 4.11 shows the MALDIF model below.). A comparison of the MALDIF model with two functional models in the literature (the CARS model and Santos' five move model) can be found in section 4.5.

Table 4.11 The MALDIF Model

No	Function
1	Introducing the topic
2	Stating the need for research
3	Announcing the research
4	Describing the methodology
5	Presenting and evaluating the main findings
6	Referring to parts of text

4.4.1 Introducing the topic

The first category which is 'introducing the topic', as the name suggests, introduces the research topic to the reader. Authors might introduce the topic in a number of ways in

abstracts. One way of doing this is by claiming the importance of the topic. This is stated referring to the importance of the topic either in the research or real-world. In this way, authors encode the message that the research topic is one which is worth investigating. The following examples from the corpus illustrate this.

(4.2)	LP has come into increasing focus in the second language acquisition research of the last decade. (AAAL19-3)

(4.3)	English has come to be widely used for the specific purpose of advertising to reach international target groups in various countries. (AAESP005-1)

In example 4.2, the importance of the topic, which is LP (Language Play), is indicated by referring to research frequency. This reference is not an explicit one which clearly states that there is a high quantity of research on the LP. It is rather implicitly done using words like 'increasing' and 'focus'. Thus, we understand that if a topic is in focus in a research area and that focus has increased recently, then the research topic is important. In example 4.3, the role of English in advertising is stated to draw attention to the importance of the phenomenon in the real world. This is expected to be interpreted by the reader as a good reason to conduct research on the topic.

Another way of introducing the topic in abstracts is giving background information about the topic. Authors might give theoretical or methodological information related to the research topic before telling about their research. For example, the following sentence gives background about the model that will be used in the study.

(4.4)	The unequal-variance signal-detection model assumes a continuous memory strength process. (APEPG040-2)

Authors might also introduce the research topic by referring to literature. The typical way of doing this is stating previous research findings. The minor ways of referring to literature involves views, claims, arguments, assumptions, proposals, research dimensions, questions

in literature, theoretical definitions and the author's own definitions. The following sentence, for example, presents previous research findings.

(4.5)	Recent studies of paralinguistic intonational meaning show that languages differ systematically in how pitch range is used to signal meaning differences, contra previous claims. (AALL014-1)

A further way of introducing the topic is by presenting a real-world problem related to the topic. This might be a problem whose causes are identified in the study or one which the study intends to solve. The following sentence is an example of the latter case.

(4.6)	Remembering to execute deferred goals (prospective memory) is a ubiquitous memory challenge, and one that is often not successfully accomplished. (APPS016-1)

Here the reader is introduced with the problem of 'remembering to execute deferred goals' and the subsequent sentences clearly state that the aim of the study is to find a solution to this problem (see Appendix 4.1 for the full analysis).

Authors also might share their own ideas in introducing the topic. These might include views, observations, arguments and comments on the literature. In the example below, the author makes a point about what a writer needs to learn to gain expertise in writing in a genre.

(4.7)	A student's emerging genre mastery is a complex process which involves learning not only relevant discoursal forms, but also a wide range of specialist knowledge frames. (AAESP035-1)

4.4.2 Stating the need for research

Authors might state in abstracts why there is a need to do research on the research topic. This need is typically stated by indicating a gap in the research literature. Less frequent ways of doing this are raising a question about the topic or making the opposite of the claims in the previous research. The sentence taken from the ALRA corpus is an example for indicating

a gap. The reference to the scarcity of research on the topic of the investigation (i.e. discourse particles) serves to explain that the topic needs to be researched further.[1]

(4.8)	Yet despite their pervasiveness very few studies attempt to look at their use in the pedagogical setting. (AAAL002-2)

4.4.3 Announcing the research

Announcing the research gives a short account of what the study explores as well as the theoretical basis for the research. This may include stating the primary purposes and describing key features of the study (Swales, 1990: 159), research questions, hypotheses, assumptions, predictions, proposals, claims and arguments.

(4.9)	The purpose of the present study was to determine what features associated with the macrolevel of lexical competence vary as a function of an increase in second language (L2) proficiency. (AASSLA040-1)
(4.10)	This study examines the production of topical talk in peer collaborative negotiation in an interactive assessment innovation context. (AAAL012-1)
(4.11)	As for L2 language learners, are newly learned words incorporated into the same processing system that serves L1, or are they represented quite independently? (TA059-3)
(4.12)	We hypothesized that *-a iss-* will develop later than *-ko iss-*, but that the development of *-a iss-* will precede or coincide with the expansion of *-ko iss-* marking for result state meaning. (AALL038-2)
(4.13)	We propose, however, that cultural models of the self determine which aspect of the self (individual vs. relational), when attended to, intensifies emotional reactivity. (APPSP030-2)
(4.14)	If the effect of emotion on visual attention depends on valence, we would expect anger to focus people's attention on threats. (prediction) (APPS011-5)

1 In Swales (1990), indicating a gap, question-raising and counter-claiming are steps of the Move 2 (establishing a niche).

(4.15)	In accordance with this distinction, I argue that an object, as commonly described, is only the unit of selection. (APEPG018-3)

Though rare, we can still consider the following in this category: pre-announcing findings, notifying what follows (which is an announcement of the research), and emphasising the significance of the research.

(4.16)	We show that minimal physical contact can increase people's sense of security and consequently lead them to increased risk-taking behavior. (pre-announcing findings) (APPS034-1)

(4.17)	It addresses three main questions. (notifier) (TA022-2)

4.4.4 Describing the methodology

Describing the methodology consists of information related to data (including research context and participants, method of data collection and procedures, location and time), research design and analysis (method, tools, stages and details of analysis).

(4.18)	The corpus is comprised of 18 English and 18 Spanish research articles (RAs) in Applied Linguistics and Language Teaching. (AAESP016-4)

(4.19)	Data were collected via Web-based questionnaires. (AALL019-2)

(4.20)	A repeated-measures design was used with a cross-sectional sample of 35 adult L2 learners of Spanish. (AASSLA013-5)

(4.21)	Wordsmith Tools (Scott, 1999) was used to search the corpus for the places where the various error types occurred. (TA020-3)

4.4.5 Presenting and evaluating the main findings

The main findings tell us what the results mean. Authors give a short summary of the key findings of the study and they evaluate those findings in a number of ways: interpreting

findings, accounting for findings, comparing findings with literature[1] and indicating their significance.

(4.22)	Older drivers showed evidence of modulation in difficult driving conditions suggesting that they compensate for their declining perceptual and cognitive abilities through changes in driving behavior. (TP061-6) (finding/ interpretation)
(4.23)	We found no differences between the two programs at the end of year 1.(AASSLA004-4) (finding: specific)
(4.24)	Taken together, this research demonstrates that threatening environments, such as those where people are numerically underrepresented, do not necessarily lead people to disengage or give up. (TP045-14) (finding: general)
(4.25)	Findings contribute directly to our understandings about academic publishing in a global context and to broader debates about the efficacy of initiatives for increasing research collaboration such as those sponsored by the EU Framework Programmes. (AAESP001-7) (significance)
(4.26)	The findings suggest that cognitively test-anxious persons have greater abilities than they commonly show. (APPS033-6) (interpreting findings)
(4.27)	These differences are explained by differences in L2 proficiency, the nature of L2 input, and the salience of form-meaning relations in L2. (AALL014-6) (accounting for findings)
(4.28)	The investigation found that EFE characteristics correspond to the assumptions of the error feedback literature only about half of the time. (TA069-7) (comparing findings with literature)

Abstracts also involve implications and recommendations for future research, which were included in the category of presenting and evaluating the main findings.

1 These three ways were adapted from Ruiying and Allison's (2003) study. They are steps of commenting on results move. They are interpreting results, accounting for results and comparing results with literature in the original.

(4.29)	The pedagogical implications of this study highlight the importance of explicit instruction in this type of word combination in courses on English for EU purposes. (AAESP003-5) (drawing implications)

(4.30)	Future studies are recommended to investigate further examiners' perspective on EFL test-takers' spoken discourse competence. (TA038-11) (further research)

Results are also considered in this category although it is not very common to give numbers or statistics in abstracts.

(4.31)	The regression coefficient for sleep duration on weekends was −6.11 (SE = 2.09), indicating an increase of 6.11 points on fluid IQ scores for each hour of shorter sleep duration. (APDP002-4) (result)

Before presenting findings or making evaluations, authors sometimes announce what comes next. This serves as a notifier of the findings or evaluations.

(4.32)	Results from multifaceted Rasch measurement yielded two main findings. (AASSLA008-8) (notifying the announcement of the findings)

4.4.6 Referring to parts of text

Referring to parts of text functions as indicating what the author is going to do in parts of the research article or thesis. Authors usually refer to parts where discussions, implications and/or further research are presented. These are mostly in the form of implicit references, but explicit references might also be used to refer to chapters of theses.

(4.33)	Findings are discussed in terms of possible mechanisms by which children adjust their word learning from problematic speakers. (APDP011-8)

(4.34)	The nature of identity fusion and its relationship to related constructs are discussed. (APPS002-6)

(4.35)	Some educational implications are finally proposed on the basis of these findings. (AAAL024-7)

(4.36)	Possible avenues for further research are also suggested, in the light of current literature on intercultural academic discourse. (AAESP036-5)

Authors also make an explicit reference to parts of text to indicate text structure or where detailed information can be found.

(4.37)	Chapter two reviews specific ideas of intercultural communication. (TA026-3)

4.5 Background of the MALDIF model

As the present research targets macro–level discourse functions and LPs associated with these functions, we needed a model of analysis which aimed to identify discourse functions. Therefore, we used Swales' CARS model and Santos' five-move model as a starting point to develop a model which would suit the purpose of our study. These two models were preferred to other models for abstracts (IMRD and Hyland's model) because they offered functional categories (moves and steps).

Swales' or Santos' models were not used in their original forms for two reasons. First, the unit of analysis in their models is not so clear. A move can be realised within or beyond a sentence, which means that it might be a few words or even a paragraph. However, the unit of analysis is limited to an independent clause in the present study. Second, both models are too detailed in terms of categorisation. The detail is in sub-categories as well as the number of categories. It is very important to keep the number of categories at a minimum for the purposes of this study. If the number of categories increase, there will be less chance to find enough LP patterns. This might be solved by expanding the data size, but it would not be practical because that would entail a huge amount of manual analysis which would take a long time to do. Sub-categories were also rejected for the same reasons.

The CARS model and Santos' five-move model, more or less, involve the same functions although different terms are used to name them. The MALDIF model involves a combination of some of the functions in these two models and it follows the same ordering in categories. Table 4.12 shows a comparison of the three models and overlaps of categories.

Table 4.12 A comparison of the MALDIF, CARS and Santos' Models

The MALDIF Model	CARS (1990)	Santos' 5-move Model (1996) for RA abstracts
1.Introducing the topic	Move 1 Establishing a territory	Move 1 Situating the research
	Step 1 Claiming centrality	Submove 1A Stating current knowledge
	and/or	and/or
	Step 2 Making topic generalisation(s)	Submove 1B Citing previous research
	and/or	and/or
	Step 3 Reviewing items of previous research	Submove 1C Extending previous research
2.Stating the need for research	Move 2 Establishing a niche	Submove 2 Stating a problem
	Step 1A Counter-claiming	
	or	
	Step 1B Indicating a gap	
	or	
	Step 1C Question-raising	
	or	
	Step 1D Continuing a tradition	
3. Announcing the research	Move 3 Occupying the niche	Move 2 Presenting the research
	Step 1A Outlining purposes	Submove 1A Indicating main features
	or	and/or
	Step 1B Announcing present research	Submove 1B Indicating main purpose
		and/or
		Submove 2 Hypothesis raising
4.Describing the methodology		Move 3 Describing the methodology
5.Presenting and evaluating the main findings	Step 2 Announcing principal findings	Move 4 Summarising the results
		Move 5 Discussing the research
		Submove 1 Drawing conclusions
		and/or
		Submove 2 Giving recommendations
6.Referring to parts of text	Step 3 Indicating RA structure	

As it can be seen from Table 4.12, the MALDIF model uses a single function that corresponds to Move 1 (establishing a territory) in the CARS model. At first look, establishing a territory

seems to be completely different from introducing the topic. This is because establishing a territory serves a more general function than ITT and this is expressed by a metaphorical term. However, the resemblance between Move 1 and ITT lies in the steps. This is not so obvious in the category names due to differences in the method of categorisation in the two models. Steps are seen as realisations of Move 1 and they are given as separate sub-categories in the CARS model. However, such realisations are seen as a way of performing ITT, but not a sub-category or type of it, in the MALDIF model and are presented in the description of the category. As a result, the 'ways' of introducing the topic are similar to the 'steps' of Move 1 (see section 4.4.1 for the ways of introducing the topic). Although this similarity is mostly functional and less to do with terminology, nevertheless, I have to express my disagreement with the step labels. First, I reject the term 'centrality'. It is a narrow-sensed term referring to the amount of research in a research area. The author claims that the topic is a central one in the field, and therefore important and worth investigating. However, a topic can still be important even if there is not much research done on it. With this concern, I used the term 'claiming importance of the topic' in the description of the category. Second, the term 'topic generalisation' was rejected because of the vagueness in wording and content. Third, reviewing items of previous research is again too broad. It is not clear in what way authors do it.

In Move 2 (establishing a niche), Swales again uses a metaphorical term which refers to authors' efforts of persuading readers for the necessity of conducting research on the topic. In the MALDIF model, a more transparent term was used for the same function and Steps 1A (counter-claiming), 1B (indicating a gap) and 1C (question-raising) were described as ways (not subcategories) of stating the need for research. Continuing a tradition was not included in the model due to its rare occurrence in the corpus.

The MALDIF model involves three categories that correspond to the steps of Move 3 (occupying the niche). First, Steps 1A (outlining purposes) and 1B (announcing present research) are in a single category in the MALDIF model, i.e. announcing the research, where authors also give the theoretical basis for research. Second, the fifth category in the MALDIF

model is an extended version of Step 2 (announcing principal findings) which also covers an evaluation of findings. Third, the last category of the MALDIF model partly contains Step 3 (indicating research article structure) function. This is expressed as 'indicating text structure' in the description of the category to refer to research article and thesis abstracts. The category also includes referring to parts of text, which Step 3 of the CARS model fails to cover. Describing the methodology is the only function in the MALDIF model which the CARS model leaves out.

Santos' model, on the other hand, is very similar to the CARS model in terms of the functions it involves, but they use different terms to name these functions. Also, moves in Santos' model are specific and not metaphorical compared to the CARS' moves. Therefore, both moves and submoves were used in developing the MALDIF model.

As mentioned before, the content and order of categories in the MALDIF model are similar to those in Santos' model. However, differences still exists in categorisation and terminology. Move 1 (situating the research) in Santos' model have two submoves, one of which has three versions. Clearly, Submove 1A (stating current knowledge) and Submove 1B (citing previous research) serve a different function than Submove 1C (extending previous research) and Submove 2 (stating a problem). Submoves 1A and 1B state what is known about the topic in literature. Submoves 1C and 2 highlight what previous research has not done yet or that it has not reached conclusive findings. In the MALDIF model, these are two separate functions. Submoves 1A and 1B correspond to 'introducing the topic' and Submoves 1C and 2 seem to correspond to 'stating the need for research'.

The presence of two separate categories in the MALDIF model that corresponds to Move 1 of Santos' model also affected the terminological decision concerning these categories. It was possible to name at least the first category as 'situating the research' just as in Santos' model ; however, it is a little different from the names of other categories in Santos' model and the type of category title which are targeted in the MALDIF model. In situating the research, the focus is more in the positioning of the research within the research area. Yet

the terms used for other moves do not suggest anything more than presenting the research to the reader and there is no effort to relate them to the research area. This approach was also adopted in labelling the categories in the MALDIF model. Therefore, the first category was named 'introducing the topic' where the focus is on 'presentation'. The second category was named 'stating the need for research' as it had a more wider coverage than Submoves 1C and 2.

Move 2 (presenting the research) includes two submoves, the first of which has two versions. In Submoves 1A and 1B, the main features of the research or its purpose are announced. Submove 2 is for hypotheses and research questions. All of these are inherent in the definition of the third category in the MALDIF model, but there is a slight difference in the wording of the category name. Instead of 'presenting', 'announcing' was used to reveal the purpose of the function in an unambiguous way. Thus, it is more clearly indicated that the category refers to key features and purposes of the research as well as the theoretical basis for it, but not to the methodology or findings of the study.

Move 3 in Santos' model and category 4 in the MALDIF model use the same terminology for describing the methodology. However, Move 4 (summarising the results) of Santos' model where the findings of the research is presented is problematic in terms of terminology. The words 'result' and 'finding' are used synonymously to refer to either the numerical or descriptive statements of what has been found in the study. However, results are considered as numerical while findings are stating what the results mean in the MALDIF model. While both can be considered in the same category, it is more representative to use 'finding' in naming the category as findings have been found to occur more frequently in the corpus than results.

In Move 5 (discussing the research), findings are evaluated, recommendations for further research are given and implications are drawn. These are merged in the findings category in the MALDIF model since findings and evaluations may occur in the same sentence as well as

in separate sentences. As the findings and evaluations were merged into the same category, they were named ‘presenting and evaluating the main findings’.

The last move in the MALDIF model partly involves what Santos calls ‘indicative statements’. These statements do not give any piece of real information, though they seem to be doing so. They do not seem to belong to any category in Santos’ model, but in the MALDIF model, they are categorised as ‘referring to parts of text’ where the reader is referred to the part where they can find the mentioned piece of information.

4.6 Unit of analysis

In identifying macro-level discourse functions in abstracts, the unit of analysis was decided to be the independent clause. This decision was taken in view of the second part of the study, which is to identify LPs that are distinctive to macro-level discourse functions. The LP analysis targets ‘sentence builders’. As we aimed to identify LPs distinctive to each MALDIF, we needed a form as the unit of analysis where we could find sentence builder LPs. This type of LP forms the structure of an independent clause. Therefore, the unit of analysis was limited to ‘independent clause’. An independent clause is here defined as:

> a grammatically complete unit which has a subject and verb (and complement depending on the verb) as well as an incomplete one where the subject and auxiliary verb are ellipted when they are same with the first clause. The clauses might be connected to each other by coordinating conjunctions such as *and* and *but*.

Following the rules set by this definition, I assigned a function to each independent clause.

(4.38)	This occurs through the continuously adaptive performance of coordination by individuals within a group. (TP071-2)	ITT

Also, in sentences where there are more than one clause, each of the complete clauses was assigned into a functional category when they had either the same or different functions.

(4.39)	**Such a claim is commonly found in work framed by the Critical Period Hypothesis (Lenneberg, 1967),** and many age-related L2 empirical studies confirm the adage "the younger the better." (TA067-2)	ITT / ITT

(4.40)	Prior research has shown the importance of humanness in shaping one's social identity, **but no research has examined why this is the case.** (APPSP020-1)	ITT / SNR

In sentences where there were complete and incomplete clauses, each of the complete and incomplete clauses were assigned a function when they have either the same (4.41) or distinct functions (4.42).

(4.41)	Our findings provide strong evidence that local biological motion can be processed independently of global configuration and **shed new light on the mechanisms of visual search asymmetry.** (APPS013-5)	PEMF / PEMF

(4.42)	Experiments 6 and 7 used a statement-based CBM procedure **and were successful in inducing an interpretation bias.** (TP024-10)	DTM / PEMF

As a decision had been made that the unit of analysis would be the 'independent clause', I stuck to this decision in most of the cases and analysed the independent clauses. As for dependent clauses, a single function was assigned to the whole sentence when the function of the dependent clause is the same as that of the main clause (see example 4.43). However, in some rare cases, dependent clauses had a different function to the independent clauses and in such cases they were treated as separate cases and categorised separately from the independent clause (see example 4.44). These were accepted as exceptional cases.

(4.43)	The learning enhanced priming, rather than reducing it, **suggesting that the L2 lexicon might differ qualitatively from the L1 lexicon.** (TA059-13)	PEMF

(4.44)	**I also examined pilfering strategies,** finding no evidence that jays preferentially observe caching from behind cover. (TP018-14)	ATR / PEMF

In line with the decision of the clause type that we are interested in this study, a decision was also taken to focus on primary functions. Each independent clause was assigned a single function even if a part of it has a different function. At the beginning of this section, we explained that decisions with regard to the unit of analysis in the MALDIF analysis were influenced by the type of LP explored in the LP analysis. We therefore, focussed on the functions in independent clauses where sentence builder LPs resided. As might be anticipated, an LP is not the whole of an independent clause. As the name suggests, a 'sentence builder' LP can be found at the start of an independent clause where subject and verb exist. The functional coding for independent clauses were conducted attending to these sentence initial elements. We had to ignore the functions which we can call minor or secondary in the parts of a clause where there is no possibility to find sentence builder type of LP.

In the example below, the primary function is 'announcing the research'. The part where information about the participants (115 advanced Danish learners of English as a foreign language) is given was seen as secondary function and not assigned a separate function.

(4.45)	This article presents an empirical study that investigates the role of vocabulary knowledge in listening comprehension with 115 advanced Danish learners of English as a foreign language (EFL). (AASSLA005-1)	ATR

The following (4.46) is a sample analysis on an abstract which is from the ALRA corpus. Each clause in the abstract was assigned to a functional category.

(4.46)	In this study we investigated the effects of two learning methods (picture- or word-mediated learning) and of word status (cognates vs. Noncognates) on the vocabulary acquisition of two foreign languages: English and German. (AALL009-1)	ATR
	We examined children from fourth and eighth grades in a school setting. (AALL009-2)	DTM
	After a learning phase during which L2 words were presented either together with the corresponding translation in L1 (word-learning method) or with the picture of the object to which the word refers (picture-learning method), children were tested at different points in time. (AALL009-3)	DTM

	The results showed that the picture-based method leads to a better performance than the word-based method, **but this effect was modulated by cognate status and age of learning.** (AALL009-4)	PEMF / PEMF
	On the one hand, cognates were found to facilitate the acquisition of L2 words, **but when the language was familiar (i.e., English for the eighth-grade children), this effect decreased with exposure to language.** (AALL009-5)	PEMF / PEMF
	On the other hand, cognate status interacted with the learning method in the older children, indicating that the word method was particularly effective for cognate words. (AALL009-6)	PEMF
	Some implications concerning learning two languages at a time in the school setting are discussed. (AALL009-7)	RPT

4.7 Summary of Chapter

In this chapter, we presented the MALDIF model which was developed to analyse the macro-level discourse functions in research article and PhD thesis abstracts. The background of the model and the multiple modifications made in it during the preliminary analysis were covered. We performed an intercoder reliability test on 10% of the data and obtained agreement rates over 98% after discussion with the coders. In a follow-up intercoder reliability test, we tested the revised version of the model and obtained similar agreement rates.

The final version of the MALDIF model contains six functional categories:

1. Introducing the topic
2. Stating the need for research
3. Announcing the research
4. Describing the methodology
5. Presenting and evaluating the main findings
6. Referring to parts of text

This final version of the MALDIF model was used to analyse the macro-level discourse functions in 480 abstracts in our research article and thesis abstracts corpora. The unit of analysis was ‘independent clause’ and each independent clause was assigned to one of the

functional categories in this model. The analysis was repeated by the researcher two times to detect and correct any errors which occurred in the first analysis. The results of the MALDIF analysis are presented in the next chapter.

CHAPTER FIVE

MACRO-LEVEL DISCOURSE FUNCTIONS IN ABSTRACTS

5.1 Introduction

In this chapter, the results of the functional analysis of MALDIFs in abstracts are presented and discussed. Two research questions are addressed: one relating to disciplinary variation (applied linguistics and psychology) and the other to generic variation (research articles and theses) in MALDIFs in terms of frequency of occurrence, sequencing of use and cyclicity.

- Is there variation in macro-level discourse functions between applied linguistics and psychology abstracts in terms of frequency of occurrence, sequencing of use and cyclicity?
- Is there variation in macro-level discourse functions between research article and thesis abstracts in terms of frequency of occurrence, sequencing of use and cyclicity?

The disciplinary and generic variation in MALDIFs are presented in sections 5.3 and 5.4. Before this, the general findings of the MALDIF analysis (i.e. all corpora combined) will be given to have a general idea about the overall use of them in all four corpora.

5.2 General findings of MALDIFs

5.2.1 Frequency of occurrence

In terms of frequencies, we will look at two types of results. First, we will look at the distribution of MALDIFs across all four corpora. Next, we will see the results regarding the number and percentage of abstracts using each function.

The distribution of MALDIFs shows that functions have unequal prominence in the abstracts corpus. Table 5.1 below shows the density of MALDIFs in abstracts.

Table 5.1 Distribution of MALDIFs across corpora

Functions	Total cases	% *
ITT	513	11.83
SNR	101	2.33
ATR	973	22.45
DTM	568	13.10
PEMF	2037	46.99
RPT	143	3.30
Total	4335	100

* As the decimals are rounded automatically, the total might be +1 or -1 of 100%.

As can be seen from this table, nearly half of the corpus data was made up of PEMF (47%). A possible explanation for this might be that writers want to draw attention to what they have found. Also, the number of significant findings are more than one most of the time and they are usually followed by evaluations. Both of these apparently contribute to the number of cases (2037 instances).

ATR was also predictably high (22%). This is less than half of PEMF, but it is still an important function in abstracts. It is likely that the huge difference between ATR and PEMF in percentages is due to the condensed nature of ATR.

DTM (13%) and ITT (12%) still appear to be essential functions in abstracts while the use of RPT (3%) and SNR (2%) were very low, which makes their prominence in abstracts questionable.

The results in Table 5.1 give us the density of each function in the data, but do not tell us about the proportion of abstracts containing particular functions. So here we turn to Table 5.2 to have a better idea about the percentage of abstracts containing MALDIFs.

Table 5.2 Number and percentage of abstracts containing MALDIFs

Functions	Total no of abstracts	% *
ITT	250	52.08
SNR	87	18.13
ATR	445	92.71
DTM	239	49.79
PEMF	463	96.46
RPT	108	22.50

* Percentages give the frequency of use of each function in 480 abstracts

It is clear from the figures in this table that there is a high preponderance of PEMF and ATR in abstracts. PEMF was present in 96% of abstracts while ATR occurred in 93% of them, suggesting that they are highly prominent functions in abstracts. RPT and SNR, on the other hand, seem to be the optional elements in abstracts. They were present in less than 25% of the abstracts. ITT and DTM are between the highest and the lowest ends of this scale, appearing in roughly half of the abstracts (52% and 50%, respectively). They can still be regarded as important functions in our abstracts corpus.

These results are congruent with the results of previous research where the 'results' (90% on average) and 'purpose' (86% on average) moves are the most commonly occurring ones in abstracts (Hyland, 2000; Saeeaw and Tangkiengsirisin, 2014; Can et al., 2016). The results for the ITT are also in line with the literature. The 'introduction' move has also been found to occur in half of the abstracts in previous work (Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014; Can et al., 2016).

The results for the DTM in the present study are far below the average percentages for the 'method' move (73% on average) found in the literature (e.g. Santos, 1996; Martín 2003; Tseng, 2011; Suntara and Usaha, 2013). This inconsistency is probably due to the differences in the unit of analysis. It has been observed in the literature on move analysis that the unit of analysis is a phrase, clause or sentence, and even goes beyond sentence (see Table 2.1 in Chapter 2). However, in the present study, the unit of analysis was limited to 'independent

clause'. A wide range of units in previous studies might have led to code more units as the method move, which lifted up the percentages.

In contrast to previous research, there is not a separate 'conclusion' move in the present study. The functions carried by the 'conclusion' move such as interpreting findings, drawing implications and recommending further research are included in the PEMF category where the main findings of the study are presented and evaluated. As a result, the conclusion was present in an average of 53% of the abstracts in previous studies, whereas the conclusion statements were a part of the PEMF function in this study, which had a very high occurrence (96%).

Comparison of the results for SNR with those in the literature confirms that SNR has a limited use in abstracts (e.g. Martín, 2003; Samraj, 2005; Tankó, 2017). It should be noted that only a small number of studies have identified this move in the literature (27% on average). These studies, as different from other studies, used either two models of analysis (IMRC/a four-move model and CARS) or a single model including more than five moves; consequently, the models include a gap-related move. Also, Santos (1996), who used a five-move model for abstracts, found that 26% of the applied linguistics abstracts contained a sub-move called 'stating a problem', which is very similar to gap statements.

RPT is a category which has not received much attention in the literature. RPT is partly indicating the text structure, which is expected to occur commonly in thesis and dissertation abstracts. Results for text structure are presented in two studies. Ren and Li (2011) found 70% of the master's dissertation abstracts in applied linguistics included descriptions of the text structure. Martín (2003), on the other hand, found that only three English and Spanish abstracts of experimental phonetics and experimental psychology indicated the research article structure.

RPT also involves references to parts of texts where the reader can find detailed discussions, implications and further research. Santos (1996) stated that 16 out of 58 instances in the

'discussing the research' move did not include real information. Although Santos did not name such statements as a separate move or step, the results point to the existence of referring to parts of texts in applied linguistics abstracts. Can et al. (2016) named the same phenomenon as 'pseudo-discussion' and reported that such statements occurred in 34% of the applied linguistics abstracts. RPT which included indications of text structure as well as referring to parts of text constituted only one fifth of the corpus in the present study. Although these two functions of the RPT were identified separately in a small number of studies in the literature, we can safely conclude that it has been identified as an infrequent move in abstracts.

Abstracts have generally been considered as a 'synopsis' of the accompanying text. However, they have a more important function than summarising the research. Abstracts are very important means of communicating one's research, especially to an audience in the global arena. Also, in some cases, it is the only way of communicating it as the accompanying text (i.e. research article or thesis) is in a language other than English. While this communication of research via abstracts is intended to get the research recognised by the community, it also serves as a gatekeeper which helps the researcher to gain community membership. In order to achieve gaining membership, writers need to attract existing community members' attention to their research.

The writer needs to be strategic in writing an abstract and do things that will arise an interest in the reader. One way of doing it is giving the most important points of the research. The audience of an academic writer is usually other researchers who work on the same or similar topic and their reading motivation of an abstract is to keep themselves updated on their research area as well as to cite it in their own research. If the abstract gives all the key details, chances are that it will be cited. Writing abstracts using the conventions of the discourse community is another way of attracting the audience's attention. The discourse conventions make the writer sound as an insider who the reader can trust his authority in the field.

The high occurrences of PEMF and ATR can be seen as the writer's attempt to arise an interest in the reader. These two functions have a great share in giving the key points of the research. A reader who is interested in the research topic can be drawn easily with good PEMF and ATR sentences.

The purpose of doing research is to answer some questions. Findings are the answer to these questions. So, we cannot think of a piece of research not to present an answer. Findings are a way of determining the importance of a piece of research in a research area. Therefore, they are expected to occur in abstracts too; so, the reader can evaluate its significance. Although findings might be expected to occur in every abstract due to their central importance discussed above, we did not find 100% of abstracts contained PEMF. Possible reasons for this is discussed in sections 5.3.1 and 5.4.1.

ATR has also a very dominant position in abstracts. Every research is done for an aim and readers expect to know that aim. ATR use is then meeting these expectations. An abstract missing ATR might cause the reader to work out research aims/features on his own. It is the writer's responsibility to announce these.

ATR which announces the purpose of the research or gives the key features of it shows the importance of the topic. By ATR, writers announce what research problems they will try to solve in the study. This, in a sense, indicates how that research is different from those in the research area. Using ATR wisely in abstracts, writers might enable the research to be recognised by the members of the discipline. Omission of it might cause to miss this chance.

If we look at figures in Table 5.2, we can see that ITT and DTM are also essential functions in abstracts. By introducing the topic, writers justify the research context (Hyland, 2000: 67). They claim the importance of the topic, give background, refer to the literature, address real-world problems or share their own views on the topic in an attempt to justify the research context. ITT occurred roughly in half of the abstracts (52%). This indicates an

assumption of the writer related to the existence of issues that are not well-known about the topic by the members of the disciplinary community.

Apart from justifying the research context, ITT has another purpose in abstracts. It plays an important role in abstracts in terms of persuasion. ITT is usually the first occurring function in abstracts. It occurred as the first function in 82% of the abstracts containing an ITT. In only 18% of the abstracts using an ITT, it occurred at a point after the first function. The reader first reads ITT in abstracts and he might get interested in reading the accompanying text if he is persuaded that the research worths reading even further.

While the writers used ITT in more than half of the abstracts, 48% of the corpus did not contain an ITT. An omission of ITT partly reflects the writer's beliefs that justification of research context is not necessary as it is accepted as shared knowledge in the field. On the other hand, it is possibly a sacrifice to create space to other functions which reveal more about the research such as ATR and PEMF.

Roughly half of the abstracts (49.79%) contained DTM. The writer tries to explain how the research is conducted by informing the reader about the data, research design and analysis. The DTM contributes to the understanding of the reader and helps him to make a good connection between the aim and findings. Justifying the methodology also increases the chance of the reader's positive evaluation of the study.

While DTM was used in one half of the corpus, the other half omitted it. This should not be interpreted as an nonexistence of referring to methodology. As the unit of analysis was 'independent clause', all the occurrences of DTM was independent clauses (only two exceptional cases). Therefore, expressions of methodology that occurred in units other than independent clauses were not categorised as DTM. However, DTM still exists in a merged form within ATR and PEMF clauses.

(5.1)	This dissertation examines the negotiation of language ideologies and identity construction amongst university intermediate level Spanish Heritage Language (SHL) learners in the U.S. Southwest. (TA052-1)	ATR

(5.2)	An additional experiment using animal silhouettes replicated the major effects found with letters. (APPS040-6)	PEMF

The example 5.1 involves information about the participants at the end of the sentence. In 5.2, the material used in the experiment is embedded in the nominal subject of the finding sentence. The merging as seen in both examples is an effort to use the space economically, but it is also a stylistic move which decreases redundancy and enables the sentence look stylish. This helps the writer sound professional and contributes to his credibility as a researcher.

Previous research has shown the method move merged with the purpose and results moves as well as the introduction (e.g. Cross and Oppenheim; 2006; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014; Can et al., 2016). Santos (1996) stated merging of the purpose and method moves in 64 out of 92 instances in the applied linguistics abstracts. Martín (2003) reported that the method move was an independent unit in 48% of the English abstracts in experimental phonetics and experimental psychology while in 47% of the cases it was merged with the introduction and in 5% of the abstracts the method was merged with the results. Can et al. (2016) found that the method move was merged with the purpose in 58% of the applied linguistics abstracts.

The writers were found to have a low tendency to use RPT. Only 22.50% of the abstracts contained RPT. Despite its low frequency, it has an important status in abstracts. Writers refer to parts of text either to indicate text structure or to refer to parts of text where the reader can find details of the mentioned discussion, implications and further research. Both of these have its own purposes in abstracts. An indication of text structure clarifies how the full text is structured as well as signals the reader where he can find further information. Referring to parts where discussion, implications and further research are found has the same purpose with indicating text structure, but it does more than that. RPT functions like a

substitute for PEMF. For example, when the writer clearly states an implication, it is in the PEMF category, but when he just mentions that implications are suggested, than he directs the reader to the accompanying text. Writers' purpose of using an RPT is partly due to space constraints. As they devote most of their words to findings, they have a limited number of words, but still more to say. Rather than not to mention them at all, writers indicate with an RPT that those announced exist in the research article or thesis for the ones who are interested.

SNR was the least frequently occurred function in the corpus. It occurred in 18% of the abstracts. The writers state the need for research on the topic by indicating a gap in the research world. Although it is rare, they also raise a question or counter-claim. By SNR, writers indicate that the research will address that need (i.e. gap, question or counter-claim). This is an early signal of what the study will investigate. It also functions as an attention drawing device designed to arise the reader's interest in the research at an early stage.

SNR clearly states what aspect of the topic has not been investigated. This is an indirect highlighting of the importance of the research, which helps the research to get credited by the community.

5.2.2 Sequencing of use

5.2.2.1 The procedure of sequence identification

In order to identify the frequent sequential patterns in abstracts, I first keyed in the sequence of functions used in each abstract in the corpus on spreadsheets. The resulting table was a list of 141 types of sequence. This exhaustive list contained frequent sequences as well as sequences which were used just once. I then did a further analysis in order to build a shorter list which would give us sequences with higher frequencies. I looked for similarities and repeating functions in the list and sorted it according to a set of criteria. The number of sequences was reduced to five with points for optional functions. Each sequence was found out to be repeating high enough to be called a 'pattern'. Before moving on to the five

patterns, first it is necessary here to talk about the criteria I used to reanalyse all types of sequences found in the corpus, which ended in five basic patterns.

The first principle is related to optionality in patterns. As it was necessary to shorten the list of sequences, one of the first things to do was to look for frequent sequences and then search for patterns similar to the frequent ones. In this analysis, I found some main patterns for sequences. I also found that some sequences contained extra functions which did not exist in the main pattern. These were accepted as optional functions. A few points are important here. I set some rules for optionality. The first one is that the optional point should be either in the middle or the final position of the pattern. There should be no optional elements in the initial position because the results of the frequency analysis showed that particular functions were more frequent than others as the opening functions in abstracts. These were ITT and ATR. As they are highly frequent, they should be the characteristic of the pattern and not optional.

As a second principle, the optional elements should not cause the pattern to look exactly the same as another pattern. To make sure that this should not occur, I looked for features in each pattern which distinguished it from the other patterns. One of those frequent patterns was ATR-DTM-PEMF and the other one was ATR-PEMF. DTM is a distinguishing function between these two patterns. In the ATR-PEMF pattern, there should be no DTM as an optional element. There were three frequent patterns which began with ITT. The first one is ITT-ATR-DTM-PEMF, the second one is ITT-ATR-PEMF and the third one is ITT-PEMF. ATR was the element which distinguishes the first and second patterns from the third one. This means that there should be no ATR in the third pattern as optional element. DTM was the distinguishing function between the first ITT sequence and the other two ITT sequences, so the second and third patterns should not have DTM as an optional function. The distinguishing functions helped us to decide what should not be included as optional elements in each pattern. There was also another step we should take to decide on the full structure of the patterns. Taking these impossibilities into consideration, as a second step, I also decided which elements could be optional in each pattern. For each pattern, it was

possible to have a point for RPT as an optional element. In the list of frequent patterns, it was clearly seen that RPT occurred at the end of sequences in most of the cases. This established its position as a final optional element in all patterns. ITT and SNR could be the middle-position optional elements in patterns starting with ATR. SNR was the optional element in patterns starting with ITT.

The third principle was concerned with the repeating functions in patterns. We can talk about two types of repetition here. The first one is cyclicity where at least two adjacent functions (e.g. ATR-DTM-ATR-DTM) repeat at least two times. The other type of repetition is repetition of a single function in the sequence. For example, in the ATR-DTM-PEMF pattern, ATR may repeat somewhere at a later point in the pattern such as ATR-DTM-ATR-PEMF. Another example is ATR-DTM-PEMF-ATR-PEMF. The second occurrence of the ATR function was accepted as a repeating function here. It is possible, of course, to see this sequence as a combinatory pattern of ATR-DTM-PEMF and ATR-PEMF. In such a combination, there was a risk of not finding enough occurrence, so it was decided that the ATR was just the repetition of the first function as it conforms to the pattern.

In the last repetition of a cycle, when there was an incomplete repetition, it was again accepted as part of the cycle, which conforms to the pattern. For example, in ATR-PEMF-ATR-PEMF-ATR, PEMF is not repeated in the last cycle. This was accepted as an incomplete cycle and fitting to the pattern.

After taking these decisions, the list of sequences were sorted into most frequent patterns and five basic patterns emerged.

5.2.2.2 The frequent sequences

86% of the abstracts were found to follow one of the five frequent sequences. As Table 5.3 below shows, the ATR [ITT/SNR] DTM-PEMF [RPT] pattern was the most preferred pattern in the abstracts corpus. This pattern was used in 26% of the abstracts. This was followed by the ATR [ITT/SNR] PEMF [RPT] pattern (21%) and ITT [SNR] ATR-PEMF [RPT] (20%). ITT [SNR]

ATR-DTM-PEMF [RPT] pattern was also a preferred pattern with a slightly lower frequency (14%). ITT [SNR] PEMF [RPT] was only found in 4% of the abstracts. There are also other sequences which did not fit to any of these five patterns and these make 14% of the data.

Table 5.3 Most frequent functional sequences in abstracts

Sequence *	No	%
ITT [SNR] ATR-DTM-PEMF [RPT]	68	14.17
ITT [SNR] ATR-PEMF [RPT]	96	20.00
ITT [SNR] PEMF [RPT]	19	3.96
ATR [ITT/SNR] DTM-PEMF [RPT]	126	26.25
ATR [ITT/SNR] PEMF [RPT]	102	21.25
Others	69	14.38
Total	480	100

* The functions in square brackets are optional.

These results are in line with those of previous studies, in which the P-M-R-C and I-P-R-C are the two common sequences in the literature. The P-M-R-C sequence was reported to occur in 27% (on average) of the abstracts in previous work. This is very similar to the amount of the ATR [ITT/SNR] DTM-PEMF [RPT] pattern in the present study. The I-P-R-C sequence was found in an average of 19% of the abstracts in the literature, which is also very similar to the results for the ITT [SNR] ATR-PEMF [RPT] sequence.

There are some differences between the P-M-R-C and I-P-R-C sequences found in the literature and the ATR [ITT/SNR] DTM-PEMF [RPT] and ITT [SNR] ATR-PEMF [RPT] sequences found in the present study. First, the P-M-R-C and I-P-R-C sequences include two separate moves for 'result' and 'conclusion' which are in a single category in the present study; that is, PEMF. Second, most of the previous studies do not indicate any optional moves in the P-M-R-C and I-P-R-C sequences while there are optional functions in the ATR [ITT/SNR] DTM-PEMF [RPT] and ITT [SNR] ATR-PEMF [RPT] sequences. Only in studies by Hyland (2000) and Ren and Li (2011), the conclusion move was accepted as optional. Also, the optional functions were absent in nearly all of the sequences found in the literature. This is due to the model used. Most of these studies used a five-move model which does not involve the

optional functions found in this study. The MALDIF sequences, however, contain more than one optional point. These differences between the MALDIF sequences and those from previous work do not prevent the sequences from being comparable though.

Here we can also mention the P-M-R sequence. This sequence is similar to the P-M-R-C sequence. The only difference between them is that the P-M-R sequence is lacking a conclusion move at the end. However, the P-M-R sequence is still comparable to the ATR [ITT/SNR] DTM-PEMF [RPT] sequence where the results and conclusion moves are combined under the name PEMF. The P-M-R sequence was observed in just an average of 10% of the abstracts in previous studies while the P-M-R-C sequence in 27% of the abstracts and the ATR [ITT/SNR] DTM-PEMF [RPT] sequence in 26% of the corpus of the present study. This indicates that the use of results and conclusion moves together is a preferred style.

The results for the P-R-C sequence (15% on average) are a little below the results for the ATR [ITT/SNR] PEMF [RPT] pattern in this study. The P-R-C sequence, which does not include a method move, was observed to be preferred by disciplines which contained low amounts of the method move. The disciplines containing high amounts of the method move preferred the P-M-R-C move that includes a method.

The results provided for the I-P-M-R-C sequence in the literature (17% on average) again show similarities with the ITT [SNR] ATR-DTM-PEMF [RPT] sequence. This sequence is the full five-move sequence in the literature which contains all the moves in the models of analysis. The ITT [SNR] ATR-DTM-PEMF [RPT] sequence is also the sequence which contains all the functions in the MALDIF model.

The issues of a single category for the ‘results’ and ‘discussion’ moves and the optional points for additional moves in the MALDIF sequences were also the features distinguishing the ATR [ITT/SNR] PEMF [RPT] and ITT [SNR] ATR-DTM-PEMF [RPT] sequences of the MALDIF model from the P-R-C and I-P-M-R-C sequences from the literature. An optional conclusion

was indicated by Hyland (2000) and Ren and Li (2011) while this is not an optional move in other studies.

There is also a similarity between the ITT [SNR] ATR-DTM-PEMF [RPT] sequence and the I-P-M-R sequence in terms of structure. It is possible to see the I-P-M-R sequence as a version of the I-P-M-R-C sequence without a conclusion. This makes these two moves comparable to the MALDIF sequence where the PEMF category contains the conclusion in addition to findings. The conclusion move in these sequences seems to be slightly important. The I-P-M-R sequence was found in 10% (on average) of the abstracts in previous work while the version with a conclusion was found to occur in 17% of the abstracts in previous studies and the ITT [SNR] ATR-DTM-PEMF [RPT] sequence was in 14% of the abstracts in the present study.

An occurrence of 7% (on average) was reported for the I-R sequence in previous research. Similar proportions were also observed for the ITT [SNR] PEMF [RPT] sequence. This is the barest of the sequences with a fewer number of functions in this study as well as in the literature, although the optional points make the MALDIF sequence a little longer than the I-R sequence.

The results in Table 5.3 indicate that abstracts start either with ATR or ITT and that there is a strong preference among writers to start abstracts with ATR. ATR patterns make 48% of the data and ITT patterns 38% of the data. If we compare the sequences starting with the purpose move and those starting with the introduction move in previous work, we find that purpose sequences were also more frequent than the introduction sequences (see Table 2.3 in Chapter 2). Studies which presented results regarding the opening moves in abstracts show that introduction opened 46% (on average) of the abstracts whereas purpose opened 49% (on average) of the abstracts. A purpose start is still more frequent in abstracts although these results are independent of the sequential patterns. A preference for starting abstracts with ATR patterns might be attributed to directing the attention to the present research. It is likely that the writers did not want to lose time by situating the research in the

research area and let the reader to learn about the purpose and key features of their research immediately starting from the first sentence. This might be seen as a shortcut style of presenting the research to the audience. From this point of view, the writers who adopted the ITT patterns chose the long way and set the scene before announcing the research to the reader.

It is observable from Table 5.3 that DTM might also be a distinguishing feature between patterns. Two patterns hold DTM as a mandatory element whereas the other three do not have DTM. The DTM group constitutes 40% of the corpus and 45% of the abstracts are in the no-DTM group. The slightly higher occurrence of no-DTM sequences might be due to either less need to describe the methodology or a tendency to merge it with another function (e.g. ATR or PEMF).[1] As only independent clauses were coded as a rule in this study, we do not know how much merging of DTM occurred in the abstracts.

Previous studies have shown that sequences including a method move are slightly more frequent than those with no method move (see Table 2.3 in Chapter 2). This is probably due to the unit of analysis which allows coding at the clause and phrase level. We can see this in embedded cases where the sentences are assigned two (or more) functions. Move embedding of the method move have been found with the purpose and results as well as with the introduction in previous studies. Santos (1996) and Can et al. (2016) reported that a great majority of applied linguistics abstracts contained merged cases of purpose and method moves. Martín (2003) found that 47% of the English abstracts in his data combined introduction and purpose moves. In Martín's study, the introduction move was further demonstrated to contain great proportions of purpose statements.

If we compare the patterns in terms of similarities and differences, we find that ATR and PEMF were used across all the patterns in both the ATR and ITT groups excepting the ITT [SNR] PEMF [RPT] pattern which has only PEMF in common with other patterns. SNR and RPT are optional elements in all patterns. ITT is also an optional element in the ATR group

1 See examples 5.1 and 5.2 in section 5.2.1 for embedded DTM.

and a mandatory element in the ITT group. DTM occurred in only two patterns in which it was the obligatory element.

A closer look at the use of patterns in the corpus reveals that there are basic and expanded uses of each pattern. The basic version relates to the use of the pattern with only obligatory elements and the expanded version involves the use of the obligatory elements with the optional ones. As shown in Table 5.4, 61% of the abstracts contained only the basic version of the patterns. In 39% of the abstracts, the expanded version of the patterns were used.

The conclusion move is the only move which has been identified as optional in some previous studies (Hyland, 2000; Ren and Li, 2011). Detailed information relating the proportion of the conclusion move was provided only by Hyland (2000). Hyland's corpus of abstracts contained four types of sequence where the conclusion was optional. A comparison of the basic and expanded uses of these sequences revealed that only 22% of the abstracts using these four sequences included a conclusion.

Table 5.4 Basic and expanded use of patterns in the five patterns

Sequence type	*n*	%
Basic (obligatory elements only)	251	61.07
Expanded (obligatory + optional elements)	160	38.93
Total	411	100

A comparison of the patterns in terms of the basic and expanded use showed that the ATR patterns were more frequent than the ITT group when only the basic versions were used (see Table 5.5 below). 65% of the ATR patterns used the basic version whereas 56% of the ITT patterns were in the basic version. The tendency for the basic ATR patterns is a result of the writers' preference for a direct style. The writers who preferred the ATR patterns focussed more on their own research and less on functions that help to situate the research in the research area. ITT and SNR in the ATR patterns, which were used to situate the research in the research area, were optional elements in the expanded version. The

percentages for ITT and SNR were quite low in the expanded ATR patterns, especially for SNR (4% of the expanded ATR group).[1] The ITT patterns (44%) had a higher amount of expanded versions than the ATR patterns (35%). In the ITT patterns, the writers attempted to situate the research by an ITT opening in both the basic and expanded versions. This attempt continued by SNR in the expanded version. SNR occurred in 32% of the expanded ITT group (see Table 5.6 below for details).

Table 5.5 Proportion of basic and expanded uses within patterns

Sequence	Basic version		Expanded version		Total	
	n	%	n	%	n	%
ITT [SNR] ATR-DTM-PEMF [RPT]	37	54.41	31	45.59	68	100
ITT [SNR] ATR-PEMF [RPT]	57	59.38	39	40.63	96	100
ITT [SNR] PEMF [RPT]	9	47.37	10	52.63	19	100
ATR [ITT/SNR] DTM-PEMF [RPT]	92	73.02	34	26.98	126	100
ATR [ITT/SNR] PEMF [RPT]	56	54.90	46	45.10	102	100

In the DTM and no-DTM comparison of basic and expanded uses, we found that both DTM and no-DTM preferences were mostly for the basic version. The basic version was used in 66% of the DTM patterns and 56% of the no-DTM patterns used the basic version.

In Hyland's (2000) study where the conclusion move was optional, patterns starting with the introduction move included more conclusions than those starting with the purpose move. Also, patterns including a method move in Hyland's data contained less conclusions than the patterns with no methods. Although the optional move in Hyland's study is not the same as the optional functions in this study, a comparison of these results indicate that patterns starting with an introduction and those including no methods contain more optional elements such as conclusion, ITT, SNR, and RPT.

Apart from the proportion of abstracts containing patterns with optional elements, it is also useful to look at the proportion of each optional element for each pattern. This will help us

1 See Table 5.6 for optional elements in patterns.

to determine the prominence of each optional element in patterns. Table 5.6 shows the percentage of abstracts containing optional elements within a pattern.

RPT was the most frequently used one among the three optional elements. It occurred in 20% of the five patterns. This was followed by SNR, which occurred in 16% of the abstracts in all five patterns. ITT, which occurred as an optional element only in the ATR patterns, had an 8% of occurrence.

Table 5.6 Optional elements in patterns *

Sequence	ITT		SNR		RPT	
	n	%	*n*	%	*n*	%
ATR [ITT/SNR] DTM-PEMF [RPT]	9	7.14	2	1.59	27	21.43
ATR [ITT/SNR] PEMF [RPT]	25	24.51	6	5.88	22	21.57
ITT [SNR] ATR-DTM-PEMF [RPT]	-	-	24	35.29	9	13.24
ITT [SNR] ATR-PEMF [RPT]	-	-	28	29.17	19	19.79
ITT [SNR] PEMF [RPT]	-	-	6	31.58	4	21.05

* The figures reflect the use of optional elements within each pattern. They indicate the number and percentage of abstracts using the optional elements in each pattern. No totals were given in the table as some abstracts contained more than one optional element.

As can be seen from Table 5.6, RPT occurred slightly more frequently in ATR patterns than in ITT patterns. 21% of the abstracts in the ATR group used RPT while 17% of the ITT-pattern abstracts contained RPT.

SNR seems to be an optional element of predominantly ITT patterns. It occurred in 32% of the abstracts in ITT patterns. Only 4% of the ATR-group abstracts involved SNR. It is predictable that SNR occurred mostly in the ITT patterns because SNR occurred together with ITT most of the time. In all four corpora, SNR followed ITT in 84% of its occurrence (i.e. 73 out of 87 abstracts).[1] In all its occurrences (58 abstracts) in the ITT patterns, SNR was preceded by ITT. In the ATR patterns, SNR followed ITT in half of its occurrences (i.e. 4 out of 8 abstracts).

1 See Table 5.12 in section 5.3.1 and Table 5.19 in section 5.4.1 for SNR behaviour in abstracts in disciplines and genres.

ITT as an optional element made up 15% of the ATR group of abstracts. It was preferred more in the ATR [ITT/SNR] PEMF [RPT] sequence. 25% of this pattern contained an ITT. In the ATR [ITT/SNR] DTM-PEMF [RPT] pattern, ITT occurred only in 7% of the abstracts.

The optional conclusion appeared in the final position of the four sequences in Hyland's (2000) study. It was used in 26% of the patterns with an introduction start and in 20% of the patterns with a purpose start.

5.2.3 Cyclicity

The analysis of the data for the functional cycles revealed eight type of cycles which occurred across five patterns. Table 5.7 below gives the most frequent functional cycles in the five sequences.

Table 5.7 Most frequent functional cycles in sequences *

Cycle	ATR [ITT/SNR] DTM-PEMF [RPT]	ATR [ITT/SNR] PEMF [RPT]	ITT [SNR] ATR-DTM-PEMF [RPT]	ITT [SNR] ATR-PEMF [RPT]	ITT [SNR] PEMF [RPT]	TOTAL
ATR-DTM	7		2			9
ATR-DTM-PEMF	1					1
ATR-PEMF	2	16	2	14		34
ATR-SNR		1				1
DTM-PEMF	11		1			12
ITT-ATR			3	8		11
ITT-PEMF					1	1
ITT-SNR			1	1		2
TOTAL	21	17	9	23	1	71

* The figures in the table indicates frequency of cycles in each pattern and their totals. In some cases, a single abstract includes two different cycles.

The recycling of eight type of functional pairs/groups accounts for 16% of the abstracts in the five patterns. ATR-PEMF was the most frequent cycle among the eight cycles. It was more commonly used in the ATR-PEMF and ITT-ATR-PEMF patterns. There were some

recurrence in the pairs of DTM-PEMF, ITT-ATR and ATR-DTM. The other cycles were very rare, occurring only in one or two abstracts in total.

One possible explanation for the high occurrence of the ATR-PEMF cycle is that in studies in which there are more than one aim, analysis or study/experiment, a finding follows each aim/study etc, so the cycle repeats in accordance with the number of aims/studies.[1] DTM-PEMF cycle is similar to this one because in some studies, especially in experimental research, writers express the second experiment by describing its methodology. The reason for this is that the second experiment is different from the first experiment only in its methodology. Instead of repeating the aim, writers just state what is different from the previous experiment, which is methodology.[2]

The ITT-ATR cycle occurred in the ATR patterns where some clarifications related to the ATR was needed. The ATR-DTM cycle repeated when there were multiple aims in abstracts. After each ATR, its associated methodology was also described.[3]

Previous research has provided very limited information in terms of move cycles. Can et al. (2016) found that the purpose-method cycle was the most commonly recurring cycle in applied linguistics abstracts. This was also one of the most frequent cycle (ATR-DTM) in the present study. They also found that the method move was recycled in combination with results and discussion moves: method-results-method-discussion. This sequence, which is similar to the DTM-PEMF cycle, was also found to recur frequently in the present study. The method and results moves were also found to be the most common recycling moves in Kanoksilapatham's (2013) corpus of civil engineering abstracts. It is not clear which moves are used in combination with these two moves; however, method and results moves were also found to appear in the most frequently occurring cycles in the present study.

1 See examples 5.10 and 5.11 in section 5.3.3.
2 See examples 5.13 and 5.14 in section 5.3.3.
3 See example 5.12 in section 5.3.3.

5.2.4 Summary

To recap, the general findings of the MALDIF analysis regarding the preferred moves, sequences and move cycles are:

- Consistent with the literature, this research showed that PEMF and ATR were the most common functions in the present corpus of research article and doctoral thesis abstracts in applied linguistics and psychology. A separate conclusion move identified in previous research was included in the PEMF category in this study.
- The results for ITT are in agreement with those of previous studies, in which the introduction move occurred in half of the abstracts.
- DTM occurred in half of the abstracts. This finding is contrary to previous studies which have found that the method move occurred in an average of 73% of the abstracts. This difference in results was explained by the differences in the unit of analysis used in this study and in previous studies. Previous research has been found to code units within sentences such as clause and phrase while only independent phrases were coded in this research.
- Appearing in less than 25% of the corpus, RPT and SNR were found to be optional functions in abstracts. There are a small number of studies identifying SNR and RPT in previous work. The limited use of the SNR has also been shown in earlier studies. In accordance with the present results, previous studies have demonstrated that RPT is an infrequent function in abstracts. However, it should be noted that the aspect of RPT related to indicating the structure of the text and the aspect related to referring to parts of text have been investigated separately in different studies. In contrast to these studies, this study combined these two functions under the RPT category.
- Five sequential patterns were found in the corpus, occurring in 86% of the abstracts. These are the sequences ATR [ITT/SNR] DTM-PEMF [RPT], ATR [ITT/SNR] PEMF [RPT], ITT [SNR] ATR-PEMF [RPT], ITT [SNR] ATR-DTM-PEMF [RPT] and ITT [SNR] PEMF [RPT].
- Comparison of the findings with those of other studies confirms that the ATR [ITT/SNR] DTM-PEMF [RPT] (26%) and ITT [SNR] ATR-PEMF [RPT] (20%) sequences are common patterns in abstracts.

- The results for the ITT [SNR] ATR-DTM-PEMF [RPT] (14%) and ITT [SNR] PEMF [RPT] (4%) sequences are also consistent with previous studies.
- The overall proportion of the ATR [ITT/SNR] PEMF [RPT] pattern was found to be 21%, higher than that of previously reported proportions (15%). In previous work, this sequence was observed to be used in disciplines containing the method move in small amounts.
- The sequences starting with an ATR function were more frequent than sequences starting with an ITT function, which have also been demonstrated in previous research.
- Contrary to previous research, the sequences containing DTM were slightly less frequent than sequences with no DTM. The slightly more frequent use of the DTM sequences in previous work can be explained by the unit of analysis which allows multiple codings within sentence, eventually increasing the number of cases for the method move.
- 39% of the abstracts contained optional elements. These are ITT, SNR and RPT. The RPT function was the most frequent of these three optional functions, occurring in 20% of the abstracts following the five sequential patterns. SNR occurred in 16% of the five sequences and found predominantly to be an optional element of the sequences starting with ITT. The ITT as an optional element in the ATR patterns was found in 8% of the abstracts. Only the conclusion move has been shown as the optional move in a number of previous studies, occurring in 22% of the abstracts.
- Four cycles were found to recur frequently in the study: ATR-PEMF, DTM-PEMF, ITT-ATR and ATR-DTM. There is little evidence in terms of recurrence of moves in the literature. The ATR-DTM cycle and the method-results-method-discussion cycle which is similar to the DTM-PEMF cycle were also found to be the common recurring cycles in previous work. Also, the method and results moves have been shown to be recycled in abstracts.

5.3 Disciplinary variation in MALDIFs

5.3.1 Frequency of occurrence by discipline

The MALDIFs were very similar in their order of frequencies between applied linguistics and psychology. As can be seen from Table 5.8, PEMF was the most frequently used function in both corpora. ATR was the second frequent function again in both corpora. PEMF and ATR

were followed by ITT and DTM in both disciplines, only the order was different. DTM was the third and ITT was the forth frequent function in applied linguistics. These were in the reverse order in psychology. The instances of RPT and SNR were very low (each was less than 5%) in both corpora.

Table 5.8 Distribution of MALDIFs across disciplines

Functions	Applied Linguistics		Psychology		Total
	total cases	%	total cases	%	total cases
ITT	262	12.5	251	11.3	513
SNR	49	2.3	52	2.3	101
ATR	498	23.7	475	21.3	973
DTM	392	18.6	176	7.9	568
PEMF	837	39.8	1200	53.8	2037
RPT	66	3.1	77	3.5	143
Total	2104	100	2231	100	4335

In addition to similarities and differences in the order of frequencies of functions between the two disciplines, the functions were also comparable in terms of the frequency of occurrence between applied linguistics and psychology. While the percentage of ATR, ITT, RPT and SNR were similar between disciplines, there were substantial differences in the proportion of PEMF and DTM. 54% of the instances in the psychology corpus contained PEMF whereas 40% of all instances of the six functions were PEMF in applied linguistics. DTM constituted 19% of the instances in applied linguistics; yet, only 8% of the total instances in psychology were DTM.

If we look at the number and percentage of abstracts containing MALDIFs (see Table 5.9 below), we can see that there are differences in ITT, ATR and DTM between disciplines, and that SNR, PEMF and RPT present disciplinary similarities.

PEMF and ATR were the most frequently occurring functions in applied linguistics and psychology, occurring in more than 88% of the abstracts in both disciplines. It seems that PEMF (99%) is a much more important function than ATR (88%) in psychology while applied

linguistics writers preferred ATR (97%) slightly more than PEMF (94%). This difference might be caused by the experimental nature of research in psychology. As there are more than one experiment, writers use the space given for abstracts to present more findings.

Table 5.9 Number and percentage of abstracts containing MALDIFs by discipline

Functions	Total no of abstracts in AL	% in AL*	Total no of abstracts in PSY	% in Psy**
ITT	111	46.3	139	57.9
SNR	41	17.1	46	19.2
ATR	233	97.1	212	88.3
DTM	151	62.9	88	36.7
PEMF	225	93.8	238	99.2
RPT	51	21.3	57	23.8

* Percentages give the frequency of use of each function in 240 abstracts in applied linguistics.
** Percentages give the frequency of use of each function in 240 abstracts in psychology.

Previous research has also identified ATR and PEMF as the most frequently occurring functions in applied linguistics (Santos, 1996; Hyland, 2000; Pho, 2008; Ren and Li, 2011; Tseng, 2011; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014; Can et al., 2016). On average, ATR occurred in 94% of the abstracts and PEMF in 91% of them, presenting similarities with the results of the current study. Previous research on rhetorical moves has largely ignored psychology abstracts. Only in Martin's study (2003), a part of the corpus contains abstracts from experimental psychology while the other part contains texts from experimental phonetics. The results which were presented for the combined data demonstrated that the 'results' move occurred in 86% of the English abstracts in experimental phonetics and experimental psychology and that the 'introduction' move which also included purpose statements occurred in 99% of the abstracts. A further analysis of the introduction move using the CARS model revealed that 'announcing present research' appeared in 95% of the English corpus. The percentages for the 'results' move in Martin's study is far below the percentage for the PEMF function in the current study. Also, the proportion of the 'purpose' move in Martin's results is beyond the proportion of the ATR function of the present study. It is difficult to predict the proportion of moves in

experimental psychology abstracts in Martin's study since the results for experimental psychology were combined with the experimental phonetics.

A comparison of the results of the current study with those from soft science disciplines in previous studies demonstrated that there were similar results for ATR/purpose between psychology and soft science disciplines (89% on average), and that psychology abstracts contained higher proportions of PEMF than the soft disciplines (87% on average). The higher proportion of the PEMF function in psychology abstracts can be explained by the prominence of the research findings in this field. There are usually a number of findings in psychology abstracts, most of which come from multiple experiments. The experimental nature of psychology seems to increase the chance of the PEMF function to appear in abstracts.

It is surprising that PEMF did not occur in all abstracts in the present corpus. It occurred in almost all abstracts in psychology, but 0.8% of the psychology corpus failed to use it. In applied linguistics, the omission of PEMF was larger. It was absent in 6.2% of the applied linguistics abstracts. When we look why PEMF is absent in these abstracts, we find three reasons for that. Table 5.10 shows what happened in 17 abstracts when PEMF was not used.

Table 5.10 Omission of PEMF across disciplines

	Applied Linguistics	Psychology
RPT instead of PEMF	6 (2 RA / 4 TA)	1 (RA)
no RPT / PEMF	4 (2 RA / 2 TA)	
uncategorised	5 (TA)	1 (TA)

While PEMF was absent in just two abstracts in psychology, this figure was 15 in applied linguistics. It would be wrong to say that PEMF was absent in all these abstracts since there were also 'uncategorised' cases, but it is apparent from this table that 4 abstracts in applied linguistics did not contain any clause related to findings (i.e. PEMF and RPT), suggesting a divergence from the discourse conventions. What is more interesting is the replacement of PEMF by RPT. The example from the applied linguistics corpus below (5.3) illustrates this.

(5.3)	This paper is principally about methodology. (AAAL026-1)	ATR
	It first summarizes five issues in the emerging research agenda of conversation analysis-for-second language acquisition (CA-for-SLA), and develops empirically based analyses of classroom talk that occurs over several days and months to illustrate how a longitudinal learning behavior tracking (LBT) methodology for CA-for-SLA works. (AAAL026-2)	RPT / ATR
	LBT has two components: Learning object tracking (LOT) and learning process tracking (LPT). (AAAL026-3)	DTM
	LOT involves tracking when participants deploy potential learning objects within a single conversation and in subsequent speech events. (AAAL026-4)	DTM
	LPT involves carrying out conversation analyses of participants' emerging grammar to understand how they orient to learning objects as resources for doing language learning behaviors that occur both in the moment and over time. (AAAL026-5)	DTM
	The paper concludes with an overview of the methodological strengths and weaknesses of LBT. (AAAL026-6)	RPT

The abstract contains only one sentence at the end referring to findings, but it is just an announcement that they can be found in the research article. Not giving findings here in the abstract might be related to the number of findings. The writer might have sensed that the space is not enough to give all the important findings. As presenting just a part of the key findings would be imprecise, the writer might have preferred to use an RPT instead. This is a very strategic decision for a writer, which results in a complete representation of the research.

The disciplinary difference in ATR was greater than the difference in PEMF (5% difference). There was a difference of 9% between the two disciplines in ATR. No ATR instances were found in 12% of the psychology abstracts while only 3% of the abstracts in applied linguistics omitted ATR. It would be useful to look at the abstracts which do not contain ATR to understand the causes of that omission. Table 5.11 below shows the number of abstracts omitting ATR in both applied linguistics and psychology.

Table 5.11 Omission of ATR across disciplines

	Applied Linguistics	Psychology
DTM instead of ATR	2 (1 RA / 1 TA)	6 (RA)
no ATR / DTM	3 (RA)	18 (RA)
uncategorised	2 (1 RA / 1 TA)	4 (1 RA / 3 TA)

As can be seen from the table, ATR omission was found in 28 abstracts in psychology whereas applied linguistics contained only 7 abstracts with an ATR omission. The psychology writers had slightly more tendency to use DTM as a substitute for ATR. Here is an example (5.4) from the Journal of Developmental Psychology.

(5.4)	Three- and 4-year-old children were asked to judge which of a set of 3 lines was the longest, both independently and in the face of an inaccurate consensus among adult informants. (APDP034-1)	DTM
	Children were invariably accurate when making independent judgments but sometimes deferred to the inaccurate consensus. (APDP034-2)	PEMF / PEMF
	Nevertheless, the deference displayed by both age groups proved to be circumscribed. (APDP034-3)	PEMF
	When asked to solve a practical problem—selecting the longest strip to build an adequate bridge—both groups relied on their own perceptual judgment, regardless of whether they had deferred to the inaccurate consensus. (APDP034-4)	PEMF
	Confirming earlier meta-analytic findings with adults, the rate of deference was greater among Asian American children as compared with Caucasian American children. (APDP034-5)	PEMF

The abstract opens with DTM where we are presented information about participants and the task. All the rest of the abstract consists of findings. The purpose of the research and key features are left to the inference of the reader.

The abstracts with no ATR or DTM present a more interesting case. Most of these abstracts (15 abstracts) in psychology consisted of ITT and PEMF although there were occasional occurrences of SNR and RPT as optional functions. The other three abstracts contained only PEMF. In applied linguistics, two abstracts were in the ITT-PEMF type and one abstract was

the PEMF type. The ITT-PEMF type is illustrated below (5.5) by an abstract from the Journal of Personality and Social Psychology.

(5.5)	Research indicates that, among women and ethnic minorities, perceived inequality reduces the association between self-esteem and academic outcomes. (APPSP009-1)	ITT
	The present studies demonstrate that the perception of social inequality does not always induce subordinate-group disengagement. (APPSP009-2)	PEMF
	Rather, inequality framed as dominant-group advantage allows subordinate groups to remain engaged and causes dominant groups to disengage. (APPSP009-3)	PEMF / PEMF
	Experiments 1–3 demonstrate that academic inequality framed in terms of ingroup disadvantage causes Black, Latino, and female students to disengage, but inequality framed in terms of White or male advantage does not. (APPSP009-4)	PEMF
	Experiments 3 and 4 demonstrate the same effect for Whites and men—inequality framed in terms of the ingroup (i.e., advantage) causes disengagement, but inequality framed as outgroup disadvantage does not. (APPSP009-5)	PEMF / PEMF

In ITT, the writer gives a general research finding from previous research related to the research topic. This helps the reader to form an idea about what the research topic is. The reader proceeds to read the findings in the rest of the abstract and takes his chance to validate if his guess of the research topic is correct.

Such a non-existence of an explicit ATR or DTM seems to be a random choice in applied linguistics, but a more conscious preference in psychology. 27.5% (11 abstracts) of the abstracts from the Journal of Personality and Social Psychology did not contain an explicit ATR or DTM. This was 20% (8 abstracts) in the abstracts from the Journal of Experimental Psychology-General. The Journal of Psychological Science omitted these two functions in 12.5% of the abstracts. There was only one abstract omitting an ATR in the Journal of Developmental Psychology. It is obvious that social and experimental psychologists prefer an inexplicit way for signalling research purposes and key features. The Journal of Psychological Science is closer to the hard science domain, but it shows similarity with the former two journals. Although the Journal of Developmental Psychology is from a soft knowledge

discipline, the abstracts failed to show a similar pattern of occurrence in the omission of ATR with the other two soft-discipline journals. This shows that there is variation in the use of functions even between similar sub-disciplines.

ITT and DTM, which occurred in no more than 63% of the abstracts, were still important functions in applied linguistics and psychology abstracts. Interestingly, 58% of the abstracts in the psychology corpus contained ITT while this was only 46% in applied linguistics. Situating the research in the disciplinary area seems to be more important in psychology than in applied linguistics. DTM occurred in 63% of the applied linguistics corpus while only 37% of the abstracts in psychology contained DTM. This substantial difference might be due to merging DTM with ATR or PEMF, which is expected to be more common in psychology.[1]

The results for ITT in applied linguistics abstracts in the current study are very similar to those from most previous studies (Santos, 1996; Hyland, 2000; Pho, 2008; Tseng, 2011; Suntara and Usaha, 2013). There are a few studies which found slightly higher proportions of ITT in RAs in applied linguistics, ranging from 54% to 60% (Ren and Li, 2011; Saeeaw and Tangkiengsirisin, 2014; Can et al., 2016). Also, in one study, Ren and Li (2011) found all master's dissertation abstracts in applied linguistics contained an introduction. Although it may be speculative to provide an explanation for these above-average percentages, one reason for the differences might be the types of studies included in the corpora of previous research. In most of the studies, it is unclear whether the corpus consists of abstracts from theoretical or empirical (data-based) studies. The current study, however, used abstracts only from empirical (data-based) studies.

The introduction move was found to be the most frequent move in Martín's study (2003), occurring in 99% of the English abstracts in experimental phonetics and experimental psychology. A detailed analysis of the introduction move revealed that 53% of its occurrence, the introduction move fulfilled functions only related to the introduction move such as claiming centrality, making topic generalisations and reviewing items of previous

1 See section 5.2.1 for a discussion of this and examples.

research. This result is not so different from the ITT percentages for psychology in the current study; however, it should not be ignored that the figure in Martín's results is not just for experimental psychology, but it shows the proportion of the introduction move in the combined corpus of experimental phonetics and experimental psychology. Also, the psychology result for ITT is much the same as those in soft disciplines where the introduction move occurred in 60% (on average) of soft-science abstracts.

Results for ITT present variation between applied linguistics and psychology abstracts. The proportion of abstracts containing ITT was greater in psychology (57.9%) than in applied linguistics (46.3%), making a difference of 12% between disciplines. This difference indicates that psychology writers need to justify the research context more than applied linguistics writers. This might be due to the competitiveness in research publication in psychology. Psychology is an older discipline than applied linguistics and has a well-established literature. Psychology writers need to persuade the reviewers of the value of the research to make their work published in peer-reviewed journals. The reviewers need to be sure that the research topic is new or interesting to accept the study to be published. The opening sentences are the most appropriate position of abstracts where the writers show the importance of the research topic by situating the research in the field. In 90% of its occurrences, ITT was the first function in psychology. This was only 73% in applied linguistics. This shows that psychology writers have a higher tendency than applied linguistics writers to attract attention to the research by indicating its value in the opening of the abstracts.

It is also essential to grab the attention of the readers from the first sentences. ITT gives the reader a reason to pay further attention to the research. If the reader finds the research topic interesting, he may continue to read further. Similarly, ITT serves as showing the value of the research in TAs, but it also shows the doctoral researcher's competence in grasping the literature related to the topic.

Previous studies have found that substantial amounts of applied linguistics abstracts contained the method move (86% on average). Many studies have reported percentages

over 86% (Santos, 1996; Pho, 2008; Ren and Li, 2011; Tseng, 2011; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014; Can et al., 2016). In only two previous studies, Hyland (2000) and Ren and Li (2011) reported that 42% and 60% of applied linguistics RAs contained a method move. In contrast to these earlier findings indicating frequent uses of the method move, DTM was found only in 63% of the applied linguistics corpus.

There is a much larger difference between the results of DTM for psychology in this study and those from previous research. Martín (2003) found that the method move appeared in 83% of the English abstracts in experimental phonetics and experimental psychology corpus. Also, on average, 75% of the abstracts in soft science disciplines contained a method move. In the present study, DTM occurred only in 37% of the psychology corpus.

As suggested above, these differences might be explained by the unit of analysis. In the current study, method statements which occurred only in independent clauses were analysed since the unit of analysis was the independent clause. However, the unit of analysis ranges between a phrase to several sentences in prior studies. Such a wide range of units of analysis increases the instances of a move. A major factor that increases the instances of a move is observable in embedded moves. Cases of multiple coding within sentences where at least two units in a sentence are assigned functions is called move embedding. Such a practice is common in previous work. In his seminal study, Santos (1996) identified the method move in 98% of the applied linguistics abstracts. The method move appeared as an independent unit in 29% of its occurrence while it was merged with the purpose move in 70% of the instances. Move embedding between the purpose and method moves was also reported by Can et al. (2016). They found such an embedding in 58% of the applied linguistics abstracts. Martín (2003) reported that the method move was an independent unit in 48% of the English experimental phonetics and experimental psychology abstracts, and that it was merged with the introduction move in 47% of the abstracts and with the results move in 5% of the cases. The embedded cases for the method move have also been reported by Cross and Oppenheim (2006), Pho (2008), Suntara and Usaha (2013) and Saeeaw and Tangkiengsirisin (2014). As can be seen from these results, the embedded cases

constitute a great majority of the abstracts, which help to increase the number of method instances.

The results of the MALDIF analysis showed that DTM presented the largest differences between disciplines. There is a difference of 26% in DTM between applied linguistics and psychology abstracts. As the unit of analysis was the 'independent clause', this difference shows DTM that occurs only explicitly (i.e. alone in independent clauses)[1]. Applied linguistics is a newer discipline compared to psychology and lacks well-established methodologies. This leads applied linguists to prefer to use an explicit DTM because they need to justify the methodology more than psychologists.

Psychology, on the other hand, is an older discipline which has well-established methodologies. As these methodologies are shared-knowledge in the discipline, there is no need to describe them. The new methodologies need to be described explicitly and the number of these are not as much as those in applied linguistics. Also, the high number of findings in psychology has a role in the low number of explicit DTM clauses. The total number of instances of PEMF constitutes 54% of the occurrences of all functions in psychology. This figure was 40% in applied linguistics. It is likely that the lower occurrence of DTM in psychology is an effort to spare more space for findings.

Apart from these explicit uses of DTM, there are also inexplicit uses where DTM occurs in dependent clauses. We can see such inexplicit use of DTM where it is merged into ATR or PEMF sentences both in applied linguistics and psychology (see section 5.2.1 for the discussion and examples of merged DTM.). It is hard to say how much and in what way these merged cases occurred in the data because the present research do not target 'merged' cases. It also matters what we mean by 'merged' cases. If we mean the merging of DTM as an independent clause with another independent clause with a different function, then we had already counted such cases as independent DTM. However, if we mean that the DTM is

1 There were only two exceptional cases where DTM occurred in dependent clauses in the PRA corpus.

merged into an independent clause as a dependent clause, then these were not counted as the unit of analysis was not the dependent clause.

The results of the study showed that RPT and SNR were infrequent functions in the applied linguistics and psychology corpora. RPT and SNR use were much lower (less than 25%) compared to other functions in the two corpora.

RPT has been found only in a few studies. In section 5.2.1, we discussed the results for RPT from previous studies which indicated that RPT was an infrequently occurring function in abstracts, which is also in agreement with the disciplinary results of the current study. Also, the studies which presented results for RPT focussed on only one aspect of it, either identified 'indicating text structure' or 'references to parts of text'. In the current study, these two related functions are described in the RPT category.

A few studies identified SNR in abstracts. Only one study presented results of SNR for applied linguistic. Santos (1996) reported that the sub-move 'stating a problem' occurred in 26% of the applied linguistics abstracts. The SNR result of the present study for applied linguistics is consistent with that of Santos. Martín (2003) found SNR in 41% of the combined data of English experimental phonetics and experimental psychology abstracts, which is far beyond the figure for psychology of the current study. Martín found SNR only in 15% of the Spanish texts. Tankó (2017), on the other hand, found gap instances only in 11% of abstracts in the literature corpus.

On average, SNR occurred in 23% of the soft science abstracts in previous studies. The results for SNR in the soft science disciplines suggest that SNR is an optional move in soft discipline abstracts. In the hard science domain, results by Samraj (2005) indicated that 50% of the conservation biology abstracts and 17% of the wildlife behaviour abstracts contained gap statements, which seem to be a little higher than the results for SNR in the soft science domain.

RPT was one of the low frequency functions. There is only 3% difference in RPT between applied linguistics and psychology. This indicates disciplinary similarities in RPT use rather than variation. RPT occurred mostly at the abstract-final position in both disciplines. Only 5 (of 51) applied linguistics abstracts used it in the mid-position. This was 8 (of 57) abstracts in psychology. In most of the time, RPT occurred together with PEMF in both applied linguistics and psychology. Only in 6 applied linguistics abstracts and just in one psychology abstracts, it occurred alone, i.e. with no PEMF.

In both disciplines, RPT was used to refer to parts of text explicitly as well as implicitly. Explicit references are direct references to chapters of theses or sections of research articles. In the data, we found direct references only to thesis chapters. The following examples shows explicit and implicit references in RPT.

(5.6)	Chapter 1 reviews the literature on perceptions of surveillance and that on social identity, and attempts to illustrate how they may be theoretically combined, resulting in the advancement of both fields. (TP031-4)	(Explicit reference)

(5.7)	These findings are discussed in terms of the participants' local concerns as well as the children's orientations to the routine features of preschool activities. (AAAL024-6)	(Implicit reference)

In example 5.6, we see an explicit reference to the literature review chapter and the second sentence (5.7) makes an implicit reference to the research article section where the findings are discussed.

RPT use was also similar in content between disciplines. Writers used it to indicate text structure or to refer to parts of text where details of the mentioned point can be found. Both of these can include explicit and implicit references. They also might occur in the same sentence.

(5.8)	The paper concludes with an overview of the methodological strengths and weaknesses of LBT. (AAAL026-6)	(implicit ref)

(5.9)	Finally, in Chapter 7, we review and integrate our findings, discuss the limitations of the research, and consider the implications it has, both theoretically and practically. (TP031-16)	(explicit ref / same sentence)

In sentence 5.8, there is no explicit reference to a particular section of the research article, but it is still detectable that it is the final section (conclusion). We see an indication about the text structure from the sentence, but it is also signposting where the reader can find an evaluation of the findings. Sentence 5.9 also presents a combination of indicating text structure and referring to the chapter where the mentioned information can be found.

SNR was the least frequent function in both applied linguistics and psychology. Psychology abstracts contained just 2% more SNR than applied linguistics abstracts, which suggests similarities between the two disciplines in SNR. When we look at the behaviour of SNR in abstracts of the two disciplines, we find that SNR was preceded by ITT in 76% of the applied linguistics abstracts where SNR occurred (see Table 5.12). In psychology, this was 91% of the abstracts containing SNR. In other occasions, SNR followed ATR. This was very low in both disciplines (below 5%). In still others, SNR was the opening function in abstracts. SNR was the first function in 20% of the applied linguistics abstracts containing SNR while it opened just 4% of the psychology abstracts with an SNR.

Table 5.12 SNR behaviour across disciplines *

	SNR as the first function	Before SNR		after SNR			
		ITT	ATR	ATR	ITT	DTM	PEMF
App Ling **	19.51 (8)	75.61 (31)	4.88 (2)	85.37 (35)	7.32 (3)	4.88 (2)	2.44 (1)
Psy ***	4.35 (2)	91.30 (42)	4.35 (2)	67.39 (31)	8.70 (4)	6.52 (3)	17.39 (8)

* The table shows percentages and frequencies (in parentheses) of abstracts where SNR was the first function or preceded by ITT or ATR and followed by ATR, ITT, DTM or PEMF in total number of abstracts containing SNR in applied linguistics and psychology.
** SNR occurred in 41 abstracts in applied linguistics.
*** SNR occurred in 46 abstracts in psychology.

In a majority of the abstracts, SNR was followed by ATR. This occurred in 85% of the applied linguistics abstracts containing SNR. In psychology, ATR followed SNR only in 67% of the

abstracts with an SNR. SNR was also followed by ITT, DTM and PEMF, which were less preferred ways. Within these three, the highest occurrence was in PEMF (17%) for psychology.

5.3.2 Sequencing of use by discipline

Table 5.13 compares the percentages of the five sequences between applied linguistics and psychology abstracts. It seems that there is a preference for patterns with ATR (55%) in applied linguistics. ITT patterns constituted 31% of the abstracts. These results are consistent with other studies which found that the sequences starting with a purpose move were more common in applied linguistics abstracts (Hyland, 2000; Ren and Li, 2011; Saeeaw and Tangkiengsirisin, 2014; Can et al., 2016). In psychology, there is a tendency to use more ITT patterns (45%) than ATR patterns (40%) in abstracts. In the soft knowledge domain, there has not been much difference between the sequences starting with an introduction and a purpose (see Table 2.3 in Chapter 2). In the hard knowledge domain, however, a clear preference has been observed for sequences starting with a purpose.

Table 5.13 Most frequent functional sequences in abstracts by discipline

Sequence*	App. Ling.	%	Psychology	%
ITT [SNR] ATR-DTM-PEMF [RPT]	37	15.42	31	12.92
ITT [SNR] ATR-PEMF [RPT]	35	14.58	61	25.42
ITT [SNR] PEMF [RPT]	2	0.83	17	7.08
ATR [ITT/SNR] DTM-PEMF [RPT]	90	37.50	36	15.00
ATR [ITT/SNR] PEMF [RPT]	42	17.50	60	25.00
Others	34	14.17	35	14.58
Total	240	100.00	240	100.00

* The functions in square brackets are optional.

The sequential group with DTM (53%) was preferred more than the no-DTM group (33%) in applied linguistics. The preference between DTM and no-DTM groups was reversed in psychology. No-DTM patterns occurred in 58% of the psychology abstracts while only 28% of the abstracts used the DTM patterns. These results support the results of earlier studies, which showed that sequences containing a method move in abstracts were more frequent in

applied linguistics (Hyland, 2000; Ren and Li, 2011; Saeeaw and Tangkiengsirisin, 2014; Can et al., 2016). The method and no-method sequences have been observed to be more balanced in the soft science disciplines (see Table 2.3 in Chapter 2). Sequences with a method move have been found predominantly in the hard science disciplines.

In accordance with the present results, previous studies which analysed the sequential move patterns in abstracts have demonstrated that three sequences are frequently used in applied linguistics abstracts (Hyland, 2000; Ren and Li, 2011; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014; Can et al., 2016). These are the P-M-R-C (27% on average), I-P-M-R-C (22% on average) and I-P-R-C (20% on average) sequences, which correspond to the ATR [ITT/SNR] DTM-PEMF [RPT], ITT [SNR] ATR-DTM-PEMF [RPT] and ITT [SNR] ATR-PEMF [RPT] sequences of this study. It is also possible to mention the P-M-R sequence (9% on average) and the I-P-M-R sequence (12% on average) in addition to the P-M-R-C and I-P-M-R-C sequences which include an additional conclusion move that was identified as optional in some studies. The ATR [ITT/SNR] PEMF [RPT] and ITT [SNR] PEMF [RPT] sequences which were also found in the current study were only identified in Hyland's corpus of applied linguistics. One of them is the P-R-C sequence (19% on average), which excludes the introduction and method moves, and the other is the I-R (4% on average) sequence, which has a basic two move structure of introduction and results moves.

Although Martín (2003) did not specify the sequencing of the moves, his results showed that 4 moves in the IMRC Model constituted 67.5% of the English experimental phonetics and experimental psychology abstracts. If there is a linear sequencing of moves in abstracts, which mirror the IMRC model, then we can say that abstracts in Martín's data follow an IMRC structure. It is also possible to add gap and purpose moves between the introduction and method because Martín showed with a further analysis using the CARS model that these were also common in his corpus. The ITT [SNR] ATR-DTM-PEMF [RPT] and ATR [ITT/SNR] DTM-PEMF [RPT] sequences in the current study might be compared to the sequence in Martín's study; however, these two sequences together make only 28% of the psychology abstracts. The difference is due to the low amount of the method move in the psychology

corpus of the current study. As a result, sequences with no method move were more frequent.

The preferences of applied linguists for ATR patterns are partly due to high occurrence of ATR (99%) in the five sequential patterns. It is also possible to interpret the applied linguistics writers' tendency to use ATR patterns as a result of limited use of the ITT function. ITT was used in 47% of the five patterns in applied linguistics. 11% of these occurrences was in the ATR patterns. While the lower uses of the ITT patterns might be due to space constraints, it is probable that the applied linguistics writers have less need to situate their research within the research area. They prefer to announce the research at the very beginning of the abstract instead. This indicates that giving background about the research topic or attempts to prove the importance of the topic are less of a concern in applied linguistics than they are in psychology.

In psychology, the ITT patterns were slightly more preferred than the ATR patterns. This preference for sequences starting with ITT in the RAs might be because of the competitive nature of the field. As psychology has a long history as a discipline, there is a growing number of research in the area. The opening sentence gains importance and writers do not want to miss the chance of catching the potential readers. A good ITT sentence which claims that the research topic is an important one in the research area or which gives background information about the research topic has a greater chance to catch potential readers' attention. However, ITT as an opening function does more than this. While it functions to situate the research in the field, it helps the researcher to increase his authorial stance which might also help him to gain credibility within the discourse community (Hyland, 2000: 78).

The reason for the thesis writers to use ITT patterns more, however, might be due to their efforts to show the examiners that the research topic is worth investigating and that they have the understanding of the issues and concerns related to the topic in the disciplinary area.

A heavy use of DTM patterns by the applied linguistics writers can be seen as sign of importance of describing how the research is conducted in applied linguistics. The psychology writers, however, preferred the no-DTM patterns. There might be a few reasons for this. First, 'research methodology' might be seen as shared knowledge among the members of the community in psychology and therefore writers might see no point in explaining the way of conducting the research. Psychology is an old discipline which has developed its own methods, tests and models. Therefore, researchers use these rather than developing new ones and the already known does not need any description. The second reason might be that they want to use the space for the abstract to present more findings than describing the methodology. By presenting more findings, they might be trying to increase the chance of attracting more attention to the research, which will eventually help them to be accepted as a member of the discourse community. A third possibility, as mentioned before (see section 5.3.2), might be the embedding of DTM within ATR or PEMF, which was beyond the scope of the present research.

In Table 5.14, we see the basic and expanded uses of each pattern in the two disciplines. In applied linguistics, 67% of the ATR patterns were in the basic version while 33% of them used also the optional elements (i.e. the expanded version). The ITT patterns, however, had an equal use of the basic and expanded versions.

In psychology, both the ITT and ATR patterns contained the basic versions more than the expanded versions. 61% of the ITT patterns and 63% of the ATR patterns contained only the obligatory elements (i.e. the basic version). The expanded version was used in 39% of the ITT patterns and 38% of the ATR patterns.

In section 5.2.2.2, we explained that some researchers identified the conclusion as an optional move in sequential patterns (Hyland, 2000; Ren and Li, 2011). This is the only move that appeared as optional in sequences. Hyland's (2000) results showed that applied linguists used the conclusion move in 20% of the abstracts which followed the four

sequences containing an optional conclusion (I-P-M-Pr [C], P-M-Pr [C], I-P-Pr [C] and P-Pr [C]).

Table 5.14 Basic and expanded uses within patterns by discipline

Sequence	Applied Linguistics					Psychology				
	Basic version		Expanded version		Total	Basic version		Expanded version		Total
	n	%	*n*	%	%	*n*	%	*n*	%	%
ITT [SNR] ATR-DTM-PEMF [RPT]	16	43.24	21	56.76	100	21	67.74	10	32.26	100
ITT [SNR] ATR-PEMF [RPT]	19	54.29	16	45.71	100	38	62.30	23	37.70	100
ITT [SNR] PEMF [RPT]	2	100.00	0	0.00	100	7	41.18	10	58.82	100
ATR [ITT/SNR] DTM-PEMF [RPT]	66	73.33	24	26.67	100	26	72.22	10	27.78	100
ATR [ITT/SNR] PEMF [RPT]	22	52.38	20	47.62	100	34	56.67	26	43.33	100

In both applied linguistics and psychology, the basic versions were used more than the expanded versions in the DTM patterns as well as in the no-DTM patterns. The basic DTM patterns were more frequent than the basic no-DTM patterns in both disciplines. Applied linguists used DTM patterns more in the basic version (65%) than in the expanded version (35%). Psychologists also used more basic (70%) DTM patterns than the expanded ones (30%).

In the no-DTM patterns, the difference between the basic and expanded uses was smaller in both applied linguistics and psychology. 54% of the no-DTM patterns in applied linguistics included the basic version. In psychology, 57% of the no-DTM abstracts included the basic patterns.

In both disciplines, the biggest difference was in the ATR-DTM-PEMF pattern. More than 70% of this pattern contained only the obligatory elements in both applied linguistics and psychology.

It should be noted that the higher use of the basic than the expanded patterns is related to the low amount of optional element use in patterns. We discussed before that applied

linguists prefer a more direct style (see above for details) in abstracts. They use the ATR patterns more than the ITT patterns as they prefer to put more emphasis on presenting their research rather than situating it in the research area. This preference results in a decreased number of functions that are related to situating the research. That is why ITT and SNR were low in the expanded ATR patterns.

While situating the research is a matter of preference in the ATR patterns, it is an obligation in the ITT patterns as ITT is an obligatory element in the ITT patterns. The writer's attempt to situate the research with ITT is supported with an optional SNR. The equal use of the basic and expanded ITT patterns was resulted from the high amount of SNR (35% of the ITT patterns in applied linguistics) in the expanded version, which increased the number of expanded ITT patterns. ITT-SNR is a frequently occurring pair in the ITT patterns and SNR was preceded by ITT in all of its occurrences (in 26 abstracts) in the ITT patterns in applied linguistics.

Psychologists who tended to use more ITT patterns than ATR patterns situated the research by ITT at the abstract opening in the ITT patterns (both basic and expanded versions) and strengthened this effort by SNR in the expanded version. 29% of the ITT patterns used SNR as an optional element (see Table 5.14). SNR followed ITT in all of its occurrences (32 abstracts) in the ITT patterns in psychology.

Although situating the research is important in psychology, we can also see a direct style in psychology abstracts. While the basic ATR patterns in psychology do not involve any function related to situating the research, the expanded ATR patterns had very limited use of ITT (13% of the ATR patterns in psychology) and, in particular, SNR (4% of the ATR patterns in psychology).

Both ITT and SNR act as situating the research. Their existence in an abstract should also be understood as the writer's attempt to claim the importance of the topic and gain the audience's attention. Writers who prefer not to use them opt for a self-research focus.

The overall prominence of optional elements in the five patterns shows a similarity between the two disciplines. Table 5.15 indicates that RPT was the most frequently used optional element of the five patterns in both applied linguistics (19%) and psychology (21%) abstracts. This was followed by SNR with an overall percentage of 15 and 18 in applied linguistics and psychology respectively. ITT (as an optional element in ITT patterns) was the least preferred one. 11% of the applied linguistics sequences and 6% of the psychology sequences included ITT as an optional element.

Table 5.15 Disciplinary differences in optional elements *

Sequence	Applied Linguistics						Psychology					
	ITT		SNR		RPT		ITT		SNR		RPT	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
ATR [ITT/SNR] DTM-PEMF [RPT]	7	7.78	1	1.11	18	20.00	2	5.56	1	2.78	9	25.00
ATR [ITT/SNR] PEMF [RPT]	15	35.71	3	7.14	5	11.90	10	16.67	3	5.00	17	28.33
ITT [SNR] ATR-DTM-PEMF [RPT]	-	-	16	43.24	6	16.22	-	-	8	25.81	3	9.68
ITT [SNR] ATR-PEMF [RPT]	-	-	10	28.57	10	28.57	-	-	18	29.51	9	14.75
ITT [SNR] PEMF [RPT]	-	-	-	-	-	-	-	-	6	35.29	4	23.53

* The figures indicate the number and percentage of abstracts using each optional element in the patterns.

The use of optional elements in ITT and ATR patterns showed some similarities between applied linguistics and psychology abstracts. SNR was used mostly in ITT patterns in both disciplines. 35% of the ITT patterns in applied linguistics corpus and 29% of those in psychology corpus included SNR. In the ATR patterns, RPT was the most frequent function in both corpora. 17% of the ATR patterns of applied linguistics and 27% of the same sequences in psychology contained RPT. ITT, an optional element of the ATR patterns, was more frequently used in ATR-PEMF pattern in both disciplines. 36% of the instances of this pattern contained ITT in applied linguistics whereas 17% of the psychology abstracts using this pattern included ITT.

In both disciplines, SNR occurred predominantly in the ITT patterns. This ITT pattern association rather than ATR pattern association is a consequence caused by that SNR follows ITT in all of its occurrences in the ITT patterns in both applied linguistics (26 abstracts) and

psychology (32 abstracts). The ITT-SNR pair as the opening functions of the ITT patterns contributes to the writer's aim to situate the research within the area of research.

The DTM and no-DTM patterns had a similar use of RPT (20% in each group of patterns of applied linguistics and 18-22% in each sequential group of psychology) in both corpora. SNR use was also very similar between the DTM (13%) and no-DTM (16%) patterns in applied linguistics. There was a slight difference of SNR use between the two sequential groups in psychology (13% in DTM and 20% in no-DTM patterns). Although ITT was used mostly in the no-DTM patterns in both corpora, applied linguistics contained more ITT (19%) in the no-DTM pattern than psychology (7%) did.

5.3.3 Cyclicity by discipline

The results relating to cyclicity showed that 11% of the applied linguistics abstracts using the five sequences contained five type of cycles (ATR-DTM, ATR-PEMF, DTM-PEMF, ITT-ATR and ITT-SNR). The psychology abstracts, on the other hand, contained eight type of cycles (ATR-DTM, ATR-DTM-PEMF, ATR-PEMF, ATR-SNR, DTM-PEMF, ITT-ATR, ITT-PEMF and ITT-SNR) in the five type of sequences which constituted 21% of the abstracts. Table 5.16 gives the most frequent cycles in two disciplines.

In applied linguistics, the ITT patterns (14%) used slightly more cyclicity than the ATR group (9%). This preference was reversed in psychology. More functional cycles occurred in the ATR patterns (24%) than the ITT patterns (18%). We see similar reversed preferences in the DTM and no-DTM groups. In applied linguistics, 12% of the DTM patterns contained functional cycles and 9% of the abstracts using the no-DTM patterns involved cycles. In psychology, cyclicity occurred more in the no-DTM group (23%) than the DTM group (16%).

Figures 5.1 and 5.2 show the percentage of cycles in applied linguistics and psychology abstracts. The proportion of functional cycles was the highest in the ITT-ATR-PEMF (14%) and ITT-ATR-DTM-PEMF (14%) patterns in applied linguistics. Also, 11% of the abstracts using the ATR-DTM-PEMF sequence contained cycles. The percentages are higher in psychology.

Table 5.16 Most frequent functional cycles in sequences by discipline *

Cycle	ATR [ITT/SNR] DTM-PEMF [RPT]		ATR [ITT/SNR] PEMF [RPT]		ITT [SNR] ATR-DTM-PEMF [RPT]		ITT [SNR] ATR-PEMF [RPT]		ITT [SNR] PEMF [RPT]	
	AL	P	AL	P	AL	P	AL	P	AL	P
ATR-DTM	4	3			2					
ATR-DTM-PEMF		1								
ATR-PEMF	1	1	2	14		2	2	12		
ATR-SNR				1						
DTM-PEMF	6	5				1				
ITT-ATR					2	1	3	5		
ITT-PEMF										1
ITT-SNR					1			1		
TOTAL	11	10	2	15	5	4	5	18	0	1

* The figures in the table indicates frequency of cycles in each pattern and their totals. In some cases, a single abstract includes two different cycles.

Figure 5.1 Percentage of cycles in applied linguistics abstracts

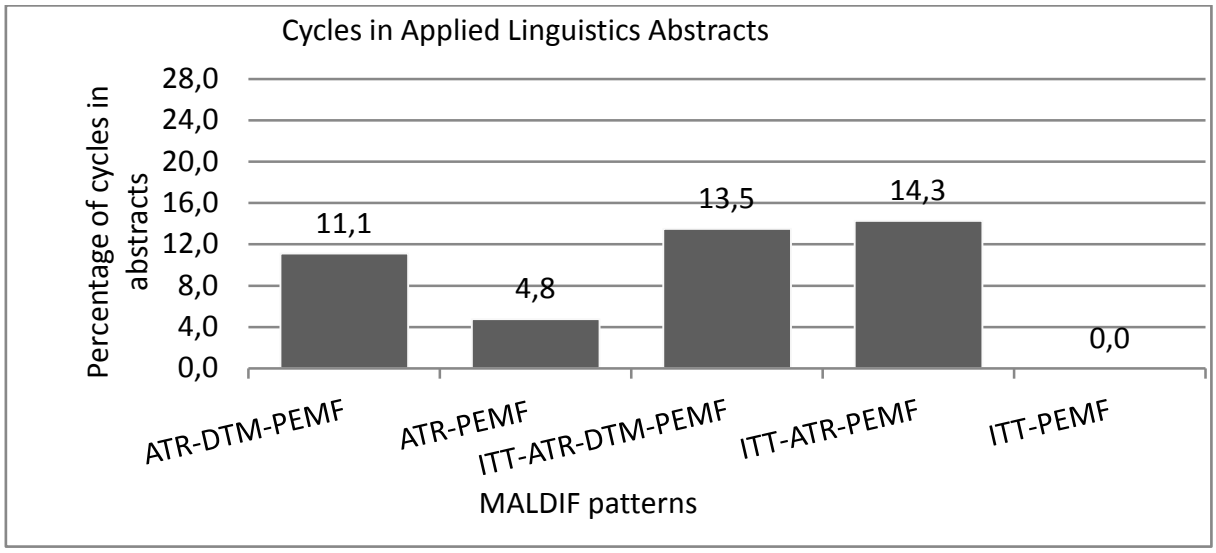
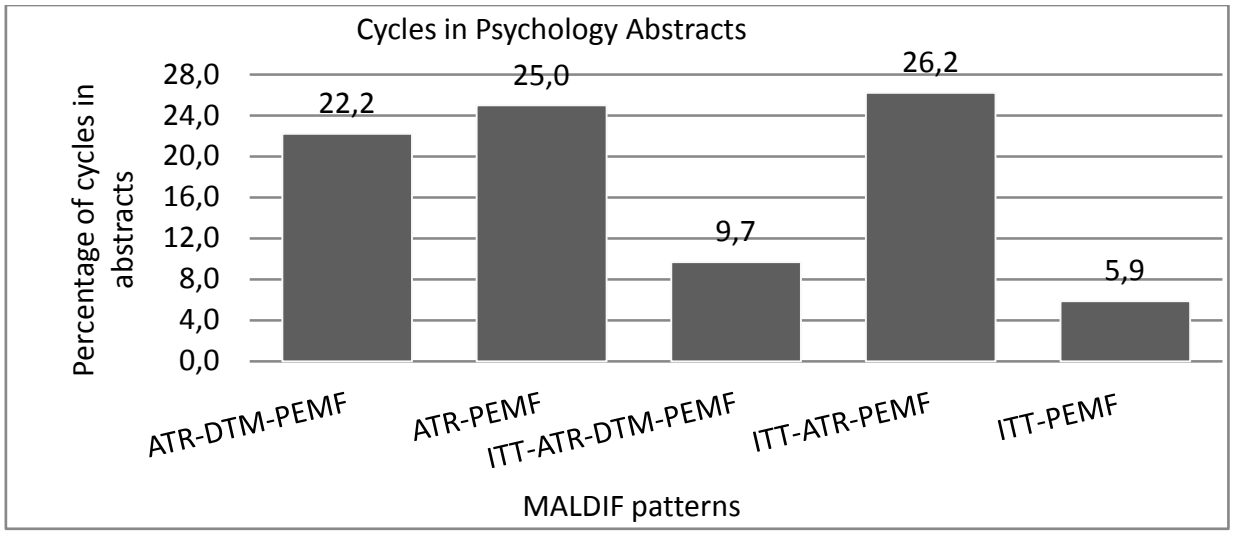


Figure 5.2 Percentage of cycles in psychology abstracts



The abstracts with the ITT-ATR-PEMF sequence contained the highest amount of cycles (26%) in psychology. A quarter of the ATR-PEMF sequence contained functional cycles. This was followed by ATR-DTM-PEMF sequence (22%).

Although the frequencies for cycles are not high enough, it can still give a good idea to look at the cycles which have gone beyond the one case point. These are ATR-DTM, ATR-PEMF, DTM-PEMF and ITT-ATR.

In psychology, ATR-PEMF was the most preferred one of these four cycles. It was used in 14% of all the psychology abstracts using the five patterns. It occurred mostly in two sequences: ATR-PEMF (23%) and ITT-ATR-PEMF (20%). DTM-PEMF is the second most common cycle in psychology. Its highest occurrence (14%) was in the ATR-DTM-PEMF sequence. ITT-ATR was the second most frequently used cycle (8%) of the ITT-ATR-PEMF sequence. All instances of ATR-DTM was in the ATR-DTM-PEMF sequence which constituted 8% of this sequence.

Applied linguistics abstracts contained less cycles than psychology abstracts, which was also reflected in the lower figures per sequences. ITT-ATR was used in 9% of the ITT-ATR-PEMF sequence. DTM-PEMF was only used (7%) in the ATR-DTM-PEMF sequence. 6% of the ITT-ATR-PEMF sequence and 5% of the ATR-PEMF sequence contained the ATR-PEMF cycle. The ATR-DTM cycle seems to be divided between two sequences. It was used in 5% of the ITT-ATR-DTM-PEMF sequence and in 4% of the ATR-DTM-PEMF sequence.

In four most frequently occurred cycles (i.e. ATR-DTM, ATR-PEMF, DTM-PEMF and ITT-ATR), the largest difference was found in the ATR-PEMF cycle between the disciplines. It occurred in 14% of the psychology corpus while only 2% of the applied linguistics abstracts contained the ATR-PEMF cycle. This high occurrence of the ATR-PEMF cycle in psychology was also the highest occurrence in the eight type of cycles in both corpora. We found no frequencies for cycles that went beyond 3% in both disciplines except ATR-PEMF in psychology. If we look at why the ATR-PEMF cycle repeated that much, we find two reasons. First, it repeated when

there was a single study which had multiple aims, analyses or themes or when the author referred to different stages of the study. Example 5.10 is an abstract from the PTA corpus which illustrates the ATR-PEMF cycle.

(5.10)	This dissertation examines the relations among adolescent perceived racial socialization messages and mother transmitted messages in a sample of African American mothers and their children. (TP079-1)	ATR
	It first examined the size and direction of the relationship between the two perspectives of racial socialization. (TP079-2)	ATR
	The findings indicate that, although adolescent and parent socialization messages are related, there are substantial differences between the two perspectives. (TP079-3)	PEMF
	However, the size of the relationship differed across the socialization messages. (TP079-4)	PEMF
	Mothers and adolescents were more likely to agree on the indirect messages parents send through their actions (r = 0.35) than they were to agree on the direct verbal messages that parents use. (TP079-5)	PEMF
	The next set of analysis explored the ways in which adolescent, maternal, and family characteristics shaped the relationship between adolescent and maternal views of racial socialization messages and practices. (TP079-6)	ATR
	These analyses demonstrated that adolescent gender, maternal education, and family structure affected the relationship between adolescent and maternal reports of behavioural socialization practices. (TP079-7)	PEMF
	Mother-daughter dyads had higher congruence on behavioural socialization than mother-son dyads. (TP079-8)	PEMF
	Dyads headed by married mothers had higher congruence than those headed by unmarried mothers. (TP079-9)	PEMF
	College-educated mothers had higher levels of congruence with their adolescent children than non-college educated mothers. (TP079-10)	PEMF
	The last set of analyses explored the relation between racial socialization and racial identity over time. (TP079-11)	ATR
	Overall, adolescents' perceptions of racial socialization were better predictors of their later racial identity than their mothers' reports of socialization. (TP079-12)	PEMF
	For example, mother transmitted egalitarian messages were significant predictors of children's public regard. (TP079-13)	PEMF
	However, adolescent perceived egalitarian messages did not share a similar relationship with adolescent public regard. (TP079-14)	PEMF

	Instead, public regard was related to adolescent perceived behavioral socialization. (TP079-15)	PEMF
	These findings, together with findings from the other two research questions, demonstrate the uniqueness of the two perspectives of racial socialization messages and practices and the necessity to further explore the reasons behind the discrepancies between adolescents and parents. (TP079-16)	PEMF

Second, the ATR-PEMF cycle also occurred when there were multiple studies or experiments. This involved the announcement of the first study and its finding, then of the second study and its finding and so on. However, it did not follow such a regular order all the time. Here is an abstract (5.11) from the PRA corpus where the authors tend to focus on the findings. They announce the aim at the beginning and only mention additional aims at a later point after presenting findings of the two studies.

(5.11)	Our purpose in this research was to investigate the role of passion (Vallerand et al., 2003) for a given activity in the quality of interpersonal relationships experienced within the context of that activity in 4 studies. (APPSP011-1)	ATR
	Study 1 demonstrated that a harmonious passion was positively associated with the quality of interpersonal relationships within the context of the passionate activity, whereas an obsessive passion was unrelated to it. (APPSP011-2)	PEMF
	Furthermore, in line with the broaden-and-build theory (Fredrickson, 2001), results also showed that positive emotions experienced at work fully mediated the relation between harmonious passion and quality of interpersonal relationships. (APPSP011-3)	PEMF
	Obsessive passion was not associated with positive emotions. (APPSP011-4)	PEMF
	Study 2 replicated the results from Study 1 while controlling for trait extraversion. (APPSP011-5)	PEMF
	Also, in Study 2, we examined the negative mediating role of negative emotions between obsessive passion and quality of interpersonal relationships. (APPSP011-6)	ATR
	Finally, Studies 3 and 4 replicated the results of Study 2 with prospective designs and with objective ratings of interpersonal relationships quality. (APPSP011-7)	PEMF
	Implications for the dualistic model of passion and the broaden-and-build theory are discussed. (APPSP011-8)	RPT

Having said the low amount of cycles in abstracts for the rest of the cycles, we found that the ATR-DTM cycle occurred in only 1% (3 abstracts) of psychology abstracts. This was a little higher in applied linguistics corpus (3%). When we look at all 9 abstracts containing ATR-DTM cycle, we find that they all relate to multiple aims (or key features) and their associated methodologies and that these belong to a single study except for one which involved multiple studies with the same aims. Here is an example (5.12) from the ALTA corpus where the ATR-DTM cycle occurs in the opening of the abstract.

(5.12)	The aim of this thesis is to investigate the role of grammatical development during sentence comprehension in L1 and L2 children and to explore possible similarities and/or differences between L1 and L2 children's parsing mechanisms. (TA031-1)	ATR
	Four on-line self-paced listening tasks were designed to examine two different structures: **Experiments 1 and 2 explored preferences in the processing of voice alterations (actives, passives, reflexives)** and Experiments 3 and 4 investigated how garden-path sentences are processed in Greek, a highly inflected language. (TA031-2)	DTM / ATR /ATR
	The issues of prosody and grammatical development were explicitly addressed. (TA031-3)	ATR
	Five groups of participants were recruited to participate in the study: a group of monolingual Greek adults, two groups of monolingual Greek children (6- to 9-year olds and 9- to 12-year olds), two groups of L2 Russian-Greek children matched on age to the L1 groups of children (6- to 9-year olds and 9- to 12-year olds). (TA031-4)	DTM
	The older L2 group was matched in language proficiency to the L1 younger group. (TA031-5)	DTM
	The investigation of L1 children's parsing preferences revealed that children at the age of 9 to 12 are sensitive to syntactic parsing principles, such as Late Closure; **they employ essentially the same parsing strategies as L1 adults** and they can rapidly integrate syntactic, semantic, and prosodic information. (TA031-6)	PEMF / PEMF /PEMF
	L1 6- to 9-year olds were not capable of using all available information; they showed developmental differences, which were associated to their restricted grammatical knowledge. (TA031-7)	PEMF / PEMF
	L2 children displayed similar parsing preferences as L1 children in less complex structures (actives, passives, reflexives); **in more complex structures, however, i.e. garden-path sentences, L2 children could not integrate multiple sources of information in parallel** and they were not sensitive to S-V agreement; **as a result L2 children were not sensitive to Late**	PEMF / PEMF /PEMF / PEMF

	Closure or ungrammaticality. (TA031-8)	
	The L2 learners' reduced sensitivity to verbal inflectional morphology was taken as an indication that L2 children lack automatization of certain grammatical routines and that the computation of S-V agreement depended on the L2 learners' grammatical ability to recruit L2 morpho-syntactic knowledge. (TA031-9)	PEMF
	Neither L1 younger nor L2 children were sensitive to prosodic boundaries, indicating that sensitivity to prosodic cues is susceptible to developmental changes and is not fully developed up to the age of 12. (TA031-10)	PEMF

DTM-PEMF cycle had an equal use between disciplines (3% in each discipline). The cycle occurred in two situations. In one, DTM-PEMF was related to the same study (see example 5.13 below); in the other, they were related to different studies (or experiments) (see example 5.14). In the former, DTM referred to additional analyses or different stages or dimensions of the study and each PEMF was about related analysis, stage or dimension. In the latter, we see methodology and then finding related to one of the studies and then those of the next.

(5.13)	We examine (a) the normative course of eudaimonic well-being in emerging adulthood and (b) whether people's narratives of major life goals might prospectively predict eudaimonic growth 3 years later. (APDP015-1)	ATR
	We define eudaimonic growth as longitudinal increases in eudaimonic well-being, which we define as the combination of psychosocial maturity and subjective well-being (SWB). (APDP015-2)	ITT
	College freshmen and seniors took measures of ego development (ED; to assess maturity; Loevinger, 1976) and SWB at Time 1 (T1) and again 3 years later (Time 2). (APDP015-3)	DTM
	ED levels increased longitudinally across that time for men and T1 freshmen, **but SWB levels did not change.** (APDP015-4)	PEMF / PEMF
	Participants also wrote narratives of 2 major life goals at T1 that were coded for an explicit emphasis on specific kinds of personal growth. (APDP015-5)	DTM
	Participants' intellectual-growth goals (especially agentic ones) predicted increases in ED 3 years later, whereas participants' socioemotional-growth goals (especially communal ones) predicted increases in SWB 3 years later. (APDP015-6)	PEMF
	These findings were independent of the effects of Big Five personality traits—notably conscientiousness, which on its own predicted increases in SWB.	PEMF

	(APDP015-7)	
	We discuss (a) emerging adulthood as the last stop for normative eudaimonic growth in modern society and (b) empirical and theoretical issues surrounding the relations among narrative identity, life planning, dispositional traits, eudaimonia, and 2 paths of personal growth. (APDP015-8)	PEMF / RPT

(5.14)	The thesis addressed the saving behaviour of adolescents within the social context of the family, **which has received little attention to date.** (TP033-1)	ATR / SNR
	The research regarded adolescent economic socialization and the development of saving behaviour as an integral part of general socialization and adolescent psychological development. (TP033-2)	uncategorised
	The importance of saving was investigated relative to alternative ways for getting larger sums of money. (TP033-3)	ATR
	Three large survey studies with adolescents and one survey study with adolescents and their parents were carried out. (TP033-4)	DTM
	In Study 1, 470 students between the ages of 11 and 18 took part. (TP033-5)	DTM
	The results of this study revealed that adolescents do think of saving as a means of accumulating larger sums of money. (TP033-6)	PEMF
	Studies 2 and 3 sampled 290 and 443 students between the ages of 11 and 17 and 13 to 14, respectively, providing empirical evidence of adolescents' endeavour for independence, reflected by their saving motives as well as the changing of their attitudes towards saving as a skill. (TP033-7)	DTM / PEMF
	The thesis examined a number of significant predictors for adolescents' general tendency to save. (TP033-8)	ATR
	The studies linked adolescent saving with home atmosphere and perceived parenting style empirically for the first time. (TP033-9)	PEMF
	A path model illustrates the associations that were found between the behaviour and attitudes of the parents and the saving behaviour and attitudes of their adolescent child. (TP033-10)	PEMF
	It demonstrates that the development of saving behaviour is linked to the power relationship between parent and child.(TP033-11)	PEMF
	The findings support the behavioural life-cycle hypothesis as well as the benefits of being raised in an 'authoritative home' with regard to skills in saving. (TP033-12)	PEMF

ITT-ATR were found in 11 abstracts in total (2% in applied linguistics and 3% in psychology). The reasons of repetition of this cycle is (mostly) related to number of aims. When there were multiple aims (one abstract in each corpus), we found that ITT before each aim was announced. The abstract (5.15) below from the ALRA corpus opens with an ITT-ATR cycle.

(5.15)	In the rating scales of major international language tests, as well as in automated evaluation systems (e.g. e-rater), a positive relationship is often claimed between lexical diversity, holistic quality of written or spoken discourses, and language proficiency of candidates. (AAAL003-1)	ITT
	This article reports a *posteriori* validation study that analysed a sample of the archived data of an international language test to examine empirically to what extent such relationships exist. (AAAL003-2)	ATR
	It is also noted that previous studies on lexical diversity in the field of applied linguistics have focused exclusively on either written or spoken discourses, no study to date has compared lexical diversity of spoken and written discourses produced by the same participants. (AAAL003-3)	ITT / SNR
	Therefore, the second aim of this article is to understand the differences in lexical diversity between writing and speaking task performances, and to what extent the topics of the writing prompts may affect lexical diversity of written discourses. (AAAL003-4)	ATR
	Using *D* as a measure of lexical diversity (Malvern and Richards 1997, 2002; Malvern *et al*. 2004), it was found that *D* had a statistically significant and positive correlation with the overall quality ratings of both writing and speaking performances as well as the candidates' general language proficiency. (AAAL003-5)	PEMF
	Nevertheless, the significant relationships were not borne out across the subgroups of the sample in terms of gender, first language background, purpose of taking the test and topics of the writing prompts. (AAAL003-6)	PEMF
	The different writing topics also had significant effects on lexical diversity—especially the topics that candidates were highly familiar with—even after controlling for writing ability and overall language proficiency. (AAAL003-7)	PEMF
	The lexical diversity of candidates' writing and speaking performances were approximately at the same level; **further, *D* was found to be a better predictor of speaking than writing performance.** (AAAL003-8)	PEMF / PEMF
	The implications of these findings are discussed with specific reference to the use of lexical diversity measures to inform language test validation and the development of lexical diversity parameters in automated evaluation systems. (AAAL003-9)	RPT

When there were no multiple aims in abstracts, the second ITT was used to give background information. In such cases, ATR seems to be interrupted by ITT to provide background. Here is an example for this from the ALRA corpus.

(5.16)	The analysis of narrative data in applied linguistics has focused to varying degrees on their content, form, and context, with content and thematic analyses being the focus in much of the narrative research in language learning and teaching (Pavlenko 2007). (AAAL001-1)	ITT
	The aim of this article is to report on a positioning analysis of a small story about the imagined 'better life' of a migrant, pre-service teacher. (AAAL001-2)	ATR
	Positioning analysis operates on three levels, which together require the analyst to examine the content and characters in the story, the interactive performance of the story, and the positions that are agentively taken by the narrator vis-à-vis normative discourses.(AAAL001-3)	ITT
	Positioning analysis thus considers content, form, and context. (AAAL001-4)	ITT
	I propose and demonstrate an extended version of this approach which enables inclusion of data beyond the small story. (AAAL001-5)	ATR
	The analysis reveals how the teacher interactively constructs an answer to the question 'Who am I?' in her story. (AAAL001-6)	PEMF

In one abstract of this latter category, we also see the optional SNR occurring after the second ITT which presents information for indicating the gap. The first ITT is more like a topic opener.

(5.17)	Advances in developmental and social psychological methodologies have increasingly demonstrated the pervasive influence of social relations on biopsychosocial health, from immunological functioning and mortality to normal development, competence, and mental health. (TP080-1)	ITT
	Building upon the research literature demonstrating significant links between social relations, family structures, and well-being in the United States, the current study examines social relations in Mexico and the ensuing effect on well-being. (TP080-2)	ATR
	It was hypothesized that social relations may have unique effects on wellbeing in Mexico due to traditional cultural values about family relationships. (TP080-3)	ATR
	Additionally, this project addresses the direct effect of migration on migrants' family members. (TP080-4)	ATR

	Although most attention has been given to those who temporarily migrate to the U.S., **very little attention has been given to the larger group of family members including spouses and parents who remain behind in Mexico.** (TP080-5)	ITT / SNR
	Both quantitative and qualitative methodologies were used to identify the structure, quality, and function of social relationships in Mexico. (TP080-6)	ATR
	A large-scale representative survey of social relations and well-being was complemented by in-depth focus groups addressing the direct effect of migration on Mexican migrants' family members. (TP080-7)	ATR
	Findings suggested that social relationships in Mexico have the unique feature of increased family presence, indicative of familism values. (TP080-8)	PEMF
	There were numerous age and gender differences in the effect of social relations on well-being; however, in general, social network characteristics were related to physical well-being **and social support quality was related to psychological well-being.** (TP080-9)	PEMF / PEMF / PEMF
	Quantitative findings suggested that the social relationships of family members of migrants are affected, but not their well-being. (TP080-10)	PEMF
	However, qualitative findings suggest that close relationships (such as spousal and parent-child) are negatively affected both in terms of relationship quality and emotional well-being. (TP080-11)	PEMF
	Qualitative findings highlighted differences by relationship type related to themes of economic implications, communication, family dynamics, and adaptation. (TP080-12)	PEMF
	This study contributes to the understanding of family relations and well-being in Mexico both broadly and specifically related to familial emigration. (TP080-13)	PEMF
	Findings are discussed in the context of the Convoy Model of Social Relations. (TP080-14)	RPT

In the review of the literature, we stated that there were only two studies that presented results for move cycles. In Can et al.'s study (2016), two move cycles were reported to recur in applied linguistics abstracts: the purpose-method cycle and the method-results-method-discussion cycle. Kanoksilapatham (2013), who examined the recurring moves in civil engineering abstracts, found that the method and results moves were recycled frequently in abstracts. The results of the current study regarding the repeating functional cycles are in line with the results from these two studies. As in Can et al.'s study, ATR-DTM and DTM-PEMF were two of the most common moves in the applied linguistics corpus as well as in the

psychology corpus. The method (DTM) and results (PEMF) moves occurred in many of the most common cycles in the present study, which supports Kanoksilapatham's results.

The substantially high amounts of the ATR-PEMF cycle in the psychology corpus were not articulated in these two studies. It seems that the ATR-PEMF cycle is distinctive to psychology, which has an experimental nature and requires the researcher to present multiple aims and findings.

5.3.4 Summary

In this section, we presented the findings of the study answering the first research question: Is there variation in macro-level discourse functions between applied linguistics and psychology abstracts in terms of frequency of occurrence, sequencing of use and cyclicity?

To sum up, the disciplinary findings of the study answering this research question are as follows:

- This study demonstrated disciplinary differences in ITT, ATR and DTM, and found similarities in SNR, PEMF and RPT between the two disciplines.
- PEMF and ATR were found to be the most common functions in applied linguistics and psychology, which is congruent with the literature. While PEMF use was quite similar between disciplines, occurring in at least 94% of the abstracts, ATR presented differences. Nearly all applied linguists used ATR in abstracts (97%), but ATR appeared only in 88% of the psychology corpus.
- PEMF omission was larger in applied linguistics abstracts (6.2%) than in psychology abstracts (0.8%). Three reasons were identified for the absence of PEMF in abstracts: RPT use instead of PEMF, abstracts with no PEMF or RPT, and uncategorised cases.
- ATR omission was greater in psychology (12%) than in applied linguistics (3%). The absence of ATR in abstracts was resulted from three cases: a replacement of ATR by DTM, abstracts including no ATR or DTM and uncategorised cases. A majority of the ATR

omission in psychology was the no ATR or DTM type which occurred mostly in the ITT-PEMF patterns.

- In line with previous research, the results of this study showed that ITT was still an important function in abstracts. Psychologists (58%) were found to use more ITT in abstracts than applied linguists (46%), suggesting that it is more important to justify the research context in psychology abstracts than in applied linguistics abstracts.
- DTM presented the largest variation between applied linguistics (63%) and psychology (37%), which indicates applied linguists' greater needs to justify the methodology compared to psychologists as well as psychologists' efforts creating more space for findings by either cutting down unnecessary DTM use or finding shorter ways of describing the methodology. DTM use was low in both disciplines compared to the results of previous studies, which might be caused by the differences in unit of analysis set by this study and previous studies. Previous studies, which used a wide range of units of analysis, coded more cases as method, which increased the percentages of the method move, while only the independent clauses were coded in the current study.
- The disciplinary results for RPT and SNR similarly demonstrated that these were not common in applied linguistics and psychology abstracts, which are consistent with those of earlier studies.
- In terms of the five common sequences found in abstracts, applied linguists showed a preference for sequences starting with ATR (55%). They used the ITT patterns in only 31% of the abstracts. Psychologists tended to use the ITT patterns (45%) more often than the ATR patterns (40%). Applied linguists were also found to prefer patterns including DTM (53%) while psychologists preferred patterns with no DTM (58%). These results are in agreement with the previous results.
- The optional functions, which are ITT (as an optional element in ITT patterns), SNR and RPT, were used more frequently in the ITT patterns (50%) than in ATR patterns (33%) in applied linguistics. Psychologists, however, used equal number of optional elements (about 40%) in the ITT and ATR patterns. None of these functions appeared as optional elements in sequential patterns in previous work. Only the conclusion move was identified as optional in sequences by some researchers.

- The DTM and no-DTM patterns did not show much difference in terms of the proportion of optional functions. The no-DTM patterns contained more optional elements in applied linguistics (46%) and psychology (43%) abstracts than the patterns including DTM, which appeared in 35% of the patterns including DTM in applied linguistics and 30% of the psychology abstracts.
- The proportion of the optional functions in the five sequential patterns showed disciplinary similarities. RPT was the most frequently used optional element in the applied linguistics and psychology corpus, which appeared about 20% of the sequences. SNR was predominantly an optional element of the ITT patterns in both disciplines, which is a result of the close tie between the ITT and SNR functions. ITT as an optional element of the ATR patterns was the least common optional element, occurred mostly in the ATR [ITT/SNR] PEMF [RPT] pattern.
- Recycling of functions occurred in 11% of the sequential patterns in the applied linguistics corpus whereas 21% of the patterns in psychology contained recurring cycles. The most frequent cycles were ATR-PEMF, DTM-PEMF, ITT-ATR and ATR-DTM. The widest variation between disciplines were found in the ATR-PEMF cycle, which occurred much more frequently in psychology (14%) than in applied linguistics (2%). The DTM-PEMF, ITT-ATR and ATR-DTM cycles, which were quite similar between disciplines, did not occur more than 3% of the abstracts. The results for repeating cycles in applied linguistics and psychology were consistent with those of previous studies, where the common cycles include ATR-DTM and DTM-PEMF, and the method and results moves were observed to recur frequently.

5.4 Generic variation in MALDIFs

5.4.1 Frequency of occurrence by genre

The results relating to the distribution of MALDIFs across genres revealed that there were considerable similarities between the two genres in the order of frequency of the six functions as well as in percentage of use of each function (see Table 5.17). PEMF and ATR were the most preferred functions in the RAs and TAs. RPT and SNR were the least preferred ones. DTM and ITT were still important functions in these two genres.

Table 5.17 Distribution of MALDIFs across genres

Functions	Research Articles		Theses		Total
	total cases	%	total cases	%	total cases
ITT	291	12.1	222	11.5	513
SNR	59	2.5	42	2.2	101
ATR	471	19.6	502	25.9	973
DTM	319	13.3	249	12.9	568
PEMF	1174	48.9	863	44.6	2037
RPT	85	3.5	58	3.0	143
Total	2399	100	1936	100	4335

If we look at the percentage of abstracts containing MALDIFs in RAs and TAs (see Table 5.18), we can see that 90% of abstracts in both corpora contained PEMF and ATR.

Table 5.18 Number and percentage of abstracts containing MALDIFs by genre

Functions	Total no of abstracts in RAs	% in RAs *	Total no of abstracts in Theses	% in Theses **
ITT	166	51.9	84	52.5
SNR	52	16.3	35	21.9
ATR	290	90.6	155	96.9
DTM	156	48.8	83	51.9
PEMF	315	98.4	148	92.5
RPT	75	23.4	33	20.6

* Percentages give the frequency of use of each function in 320 abstracts in the research article abstracts corpus.
** Percentages give the frequency of use of each function in 160 abstracts in the thesis abstracts corpus.

PEMF was the most frequent function (98%) in the RAs while it was second (93%) behind ATR in the TA corpus. ATR was the most preferred function in the TAs (97%). ATR was the most frequent second function in the RAs (91%). Although the percentages for ATR and PEMF are not much different between genres, we can still say that the writers of research articles give more prominence to presenting findings while telling about the research purposes and key features are more important for the thesis writers. This is quite in

accordance with the expectations because research article writers might want to attract the attention of the audience to their research by highlighting the findings. The thesis writers should persuade the examiners that the research topic is worth investigating; and therefore, they focus more on ATR.

The comparison of these results with those of previous studies confirms that ATR (89% on average) and PEMF (87% on average) are the most common functions in RAs in the soft science disciplines, although the results move in previous studies of soft fields were not as frequent as PEMF in the present study (see Table 2.2 in Chapter 2). The results move has been observed to occur in great amounts in the hard science RAs (97% on average) whereas the amount of the purpose move (80% on average) has been a little below those in the present study and the soft science disciplines. Unfortunately, previous studies have not presented results for the preferred moves in PhD TAs. There is only one study mentioned in the literature review chapter that presents results from master's dissertation abstracts. In that study, Ren and Li (2011) reported that all of the dissertation abstracts in applied linguistics corpus contained a purpose move while 90% of them presented results, which is congruent with the results for the PhD TAs in the present study.

The present results for ITT in RAs are broadly in line with the results for the introduction move in soft science disciplines (58% on average) (Pho, 2008; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014; Can et al., 2016; Tankó, 2017). The RAs in the hard knowledge domain, however, have been shown to be containing very low amounts of the introduction move (37% on average). Ren and Li (2011) found that all master's students used an introduction in their dissertation abstracts while only half of the PhD students included ITT in their TAs, which suggests that PhD students are more aware of the generic conventions of abstracts regarding the ITT function.

The result of DTM for RAs is far below those found in the soft science disciplines (73% on average) (Breeze, 2009; Tseng, 2011; Piqué-Noguera, 2012; Doró, 2013; Suntara and Usaha, 2013; Can et al., 2016). The method move has also been found in similar amounts in the

hard science RAs (70% on average). In section 5.3.1, we explained the differences in DTM between the results of the present study and those of previous studies by the differences in the unit of analysis. The same is also true for generic differences. In the current study, the number of DTM was found to be lower than those of previous studies because the unit of analysis was restricted to the independent clause, which also limits the number of cases. However, the unit of analysis of the method move in previous studies has been found to present a wide range of units ranging from a word or phrase to a clause and sentence or several sentences, which results in coding more units as the method move. We can see that this has happened in abstracts when we look at the figures for the embedded method instances. Many studies reported a move embedding between the purpose and method moves as well as introduction and method, and method and results (Santos, 1996; Cross and Oppenheim, 2006; Pho, 2008; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014; Can et al., 2016). Santos (1996) reported that, in 70% of its occurrence, the method move was merged with the purpose move in the same sentence in applied linguistics RAs. Can et al. (2016) also reported that merged cases of the purpose and method occurred in 58% of the applied linguistics corpus. Martín (2003) found 47% of the RAs in the English experimental phonetics and experimental psychology corpus merged the introduction and method moves. As a result, it seems that the number of embedded cases has increased the proportion of the method move in RAs.

Ren and Li (2011) found that the method move was included in all dissertation abstracts in applied linguistics. DTM appeared only in half of the TAs in the present study. There might be two possible reasons for this difference. One, PhD students tend to follow conventions of their disciplines more than the master's students. Two, PhD students know ways to merge the method move with other moves, which needs further research to explore in detail.

The results for SNR in a number of previous studies have confirmed that SNR is an optional move in soft science disciplines (23% on average) (Santos, 1996; Martín, 2003; Tankó, 2017). Samraj's results (2005), however, indicate a higher average for conservation biology and wildlife behaviour RAs in the hard knowledge domain, than that in the soft knowledge

domain. The only master's dissertation data by Ren and Li (2011), which was reviewed in Chapter 2, provided no results for SNR.

Although RPT is an underrepresented function in previous research, results from a few studies point to its status in abstracts as an optional function (Santos, 1996; Martín, 2003; Ren and Li, 2011; Can et al., 2016).[1] In Ren and Li's study (2011), 70% of the master's dissertation abstracts in applied linguistics were found to include descriptions of the text structure, which is a part of the RPT function. The use of RPT was not higher than 21% of the PhD TAs. The RPT was used to indicate the thesis structure, but also functioned as references to parts of text, which presents a similar pattern with the research article writers.

From Table 5.18, it can be observed that PEMF did not occur in some abstracts in both corpora. PEMF was expected to occur in all abstracts in general as it shows how the research contributed to the field. This is one of the most important elements in abstracts where the reader bases his judgment of the value of the research. This judgment will or will not lead him to give further attention to the research. The absence of PEMF is an interesting finding and should be investigated.

In section 5.3.1, we looked at the reasons for the absence of PEMF in applied linguistics and psychology. We found three reasons for an omission of PEMF in the corpus (see Table 5.10): RPT use instead of PEMF, no PEMF or RPT and uncategorised cases. The RAs and TAs show a similar preference in the type and number of PEMF omission methods. Three RAs and four TAs used RPT instead of PEMF (see example 5.3 in section 5.3.1). Two abstracts in each of the RA and TA corpora contained neither PEMF nor RPT. The uncategorised cases in six TAs are beyond this comparison. Although the frequencies in the first two methods of PEMF omission are similar in the two genres, it would not be wrong to say that such PEMF omissions tended to occur slightly more in the TAs (4%) than in the RAs (2%).

1 See section 5.2.1 for more details.

In research articles, writers have a greater chance to attract potential readers' attention by 'findings'. This may open the doors of the discourse community. Writers need to be recognised by the members of the community so that they are cited/referred in others' works, which is a sign of 'being accepted' to the discourse community. Also, people write their research to share what they have found; otherwise, they remain latent in the researcher's mind. Writing the research is then communicating what's found on the topic of investigation to the discourse community.

Findings contribute to the advancement of knowledge in an area of research. An abstract can only show that it adds new evidence to the disciplinary area by sharing findings. Therefore, in Hyland's (2000) term, writers need to 'marketise' their research findings to be recognised by the community.

Thesis abstracts are generally thought to be written for a small audience of supervisors and examiners. One could claim that its function is to give a short summary of the accompanying thesis. However, this function might recently have changed with the fact that some online databases such as Proquest and Ethos give free access to view theses abstracts. This impressive development would likely to contribute to the visibility of the TAs on the internet. This great advantage might evidently lead TAs to function similar to RAs.

If we look at Table 5.18 again, there are some abstracts which did not contain any ATR instances in both corpora. In section 5.3.1, we looked at the reasons for ATR omission in the abstracts (see Table 5.11) and found that three different things occurred in abstracts when ATR was absent. First, DTM was used instead of ATR. There were 7 RAs and only one thesis abstract using DTM instead of ATR (see example 5.4 in section 5.3.1). Second situation was no ATR or DTM use at all. This occurred only in the RAs and there were 21 abstracts explicitly omitting both functions (see example 5.5 in section 5.3.1). Third, there were also some uncategorised cases too: two in the RAs and four in the TAs. If we exclude uncategorised cases, we have 28 RAs which use both of the two methods of ATR omission and this makes

8.75% of the RA corpus. In the TAs, there is only one abstract using one of the omission methods (DTM instead of ATR).

The tendency of omitting ATR in RAs might be an effort to create more space for findings. We found that the abstracts using DTM instead of ATR followed one of these two sequences: DTM-PEMF (4 abstracts) or ITT-DTM-PEMF (3 abstracts). The abstracts which did not contain ATR or DTM consisted of either an ITT-PEMF sequence (17 abstracts) or only PEMF (4 abstracts). The preference for these bare-formed sequences highlights the firm status of PEMF in abstracts. By preferring an omission of ATR in favour of more findings, the writers let the reader to capture the research purpose and key features from the ITT, DTM and PEMF.

About half of the abstracts in both the research article and thesis corpora contained ITT and DTM, which suggests that these are still important functions for both genres. ITT use was quite similar between the RAs (52%) and TAs (53%). This similarity indicates that the TAs follow a similar preference in ITT use with the published work.

In DTM, there is only a difference of 3% between the RAs and TAs. This reflects the difference between total RAs and total TAs. However, the difference becomes much larger when we compare applied linguistics RAs to TAs as well as psychology RAs to TAs. DTM occurred in 31% of the psychology TAs and 39.4% of the psychology RAs. 58.1% of the applied linguistics RAs contained DTM whereas this was 72.5% in applied linguistics TAs. In psychology, the TAs contained 8% more DTM than the RAs did. In applied linguistics, the TAs contained DTM 14% more than the RAs. We can conclude that generic variation is larger within each discipline than the non-disciplinary variation.

RPT and SNR were the least frequent functions in both corpora. They were used in less than 25% of the abstracts. SNR was very low in the RAs (16%). 22% of the TAs contained SNR. The lower occurrence of SNR in the RA corpus might be because of space considerations. The

length of the RAs was 171 words on average whereas the TAs contained 299 words on average.

RPT was used slightly more in the RAs, which gives a difference of 3% between the RAs and TAs. Although the figures are similar, there are still some differences between the two genres in RPT use. First, explicit reference to chapters was only found in the TAs (see section 5.3.1 for a discussion and examples). Second, there is also difference in the position of occurrence of RPT in abstracts. RPT occurred at the abstract-final position in 95% of the abstracts containing RPT in RAs. This was 73% in the TAs. This difference is caused by the existence of references to text structure in the TAs. The TA writers were found to use such indications to text structure before the end of the abstract.

The RAs and TAs were similar in reference types they used in RPT. Both used reference to text structure as well as referring to parts of text where detailed information are given.

SNR was slightly more frequent (6% higher) in the TAs than in the RAs. This 6% difference does not offer much in terms of generic variation. However, the behaviour of SNR in both the RAs and TAs presented some differences as well as similarities in generic preferences (see Table 5.19 below).

Table 5.19 SNR behaviour across genres *

	SNR as the first function	Before SNR		after SNR			
		ITT	ATR	ATR	ITT	DTM	PEMF
RAs**	13.46 (7)	82.69 (43)	3.85 (2)	69.23 (36)	7.69 (4)	7.69 (4)	15.38 (8)
Theses***	8.57 (3)	85.71 (30)	5.71 (2)	85.71 (30)	8.57 (3)	2.86 (1)	2.86 (1)

* The table shows percentages and frequencies (in parentheses) of abstracts where SNR was the first function or preceded by ITT or ATR and followed by ATR, ITT, DTM or PEMF in total number of abstracts containing SNR in research article and thesis abstracts .
** SNR occurred in 52 abstracts in research articles.
*** SNR occurred in 35 abstracts in theses.

In both genres, SNR was preceded by ITT in most of the abstracts containing SNR (83% in the RAs and 86% in the TAs). In a small number of abstracts (2 in the RAs and 2 in the TAs), ATR

preceded SNR. SNR was the first function in 9% of the TAs containing SNR. This was a little higher in the RAs (14% of the abstracts with SNR).

In terms of following functions, ATR was the most preferred one in both genres. ATR followed SNR in 69% of the RAs with SNR. In the TAs, this was even higher. It occurred in 86% of the abstracts with SNR. Other preferred functions used as following SNR were ITT, DTM and PEMF, with PEMF was the highest of the three in the RAs.

5.4.2 Sequencing of use by genre

Table 5.20 gives the most frequent functional sequences in the RAs and TAs. In both the RAs and TAs, the ATR patterns were used more frequently than the ITT patterns. 48% of the RAs and 46% of the TAs used the ATR patterns. The ITT patterns were used in 40% of the RA corpus and 34% of the TA corpus.

Table 5.20 Most frequent functional sequences in abstracts by genre

Sequence *	RAs	%	Theses	%
ITT [SNR] ATR-DTM-PEMF [RPT]	39	12.19	29	18.13
ITT [SNR] ATR-PEMF [RPT]	72	22.50	24	15.00
ITT [SNR] PEMF [RPT]	18	5.63	1	0.63
ATR [ITT/SNR] DTM-PEMF [RPT]	94	29.38	32	20.00
ATR [ITT/SNR] PEMF [RPT]	61	19.06	41	25.63
Others	36	11.25	33	20.63
Total	320	100.00	160	100.00

* The functions in square brackets are optional.

There are also some similarities between the two corpora in DTM and no-DTM patterns. Both corpora contained more no-DTM patterns than DTM patterns. The no-DTM use was 47% in the RA corpus and 41% in the TA corpus. 42% of the RAs and 38% of the TAs used the DTM patterns.

It is apparent that the research article and thesis writers' preferences in sequences are close enough to suggest generic similarities between the RAs and TAs. The tendency to use slightly

more ATR patterns than ITT patterns is obviously a sign of moving the research to the forefront of the abstract. This serves to attract more attention of the audience in RAs while it serves to make the examiners to focus more on the research in TAs.

The ITT patterns were not so low in both corpora and there is not a big difference between them, which again shows generic similarities. Although less frequent than the ATR patterns, a preference for the ITT patterns in both RAs and TAs shows that situating the research is similarly important in both genre. This will enable the readers to make a stronger connection between the research and the research area. As a result, the chances will increase for the research to get more attention in RAs. This might also be the case in the TAs when they are available online on databases such as Proquest and Ethos, but starting an abstracts with an ITT pattern will help the examiners to see the importance of the research topic and what research gap it fills in the literature as well as the doctoral researcher's competence in understanding the research literature.

The use of a high number of DTM patterns indicates a preference for explicit DTM clauses which are unmerged with other functions. A slightly higher use of no-DTM patterns does not mean that the abstracts using a no-DTM pattern do not include any DTM. DTM might be merged with ATR or PEMF (see section 5.3.2 for a discussion of this). In such merged cases, DTM, which was a dependent clause, was accepted as a secondary function and a part of ATR or PEMF. The merged DTM use is a stylistic choice as well as a wise use of the limited word space in abstracts.

Comparison of the present results with those of previous studies demonstrates that similar sequential patterns to those found in the present study have also been found in previous work. The common sequences in research article abstracts were P-M-R-C (27% on average), P-M-R (10% on average), I-P-R-C (19% on average), I-P-M-R-C (17% on average), I-P-M-R (10% on average), P-R-C (15% on average) and I-R (7% on average). [1]

1 A detailed comparison of the common sequences in previous work with those of the present study was made in section 5.2.2.2.

The results for the research article abstracts are in agreement with those in the literature where the sequences starting with a purpose are more frequent in RAs (see Table 2.3 in Chapter 2). If we look at the soft science domain, we can see that the proportions of sequences starting with a purpose and those with an introduction are quite similar; the purpose sequences are slightly more frequent than the introduction sequences. However, a clear preference has been observed predominantly for sequences starting with a purpose move in the hard disciplines. This difference between the soft and hard disciplines in the preferences for sequences with a purpose or an introduction suggests that situating the research is more important in the soft sciences than in the hard sciences.

Previous results have indicated that sequences including a method move are more frequent in RAs, which contradicts with the results of the present study. However, a comparison of the results with those in the soft science disciplines demonstrated that the sequences including a method move is less frequent in the soft science RAs as well as in the RAs of the present corpus. In the hard knowledge domain, a vast majority of RAs was observed to prefer sequences containing a method move, which suggests the prominence of the method move in the hard sciences.

Most of the previous results for sequential patterns in the literature come from corpora of RAs. To my knowledge, no studies have investigated functional sequences in PhD TAs. Only in a study by Ren and Li (2011), we find information about the frequent sequence used in the master's dissertation abstracts in applied linguistics. Ren and Li found that a six-move sequence, which is the introduction-purpose-method-product-conclusion-structure sequence (I-P-M-R-C-S), was the most common pattern in the corpus of dissertation abstracts. This sequence is similar to the ITT [SNR] ATR-DTM-PEMF [RPT] sequence in the present study, which was also one of the frequent sequences in the PhD TAs.

The results relating to the basic and expanded uses of these five patterns are presented in Table 5.21 below. Both the RA and TA corpora used the basic patterns more than the

expanded ones. 62% of the RAs used the five patterns with the basic version whereas this figure was 60% in the TA corpus.

Detailed results relating to optional moves in abstracts have only been provided by Hyland's (2000), who presents percentage of abstracts containing an optional conclusion in sequences in eight disciplines. Hyland reported that 22% of the abstracts in the corpus of 800 RAs contained a conclusion, which appeared in four sequences: I-P-M-Pr [C], P-M-Pr [C], I-P-Pr [C] and P-Pr [C]. Conclusion is the only move indicated as optional in sequential patterns in the literature.

In both the RA and TA corpora, the writers preferred to use the ATR patterns in the basic version more than the ITT patterns. In the RA corpus, 63% of the ATR patterns were in the basic version and 68% of the ATR patterns in the TA corpus used the basic version. The basic version were used in 60% of the ITT patterns in the RA corpus and in 48% of the ITT patterns in the TA corpus. The ATR expanded versions were used less than the ITT expanded versions in both RAs and TAs. The difference between ATR and ITT expanded groups were very small in the RAs, but there is a 20% difference of that in the TAs. In the RA corpus, 40% of the ITT patterns and 37% of the ATR group were in the expanded version. In the TA corpus, the expanded version was used in 52% of the ITT patterns and 32% of the ATR patterns.

Table 5.21 Basic and expanded uses within patterns by genre

Sequence	Research Articles					Theses				
	Basic version		Expanded version		Total	Basic version		Expanded version		Total
	n	%	*n*	%	%	*n*	%	*n*	%	%
ITT [SNR] ATR-DTM-PEMF [RPT]	24	61.54	15	38.46	100	13	44.83	16	55.17	100
ITT [SNR] ATR-PEMF [RPT]	45	62.50	27	37.50	100	12	50.00	12	50.00	100
ITT [SNR] PEMF [RPT]	8	44.44	10	55.56	100	1	100.00	0	0.00	100
ATR [ITT/SNR] DTM-PEMF [RPT]	66	70.21	28	29.79	100	26	81.25	6	18.75	100
ATR [ITT/SNR] PEMF [RPT]	32	52.46	29	47.54	100	24	58.54	17	41.46	100

A comparison of the basic and expanded uses of the DTM and no-DTM groups showed that the DTM basic versions were more frequent than the no-DTM basic versions in both corpora and that both research article and thesis writers used the DTM patterns less frequently than the no-DTM patterns in the expanded version. In the RA corpus, 68% of the DTM patterns used only the obligatory elements, and similarly, 64% of the DTM patterns were in the basic version in the TA corpus. However, in each of the RA and TA corpora, the basic version was used in 56% of the no-DTM patterns. 32% of the DTM patterns in the RAs and 36% of that in the TAs used the expanded version. (The use of DTM patterns with the expanded version was less than 17% in both corpora.) The use of no-DTM patterns in the expanded version was equal between two corpora (44% of the no-DTM patterns).

ITT patterns were less preferred (less than 40%) in both genre, but it shows that situating the research is still important in both RAs and TAs. In ITT patterns, the abstracts start with ITT in all cases, which indicates a situating the research focus. This effort is supported by an optional SNR in the expanded version. SNR constituted 27% of the ITT patterns in the RAs. It was even higher in the TAs. SNR was used in 43% of the ITT group in the TA corpus. Also, SNR followed ITT in all its occurrences in the ITT patterns in both corpora, which indicates an effort to strengthen situating the research started by ITT. The high use of SNR is the reason for the higher use of the ITT patterns in the expanded version in both corpora.

As both RAs and TAs contained more ATR patterns (more than 40%) than the ITT patterns, it would not be wrong to say that both genres give more prominence to self research. This does not mean that ITT and SNR which situate the research have not been found in the ATR patterns. In both RAs and TAs, they were optional elements in the ATR patterns. In both RAs and TAs, ITT use in the ATR patterns was below 20% and SNR use was not more than 5%. As a result, situating the research is not so important in the ATR patterns as it is in the ITT patterns.

Turning to use of optional functions in the five MALDIF patterns, Table 5.22 shows generic differences in optional elements. RPT was the most frequently used optional element of the

five sequences in the RA corpus. It was used in the 22% of the RAs using the five patterns. However, in the TA corpus, RPT was the second (15%) behind SNR which was used in 21% of the five sequential groups in the TA corpus. ITT, which is an optional element only in ITT patterns, was the least frequent (less than 10%) optional element in both corpora. ITT was most frequent as an optional element in the ATR-PEMF pattern in both RAs and TAs.

In the RA corpus, SNR was used more with ITT patterns (27%) and RPT was more preferred with the ATR patterns (25%). Similarly, the TAs used SNR more with ITT patterns (43%). However, in the ATR patterns, the writers used ITT slightly more frequently (18%) than RPT (14%). SNR (33%) was used most frequently in the ITT-PEMF pattern in the RA corpus. Similarly, SNR was used more frequently in the ITT patterns in the TA corpus. It was most frequently (45%) used in the ITT-ATR-DTM-PEMF pattern. Here again we see an ITT-SNR pair where SNR followed ITT in all abstracts where it occurred in both corpora. This tight relationship of these two functions in the ITT patterns indicates a strong start to the abstract by situating the research within the area.

Table 5.22 Generic differences in optional elements *

Sequence	Research Articles						Theses					
	ITT		SNR		RPT		ITT		SNR		RPT	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
ATR [ITT/SNR] DTM-PEMF [RPT]	7	7.45	1	1.06	23	24.47	2	6.25	1	3.13	4	12.50
ATR [ITT/SNR] PEMF [RPT]	14	22.95	3	4.92	16	26.23	11	26.83	3	7.32	6	14.63
ITT [SNR] ATR-DTM-PEMF [RPT]	-	-	11	28.21	5	12.82	-	-	13	44.83	4	13.79
ITT [SNR] ATR-PEMF [RPT]	-	-	18	25.00	14	19.44	-	-	10	41.67	5	20.83
ITT [SNR] PEMF [RPT]	-	-	6	33.33	4	22.22	-	-	-	-	-	-

* The figures indicate the number and percentage of abstracts using each optional element in the patterns

Also, the RAs used RPT more than the other optional elements both in the DTM (21%) and no-DTM (23%) patterns. The TAs used SNR the most both with DTM (23%) and no-DTM

(20%) patterns. In no-DTM patterns, the TA writers used a similar amount of each optional element.

5.4.3 Cyclicity by genre

Table 5.23 shows the distribution of most frequent functional cycles in sequences across genres. In the RA corpus, the five patterns contained six types of cycle (ATR-DTM, ATR-PEMF, DTM-PEMF, ITT-ATR, ITT-PEMF and ITT-SNR). Overall, 8% of the abstracts using the five sequences contained cyclicity. The TA corpus used seven types of cycle (ATR-DTM, ATR-DTM-PEMF, ATR-PEMF, ATR-SNR, DTM-PEMF, ITT-ATR and ITT-SNR). 34% of the abstracts using the five patterns in the TAs contained cyclicity.

The RAs did not reveal much difference between the ATR (7%) and ITT (9%) group of patterns in terms of cyclicity. The percentages were also similar between the ATR (33%) and ITT (35%) groups in the TA corpus. The percentage of cyclicity between the DTM (8%) and no-DTM (7%) groups was not different in the RA corpus. However, in the TA corpus, there was a preference for using cycles in the no-DTM group. Cyclicity occurred in 42% of the no-DTM group and in 25% of the DTM group.

If we look at the percentage of cycles in patterns, we find higher figures for functional cycles in the TAs than in the RAs (see Figures 5.3 and 5.4). The thesis writers used the highest number of cycles (54%) in the ITT-ATR-PEMF pattern. This was followed by two ATR patterns, in which the use of cycles were also high (37 and 28%). ITT-ATR-DTM-PEMF was the sequence which contained the lowest amount of cycles (21%), but this was still nearly twice of the cycles (11%) in the ITT-ATR-PEMF sequence which contained the highest amount of cycles in the RAs. ATR-DTM-PEMF was the second sequence in the use of functional cycles (10%) in the RA corpus. The cycle use was less than 6% in the other three sequences.

Table 5.23 Most frequent functional cycles in sequences by genre *

Cycle	ATR [ITT/SNR] DTM-PEMF [RPT]		ATR [ITT/SNR] PEMF [RPT]		ITT [SNR] ATR-DTM-PEMF [RPT]		ITT [SNR] ATR-PEMF [RPT]		ITT [SNR] PEMF [RPT]	
	RA	TA	RA	TA	RA	TA	RA	TA	RA	TA
ATR-DTM	2	5				2				
ATR-DTM-PEMF		1								
ATR-PEMF	1	1	2	14		2	4	10		
ATR-SNR				1						
DTM-PEMF	6	5				1				
ITT-ATR					1	2	4	4		
ITT-PEMF									1	
ITT-SNR					1			1		
Total	9	12	2	15	2	7	8	15	1	0

* The figures in the table indicates frequency of cycles in each pattern and their totals. In some cases, a single abstract includes two different cycles.

Figure 5.3 Percentage of cycles in research article abstracts

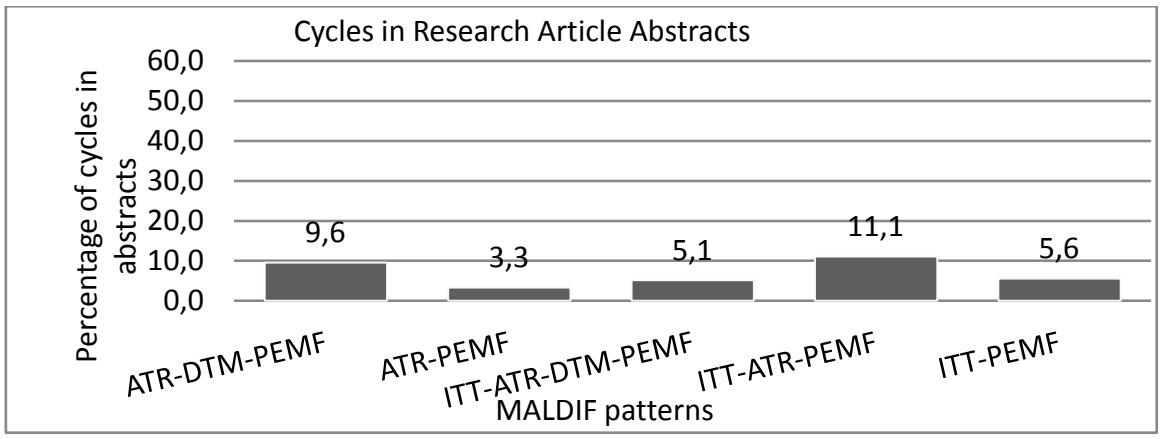
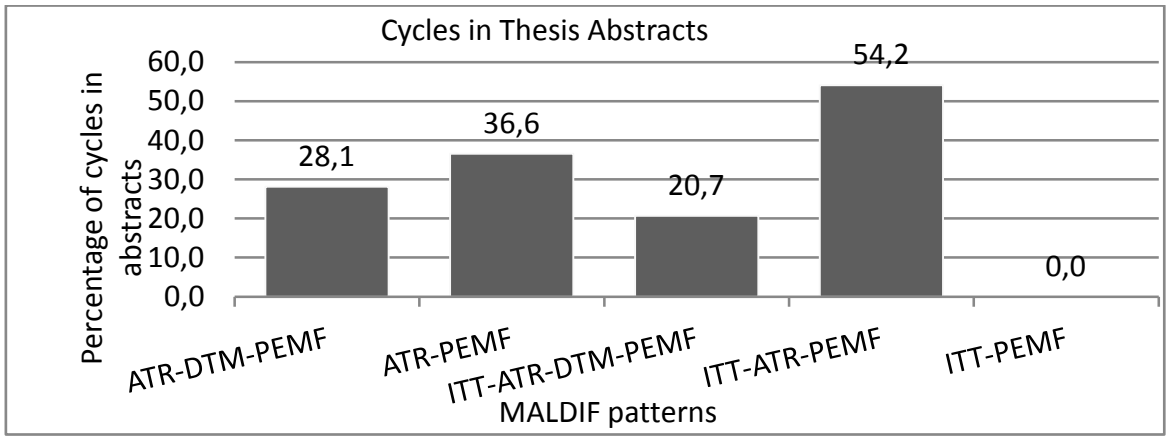


Figure 5.4 Percentage of cycles in thesis abstracts



ATR-PEMF was the most preferred functional cycle in both the RA and TA corpora. It had an overall use of 21% in the TAs. 42% of the ITT-ATR-PEMF pattern and 34% of the ATR-PEMF pattern in the TA corpus contained the ATR-PEMF cycle. It was also used in 7% of the ITT-ATR-DTM-PEMF sequence. ATR-DTM is the second most commonly used cycle in TAs. It was used in 16% of the ATR-DTM-PEMF sequence and 7% of the ITT-ATR-DTM-PEMF sequence. The DTM-PEMF cycle (16%) was mostly used in ATR-DTM-PEMF sequence. ITT-ATR cycle was used in 17% of the ITT-ATR-PEMF sequence and 7% of the ITT-ATR-DTM-PEMF sequence.

In the RAs, the cyclicity was very low[1] compared to the use of cycles in the TAs. Three cycles were used more frequently than others: ATR-PEMF, DTM-PEMF and ITT-ATR. The DTM-PEMF cycle (6%) occurred only in the ATR-DTM-PEMF sequence. ATR-PEMF (6%) and ITT-ATR (6%) cycles were mostly used in the ITT-ATR-PEMF sequence.

In four most frequently occurred cycles (i.e. ATR-DTM, ATR-PEMF, DTM-PEMF and ITT-ATR), the biggest generic difference was found in the ATR-PEMF cycle. It occurred in 21% of the thesis corpus while only 2% of the RAs contained the ATR-PEMF cycle.

This high occurrence of the ATR-PEMF cycle in the TAs was also the highest occurrence in the eight types of cycle in both corpora. We found no frequencies for cycles that went beyond 6% in both genres except for ATR-PEMF in the TAs. In section 5.3.3, we discussed the reasons for the repetition of ATR-PEMF in disciplines, which are also true for its recurrence in the TAs as well as in the RAs. The ATR-PEMF cycle repeated when there was either a single study with multiple aims, analyses or themes (see example 5.10 in section 5.3.3), or multiple studies or experiments (see example 5.11 in section 5.3.3).

It is interesting to note that ATR-PEMF predominantly occurred in psychology TAs (in 24 out of 34 abstracts containing the cycle). This recurrence involved both type of repetition mentioned above. Multiple analyses and experiments are an essential part of research in psychology. As the human mind is a complex system, psychologists have to look at the

1 The percentage for cyclicity was not more than 2% for any cycle in research article abstracts.

problem from different perspectives to identify the causes of the problem. For this, they need to do more than one analysis or experiments focusing on a different aspect of the problem most of the time. We saw this more in psychology theses abstracts rather than psychology RAs probably because psychology theses abstracts are longer (291 words on average) than the psychology RAs (165 words on average) and have enough room to repeat the cycle. Research article writers, on the other hand, find creative ways to present each experiment or analysis in the abstracts to keep it shorter in terms of word count.

The ATR-DTM cycle occurred in only 1% (2 abstracts) of RAs. This was a little higher in the TA corpus (6%). The ATR-DTM cycle appeared in abstracts where there is a single study with multiple aims (or key features). The cycle repeated as long as there were a different aim/key feature and its associated methodology (see example 5.12 in section 5.3.3). The ATR-DTM cycle was seen in 6 applied linguistics TAs and only one psychology thesis abstract. This slightly higher use of this cycle in the ALTA corpus is partly related to the important status of the DTM function in applied linguistics. DTM occurred in 73% of the ALTA corpus while the PTA corpus used that function only in 31%, which makes the cycle repetition in the ALTA corpus reasonable. If we look deeper, we find disciplinary conventions as well as shared knowledge issues behind these preferences.

The generic differences were lower in DTM-PEMF and ITT-ATR. DTM-PEMF cycle had slightly higher use in the TAs (5%) than the RAs (2%). The cycle occurred in abstracts where it related to the same study (see example 5.13 in section 5.3.3) or different studies (or experiments) (see example 5.14 in section 5.3.3). In single study cases, DTM recurred when there were multiple analyses or when different stages or dimensions of the study were to mentioned. Each of these were followed by PEMF which was related to them. The multiple study situation involved the methodological description and then finding related to one of the studies, and then those of the next.

ITT-ATR were found in 11 abstracts in total (2% in the RAs and 5% in the TAs). We found ITT-ATR cycle when there were either a single aim or multiple aims. The multiple aims were

found only in one abstract in each corpus. Each aim was preceded by ITT (see example 5.15 in section 5.3.3). In abstracts with a single aim, the second ITT served as giving background information, which seems to be interrupting ATR to clarify the unknown which was thought to be related to the ATR (see example 5.16 in section 5.3.3).

Much of the research covered in the literature review has used corpora of research article abstracts. In terms of postgraduate work, we can only find information about the preferred moves and sequential patterns in abstracts of master's dissertations by Ren and Li (2011). However, Ren and Li's results do not say anything about recycling of moves. It is hoped that the results of the present study will contribute to a deeper understanding of the cyclicity in research article abstracts as well as the PhD thesis abstracts.

Two studies presented results about recycling moves. Can et al. (2016), who analysed the move cycles in applied linguistics RAs, identified the purpose-method cycle as the most frequent cycle. Similarly, the ATR-DTM cycle was one of the common cycles in the present study. Can et al. also observed the method-results-method-discussion cycle in their corpus. Similar to this cycle, the DTM-PEMF pair was also found to be recycled in the abstracts.

Kanoksilapatham (2013) investigated the repeating moves in the corpus of civil engineering abstracts and found that method and results are the two recycled moves in RAs. The present results confirm that the method (DTM) and results (PEMF) moves are involved in repeating cycles in the RAs and TAs.

5.4.4 Summary

In this section, we presented the findings of the study related to the second research question: Is there variation in macro-level discourse functions between research article and thesis abstracts in terms of frequency of occurrence, sequencing of use and cyclicity?

In summary, the generic findings of the MALDIF analysis answering this question are as follows:

- The comparative data of the two genres demonstrated similarities in MALDIFs between the research article and PhD thesis abstracts.
- ATR and PEMF, which appeared at least in 90% of the abstracts, were found to be the most common functions in the research article and doctoral thesis abstracts. Although the results between the genres are similar, the research article writers used slightly more PEMF than the thesis writers and the thesis writers used ATR slightly more than the research article writers, indicating the article writers' attempts to draw more attention to what has been found and the thesis writers' efforts in persuading the examiners about the value of the research. These results relating to the prominence of ATR and PEMF in RAs support previous research; however, we do not have any previous results for the preferred moves in TAs which we can compare our findings with. Only in one study, Ren and Li presented results for master's dissertation abstracts which are similar to those in the present study.
- In the absence of PEMF, three situations arose: RPT use instead of PEMF, abstracts with no PEMF or RPT, and uncategorised cases. The use of RPT as a substitute for PEMF and excluding PEMF as well as RPT in abstracts were very similar between genres.
- In the absence of ATR, three situations were observed: a replacement of ATR by DTM, no occurrence of ATR or DTM and uncategorised cases. The first two of these appeared in 9% of the RAs, but occurred only in one thesis abstract.
- ITT was used in half of the research article and thesis corpora. The results for the RAs of the study are broadly in agreement with previous results. All the dissertation writers in Ren and Li's study, on the other hand, used an introduction in their abstracts, which is far above the figures of this study.
- In contrary to the results of previous research, DTM occurred only in half of the RAs and TAs. The generic differences in the present study becomes larger when we compare the RAs and TAs within each discipline. The TAs were found to contain DTM more frequently than the RAs. The difference was larger in applied linguistics. Even these results are far below those of previous studies. The higher percentages for DTM in previous studies are probably due to the wide range of units set for the analysis which increased the number of cases.

- SNR and RPT did not occur more than 23% of the abstracts and showed similarities between genres. These two functions have also been identified as infrequent ones in RAs in previous work. Although no information is available about SNR and RPT in PhD TAs, as far as I am aware, Ren and Li (2011) reported that nearly three quarters of the Master's dissertations contained descriptions of text structure, which is one of the functions of RPT. References to parts of text, which is another function of RPT, have only been found in RAs in previous research. These two functions of RPT have been identified in different studies.
- The generic comparison of the sequential groups showed that the patterns starting with ATR were preferred more than the patterns starting with ITT by the article writers as well as the thesis writers, suggesting a tendency in drawing attention to the research at the beginning of the abstract. Also, the patterns including DTM were preferred less than those with no DTM by both groups of writers, which suggests a reduced preference for describing methodology as an independent unit. These results regarding sequences with a purpose start in the RAs are in agreement with those from the literature. The results of the present study are also in line with those of previous studies which found that the method sequences occurred less than the no-method sequences in RAs in the soft science disciplines.
- Previous research seems to have ignored the sequential patterns in PhD TAs. In a study where the corpus contained master's dissertation abstracts, the dissertation writers were found to use frequently the introduction-purpose-method-product-conclusion-structure sequence (Ren and Li, 2011), which is similar to the sequence ITT [SNR] ATR-DTM-PEMF [RPT] found commonly occurring in the doctoral TAs in the current study.
- The optional functions were used roughly in 40% of the abstracts in the research article and thesis corpora. These functions were not identified as optional functions in previous research. Some researchers indicated the conclusion move as optional in sequences. Hyland (2000) reported that the optional conclusion occurred in 22% of the corpus.
- RPT was the most frequent optional element in the article abstracts and used more frequently by the article writers (22%) than by the thesis writers (15%).

- SNR was the most frequently used optional function in the thesis corpus. It was predominantly an optional element of the ITT sequences in both corpora. In all of its occurrences in the ITT patterns, SNR followed ITT in the RAs and TAs.
- ITT as an optional element in the ATR was the least frequent optional function in the RAs and TAs.
- Cyclicity occurred in 34% of the sequential patterns in the TA corpus and only in 8% of the RA corpus. The most frequent cycles were ATR-PEMF, DTM-PEMF, ITT-ATR and ATR-DTM. The greatest generic variation was found in the ATR-PEMF cycle. The thesis writers (21%) used the ATR-PEMF cycle more often than the article writers (2%). The ATR-DTM, DTM-PEMF and ITT-ATR cycles occurred slightly more frequently in the TAs than in the RAs, but the percentages did not go beyond 6% for these three cycles. The results for recurring cycles in RAs were consistent with previous work; however, no comparable data from the literature was found for the results of the thesis corpora.

In Chapter 6, the methods of the LP analysis is described and results of the analysis is presented and discussed.

CHAPTER SIX

LEXICAL PHRASES IN ABSTRACTS

6.1 Introduction

In this chapter, we will be looking at linguistic patterns of MALDIFs in abstracts which we call 'lexical phrases'. Firstly, methods related to the LP analysis will be presented. Secondly, we will look at general findings of the LP analysis (i.e. when the four corpora combined). Then, in sections 6.4 and 6.5, we will focus on disciplinary and generic variation in LP use.

The research questions of the study related to the LP analysis are:

- Do LPs associated with particular discourse functions vary between applied linguistics and psychology abstracts?
- Do LPs associated with particular discourse functions vary between research article and thesis abstracts?

6.2 Methods

In this section, we will look at the stages of the LP analysis, but before that we will first explain some pre-analysis issues about text files and corpora sizes. In the previous analysis, i.e. the function analysis, each independent clause in the corpus was assigned to a MALDIF category. For the LP analysis, we saved all instances of a function from the same abstract in a text file. This enabled us to see the range of each LP as well as the elements in it. As different from the MALDIF analysis, the corpora sizes were slightly smaller as the cases which were not assigned to any MALDIF category were excluded. The four corpora contain 7,970 word types and consist of 99,519 words in total. Table 6.1 gives the number of words in each corpus for the MALDIFs.

Table 6.1 Corpora word counts for the MALDIFs

	ALRA		ALTA		PRA		PTA	
	Word types	Word tokens	Word types	Word tokens	Word types	Word tokens	Word types	Word tokens
ITT	1213	3404	1039	2838	1213	2966	891	2039
SNR	312	601	223	407	297	498	244	405
ATR	1756	7121	1662	6567	1545	5017	1643	6029
DTM	1189	4330	1314	4253	879	2193	587	1268
PEMF	2518	12044	2060	8753	2894	14928	2462	11519
RPT	325	795	204	359	284	672	222	513
Total		28295		23177		26274		21773

The LP analysis consisted of three stages: keyword analysis, concordance analysis and grouping concordance results. Two tools were used in these three stages of the LP analysis: AntConc version 3.4.4 was used for keyword and concordance analysis and grouping concordance results were conducted using spreadsheets.

The keyword stage required identification of keywords to use as search terms in the KWIC searches. Therefore, we carried out a keyword analysis on the corpus. This analysis had two parts: generating keyword lists and selection of keywords from these lists.

The keyword analysis required to use the keyword tool in AntConc and generate the keyword lists. We used log-likelihood in keyword generation. In this automated procedure, the tool compares the target corpus with the reference corpus and lists the words which occur statistically frequently in the target corpus. The generated keyword list shows the keyness strength of words in rank order. Keyness strength is a figure that indicates the potential of the words in the target corpus to be a search term in the KWIC searches. The higher the keyness strength, there is more chance for the word to be a keyword candidate.

The keyword lists for each functional category were generated for each of the applied linguistics, psychology, research articles and theses corpora. As we used specialised corpora in this study, we created the reference corpora from the subsets of our abstracts corpora.

For example, the keyword list for ATR applied linguistics was generated using all the other five functions (ITT, SNR, DTM, PEMF and RPT) as the reference corpus. [1] Here our target corpus was ATR applied linguistics and the reference corpus consisted of all the text files of the other five functions for four corpora. This allowed us to see the words which appeared statistically frequently in the ATR applied linguistics subcorpus when compared to the reference corpus.

Producing keyword lists for each function by discipline/genre was followed by the selection of keywords for KWIC searches. This selection was based on three criteria: keyness strength, word position and word type. The keywords were selected from the keyword lists starting from the words with the highest keyness strength and going down in the list until finding enough patterns for a given function. The cut-off point was decided to be a keyness strength of 10, but we went below that to find more patterns time to time.

This selection process focussed on words in the clause initial position as the study aims to find the 'sentence builder' type of LPs, which are found in that position. In terms of word type, nouns, verbs, auxiliaries and pronouns are preferred as they gave more patterns. Adjectives and adverbs were rarely used as search terms. Although words such as *the*, *of* and *with* were highly frequent, function words were avoided as much as possible. They occurred in the clause initial position as well as at any other point in the clause causing the same clause repeat many times in the concordance results. This meant a huge amount of deletion of the repeating strings in the concordance results.

The second stage of the LP analysis was the analysis of the concordance lines. Using the selected keywords, we generated concordance lines for each search term. We used two criteria here: the position of the search term in the clause and the number of strings from a single clause. The lines which did not meet the criteria were deleted. The first criterion was that the search term should occur in the clause initial position. We deleted lines where the search term and the surrounding words were not clause initial elements. As we just targeted

1 See Baker (2000: 137) for a similar method of reference corpus.

strings of sentence builder type, which occurred in the clause initial position, anything that repeated other than the sentence builders in the clause was ignored and deleted from the concordance results. The second criterion was that we should get a single string from a clause. Repeating strings from the same clause were deleted until there was only one string left from it. The functional coding was undertaken at the independent clause level in the MALDIF analysis and the unit of analysis was decided to be the 'independent clause'. As LPs are sentence builders, they match the independent clauses structurally. Because we assigned a function to each independent clause in the MALDIF analysis, we could potentially get a maximum of only one sentence builder LP from a single independent clause.

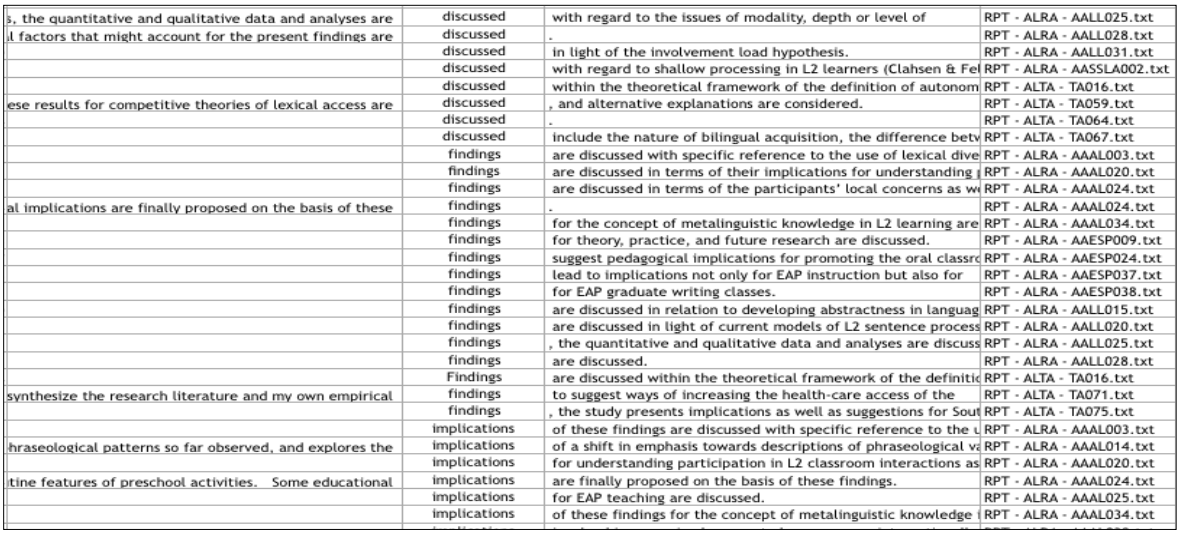
At this point, we can ask why an LP which comes from an independent clause has a single function. The answer is related directly to the MALDIF analysis. As we did a functional coding to the corpus prior to the LP analysis, the number of functions that would be assigned to an independent clause was decided at that stage. Although there might be cases where more than one function is possible, we decided to assign a 'single' function to each independent clause for the sake of simplicity.

The third stage of the LP analysis was grouping concordance results. The concordance results were saved in spreadsheets which gave more flexibility to work on them further. Grouping on spreadsheets was done to determine the obligatory and optional points as well as the fixed and variable elements of LPs, and to sort out the results into LP patterns. This stage of analysis had two parts: preparing the spreadsheets for analysis and identifying the LP patterns.

For the preparation part of the analysis, we first saved the concordance results for a functional category that came from different KWIC searches together in spreadsheets. For ATR applied linguistics, for example, we saved the concordance results of all search terms in the same spreadsheet. Thus, we had a four-column table for ATR applied linguistics: one column for the search term such as 'study', 'research', 'investigate' and 'examine', two columns for the parts on the left and right of the search term, and one column for the text

file information where the string came from. Here is a screenshot of how the spreadsheet looked like.

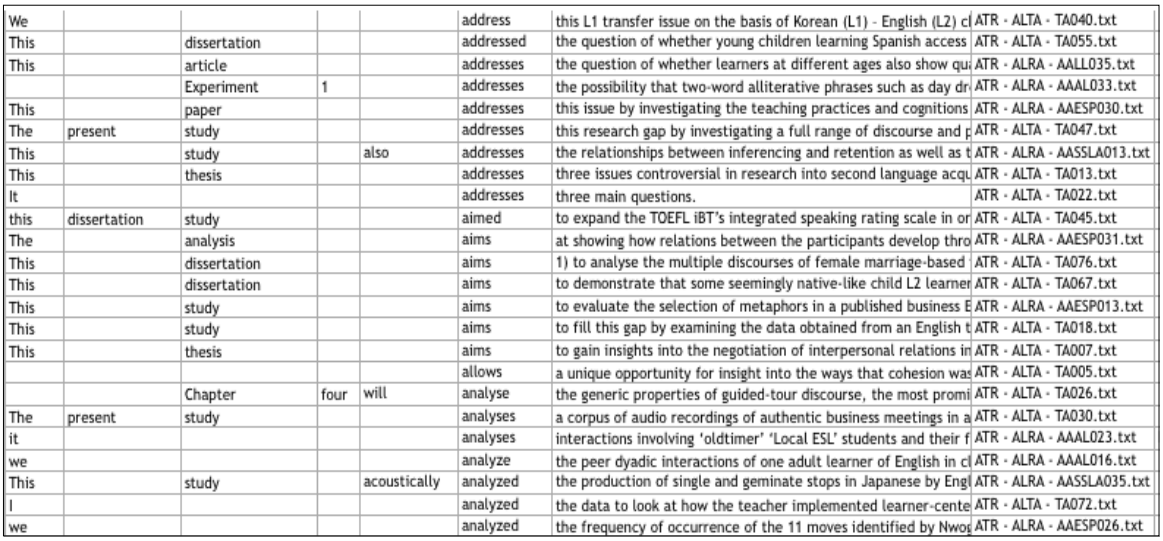
Figure 6.1 Concordance results saved in spreadsheets



s, the quantitative and qualitative data and analyses are	discussed	with regard to the issues of modality, depth or level of	RPT - ALRA - AALL025.txt
il factors that might account for the present findings are	discussed	.	RPT - ALRA - AALL028.txt
	discussed	in light of the involvement load hypothesis.	RPT - ALRA - AALL031.txt
	discussed	with regard to shallow processing in L2 learners (Clahsen & Fe	RPT - ALRA - AASSLA002.txt
	discussed	within the theoretical framework of the definition of autonom	RPT - ALTA - TA016.txt
ese results for competitive theories of lexical access are	discussed	, and alternative explanations are considered.	RPT - ALTA - TA059.txt
	discussed	.	RPT - ALTA - TA064.txt
	discussed	include the nature of bilingual acquisition, the difference betv	RPT - ALTA - TA067.txt
	findings	are discussed with specific reference to the use of lexical dive	RPT - ALRA - AAAL003.txt
	findings	are discussed in terms of their implications for understanding	RPT - ALRA - AAAL020.txt
	findings	are discussed in terms of the participants' local concerns as w	RPT - ALRA - AAAL024.txt
al implications are finally proposed on the basis of these	findings	.	RPT - ALRA - AAAL024.txt
	findings	for the concept of metalinguistic knowledge in L2 learning are	RPT - ALRA - AAAL034.txt
	findings	for theory, practice, and future research are discussed.	RPT - ALRA - AAESP009.txt
	findings	suggest pedagogical implications for promoting the oral classr	RPT - ALRA - AAESP024.txt
	findings	lead to implications not only for EAP instruction but also for	RPT - ALRA - AAESP037.txt
	findings	for EAP graduate writing classes.	RPT - ALRA - AAESP038.txt
	findings	are discussed in relation to developing abstractness in languag	RPT - ALRA - AALL015.txt
	findings	are discussed in light of current models of L2 sentence process	RPT - ALRA - AALL020.txt
	findings	, the quantitative and qualitative data and analyses are discuss	RPT - ALRA - AALL025.txt
	findings	are discussed.	RPT - ALRA - AALL028.txt
	Findings	are discussed within the theoretical framework of the definitic	RPT - ALTA - TA016.txt
synthesize the research literature and my own empirical	findings	to suggest ways of increasing the health-care access of the	RPT - ALTA - TA071.txt
	findings	, the study presents implications as well as suggestions for Sout	RPT - ALTA - TA075.txt
	implications	of these findings are discussed with specific reference to the u	RPT - ALRA - AAAL003.txt
hraseological patterns so far observed, and explores the	implications	of a shift in emphasis towards descriptions of phraseological va	RPT - ALRA - AAAL014.txt
	implications	for understanding participation in L2 classroom interactions as	RPT - ALRA - AAAL020.txt
itine features of preschool activities. Some educational	implications	are finally proposed on the basis of these findings.	RPT - ALRA - AAAL024.txt
	implications	for EAP teaching are discussed.	RPT - ALRA - AAAL025.txt
	implications	of these findings for the concept of metalinguistic knowledge	RPT - ALRA - AAAL034.txt

The concordance results did not help much to see the repeating words or strings in this way. Then, we split each line into smaller units and pasted each unit into a separate cell. The resulting look of the spreadsheet enabled us to see the same clause elements in the same column, such as all the verbs in the same column, all the subject pronouns in the same column, all the head nouns in the subject position in the same column and all the verb complements in the same column. The following is a screenshot from ATR applied linguistics.

Figure 6.2 Edited concordance results on spreadsheets



We					address	this L1 transfer issue on the basis of Korean (L1) - English (L2) c	ATR - ALTA - TA040.txt
This		dissertation			addressed	the question of whether young children learning Spanish access	ATR - ALTA - TA055.txt
This		article			addresses	the question of whether learners at different ages also show qu	ATR - ALRA - AALL035.txt
		Experiment	1		addresses	the possibility that two-word alliterative phrases such as day dr	ATR - ALRA - AAAL033.txt
This		paper			addresses	this issue by investigating the teaching practices and cognitions	ATR - ALRA - AAESP030.txt
The	present	study			addresses	this research gap by investigating a full range of discourse and p	ATR - ALTA - TA047.txt
This		study		also	addresses	the relationships between inferencing and retention as well as t	ATR - ALRA - AASSLA013.txt
This		thesis			addresses	three issues controversial in research into second language acqu	ATR - ALTA - TA013.txt
It					addresses	three main questions.	ATR - ALTA - TA022.txt
this	dissertation	study			aimed	to expand the TOEFL iBT's integrated speaking rating scale in or	ATR - ALTA - TA045.txt
The		analysis			aims	at showing how relations between the participants develop thro	ATR - ALRA - AAESP031.txt
This		dissertation			aims	1) to analyse the multiple discourses of female marriage-based	ATR - ALTA - TA076.txt
This		dissertation			aims	to demonstrate that some seemingly native-like child L2 learner	ATR - ALTA - TA067.txt
This		study			aims	to evaluate the selection of metaphors in a published business E	ATR - ALRA - AAESP013.txt
This		study			aims	to fill this gap by examining the data obtained from an English t	ATR - ALTA - TA018.txt
This		thesis			aims	to gain insights into the negotiation of interpersonal relations in	ATR - ALTA - TA007.txt
					allows	a unique opportunity for insight into the ways that cohesion was	ATR - ALTA - TA005.txt
		Chapter	four	will	analyse	the generic properties of guided-tour discourse, the most promi	ATR - ALTA - TA026.txt
The	present	study			analyses	a corpus of audio recordings of authentic business meetings in a	ATR - ALTA - TA030.txt
it					analyses	interactions involving 'oldtimer' 'Local ESL' students and their f	ATR - ALRA - AAAL023.txt
we					analyze	the peer dyadic interactions of one adult learner of English in c	ATR - ALRA - AAAL016.txt
This		study		acoustically	analyzed	the production of single and geminate stops in Japanese by Engl	ATR - ALRA - AASSLA035.txt
I					analyzed	the data to look at how the teacher implemented learner-cente	ATR - ALTA - TA072.txt
we					analyzed	the frequency of occurrence of the 11 moves identified by Nwo	ATR - ALRA - AAESP026.txt

Although it was burdensome to split up a string into different cells in spreadsheets as a huge amount of copying and pasting was required, this helped us to see the recurring elements much more easily. It is possible to sort the results by column on spreadsheets as long as each column contains similar type of thing. In this way, we could sort the results at multiple levels. Also, it made counting the frequencies easier. Besides, the multiple-level sorting also helped to see any problems and to detect strings that did not belong to the pattern.

In the process of doing this cut and paste job of clause elements to go into the same column, the concordance results were also grouped into three patterns according to the type of verb: active verb, passive verb and verb be. Instances of each group were saved into a separate spreadsheet. The grouping was aimed to be as simplistic as possible for two reasons. First, LPs involve too much variation which makes it difficult to group the results in many different ways. Second, the frequency was a concern in terms of the number of groups. In grouping the results, we have the option of searching strings as a whole or focusing on one element and group the strings accordingly. The former was not possible in our case because of the amount of variation. A grouping based on a single element seems more reasonable, but it also brings some problems. For example, the word 'examine' occurred 138 times in the ATR function. If we make a grouping by the word 'examine', we find 'study/studies' collocate with 'examine' 51 times. On the other hand, 'study/studies' occurs 230 times in total and 179 of them with verbs other than 'examine'. Such a grouping would result in counting some instances of 'study/studies' in the verb 'examine' pattern and other instances in other verb-based patterns. If we made the grouping based on 'study/studies', then a similar scene would occur and the same verbs would go into different patterns. Thus, the solution is making a simple grouping which will allow us to put all the repeating elements (e.g. noun, verb, pronoun, etc.) together. Grouping by verb type (i.e. active voice, passive voice and verb be) enabled us to do that.

At the second part of the grouping of concordance results, we used multiple-level sorting (by column) on spreadsheets and looked for LP patterns. We should remind the reader that all the strings on spreadsheets already carried two important features of LPs: having a MALDIF

function and coming from an independent clause which matches the structure of a sentence builder LP. These were identified in the MALDIF analysis. What we did here was to identify the LP patterns, the obligatory and optional points, and what variations were used for these points. We also identified the research-specific usages at obligatory and optional points. As sentence builder LPs do not have a fixed uninterrupted pattern, we concentrated on the behaviour of individual words.

As a first step, we located which points were obligatory and which points were optional. The sorting by column on spreadsheets easily revealed that obligatory points were subject and verb positions as well as complements depending on the verb and that all the other elements such as noun pre- and post-modifiers in the subject position, adverbs before or after verb, and modal verbs were optional. The second step was to find out what occurred in the obligatory points. By doing this, we aimed to determine if the words in these points carried LP features, and if so, what variations occurred in these slots. We used two criteria for this: frequency and word status.

A decision was made whether or not to use a cut-off frequency for the individual words in the obligatory points that form an LP. This decision was made for the obligatory points such as head noun in the subject position and verb, but not for the verb complement part as no patterning was found in the complement part. For the individual words, we did not use any cut-off point and words that occurred just once were also accepted as a variation for a slot as long as it was not a research-specific word, which was our next criterion that we call 'word status'. By word status, we refer to research concepts and words that are specific to individual studies. In identifying LPs, we attempted to focus on words which were related to research concepts. This was important for the generalisability of LPs for the disciplines.

If none of the words in the obligatory points met the criteria, we did not accept it as an LP and excluded the string from the LP analysis. If the verb met the criteria, but the subject position contained a research-specific word (or words), then we did not accept it as a variant for a slot, but instead categorised the subject as 'other subject', which indicates specific

subjects in LPs. For example, 'hypothesis', as a research concept, was accepted as a variant head noun in the subject position even when it occurred only once in PEMF pattern 1 in the applied linguistics corpus while 'non-specific repair initiators' was categorised as 'other subject' as it is a specific research topic in the field. For the optional points, we used these same criteria again.

As mentioned above, grouping the concordance result by verb type gave us three LP patterns. This might look putting many different things together in the same LP pattern. If we say so, then we should question what a pattern is. Is it something that repeats as a string without variation and optional points, or does it involve variation and optional points? Also what is the degree of variation and what goes to optional points? For variation, the pattern might allow variation at different degrees for both the obligatory and optional elements. We might find some words repeat very frequently while others only once or a few times. It is also possible that none of the elements of a string is frequent enough. Then, we should ask if frequency is our only criterion. If the string has a MALDIF function, is a sentence builder, coming from an independent clause and suits to the pattern perfectly, then why should not we accept it as a member of that pattern? Less frequent words for a particular position in the pattern can be accepted as variation in the pattern as long as the string meets all the other criteria.

After all these stages of the analyses were completed, then frequencies of the patterns were counted and LP tables were generated. These tables can be found in Appendices 6.1 to 6.68. Before moving to the disciplinary and generic results of LPs, we will look at general frequencies of LPs in the combined corpora.

6.3 General findings of lexical phrases

The results of the LP analysis showed that 88% of the independent clauses (i.e. unit of analysis) with a MALDIF function in the four corpora contained LPs. An abstract had 9.3 independent clauses on average and 7.9 of these contained LPs. Table 6.2 shows the frequencies of LPs in the corpora.

Table 6.2 Frequencies of Lexical Phrases for Function

	Total Words	Raw Frequency	% of total LPs	Per 1,000 Words	Per text
ITT	11,247	423	11.1	4.3	0.9
SNR	1,911	93	2.4	0.9	0.2
ATR	24,734	898	23.6	9.0	1.9
DTM	12,044	515	13.5	5.2	1.1
PEMF	47,244	1,753	46.0	17.6	3.7
RPT	2,339	131	3.4	1.3	0.3
Totals	99,519	3,813	100	38.3	7.9

Following Hyland (1998) and Hyland and Tse (2005b), LP occurrences were normalised to 1,000 words. Here, we focussed on the number of occurrences of LPs other than the number of words in them. A calculation of number of words was problematic due to the high amount of variation and optional points that LPs contained. As can be seen in Table 6.2, LPs occurred 38.3 times per thousand words.

Of the six LP categories, the writers used PEMF and ATR LPs more than the others. PEMF and ATR LPs constituted 70% of all LPs. An abstract with an average length of 9 independent clauses contained roughly 4 PEMF and 2 ATR LPs. The frequent use of PEMF and ATR LPs rather than others can be better understood by looking at reasons why PEMF and ATR functions were preferred more than the other functions. PEMF and ATR give the basics of research. By these, writers can quite easily highlight the importance of the research, which might grab the attention of those who are interested in the research topic. More attention to the research means more chance to gain authority in the research community and to earn full membership in the long run.[1]

ITT and DTM LPs constituted just 25% of all LPs. This is not a huge amount compared to PEMF and ATR LPs, yet there are reasons for this low use. Writers use ITT to justify the research and they do this when they feel there are things that their audience should know about the research. It is clear from our results that only half of the writers found that ITT was

1 An expanded version of this discussion is found in section 5.2.1 in Chapter 5.

necessary. DTM seems to be missing in half of the abstracts, yet this does not mean that they do not contain any descriptions of methodology. These descriptions are usually found to be merged in ATR or PEMF as either subordinate clauses or phrase-level expressions[1]. As we focussed on only independent clauses in this study, such uses were not analysed.

Writers have a lower tendency to use RPT and SNR. RPT was used to indicate text structure or to refer parts where detailed information can be found relating to discussion, implications or further research. SNR explains why there is a need to carry out research on that topic. Although these two functions might serve important purposes on their own, they have a lower status of importance when compared to other functions. There might also be space constraints underlying the reluctance to use RPT and SNR over others.

The LP frequencies are very similar to the MALDIF frequencies (see Table 5.1 in Chapter 5). This similarity is closely related to the fact that the unit of analysis is the 'independent clause'. Since we were interested in sentence builder LPs in this study, we used 'independent clause' as the unit of analysis. In the MALDIF analysis, each independent clause was coded according to MALDIFs and LPs were looked for in independent clauses in the LP analysis. When we had high frequencies for a MALDIF in the MALDIF analysis, then high frequencies were also expected for the same function in the LP analysis as the function contained a high number of independent clauses where LPs might be residing.

An independent clause could contain only one LP of sentence builder type. Therefore, the maximum number of LPs would only be equal to the number of MALDIF instances, yet we did not expect to find an LP in every independent clause.

The high occurrence of LPs in each MALDIF emphasises a strong association between LPs and independent clauses. It also indicates writers' preferences for conventional ways of performing a MALDIF in abstracts in terms of LPs.

1 See examples 5.1 and 5.2 for DTM merging in section 5.2.1 in Chapter 5.

Turning to LP patterns in MALDIFs, the analysis points to huge differences in three LP patterns across six MALDIFs. Table 6.3 shows that writers overwhelmingly used pattern 1 LPs (63%) in all MALDIFs. A quarter of all LPs was of pattern 2. Pattern 3 constituted only 13% of LPs.

Table 6.3 LP patterns by function

	Pattern 1			Pattern 2			Pattern 3		
	raw freq	% of total LP	Per 1,000 Words	raw freq	% of total LP	Per 1,000 Words	raw freq	% of total LP	Per 1,000 Words
ITT	228	6.0	2.3	88	2.3	0.9	107	2.8	1.1
SNR	47	1.2	0.5	31	0.8	0.3	15	0.4	0.2
ATR	649	17.0	6.5	156	4.1	1.6	93	2.4	0.9
DTM	207	5.4	2.1	265	6.9	2.7	43	1.1	0.4
PEMF	1205	31.6	12.1	322	8.4	3.2	226	5.9	2.3
RPT	51	1.3	0.5	80	2.1	0.8	0	0.0	0.0
Total	2387	62.6	24.0	942	24.7	9.5	484	12.7	4.9

These differences between three patterns are clearly related to verb type. As we grouped LPs in each MALDIF by the verb voice/verb be, we had active verbs in pattern 1, passive verbs in pattern 2 and verb be in pattern 3. Although LPs with verb be are in active voice, we kept them separate from other active verbs as verb be, as different from other verbs, is a linking verb and describes the subject.

A preference for active/passive voice in academic discourse has also been shown in previous research. Heslot (1982, cited in Swales 1990: 135) examined verb voice in sections (IMRD) of 16 research articles from the journal of Phytopathology and found that 60% of all sections on average used active voice. In a study where Pho (2008) looked at rhetorical moves and their realisation in RAs, she found that applied linguistics abstracts used more active verbs than passives. On the other hand, passive verbs were found to be higher than active verbs in educational technology abstracts. She explains that a preference for the passive is related to

grammatical subject and that educational technology abstracts contain more reference to previous research as educational technology is a younger field than applied linguistics.

If we look at pattern preferences across the six MALDIFs, we find that ITT, SNR, ATR and PEMF used pattern 1 LPs more than pattern 2 and 3 LPs. However, DTM and RPT favoured pattern 2 LPs over other two LP patterns. Although pattern 3 was the least preferred LP pattern in most functions, we see that writers used pattern 3 LPs more than pattern 2 LPs in ITT. Also, RPT had no instances for pattern 3.

The answer to why preferences for patterns changes between functions can again be found in verb voice. Writers' tendency to use more pattern 2 LPs in DTM and RPT lies in their use of more passive verbs. DTM tells us about the research process and RPT indicates the text structure or announces that discussions, implications, further research etc. can be found in parts of the accompanying text. The passive use in these two functions can be understood as avoiding repetitive use of personal pronouns, which gives a more impersonal look to DTM and RPT.

These findings are in agreement with those of Pho (2008) and Santos (1996). Pho found that the presenting the research move in abstracts (ATR in the MALDIF model) used more active verbs. In Santos' study where he looked at textual organisation of applied linguistics abstracts, 77% of summarising the results move (part of PEMF in the MALDIF model) contained the active voice. Both Pho's and Santos' findings indicate a greater reliance on passive voice in describing the methodology. Santos states that 70% of the verbs in this move used the passive.

6.4 Disciplinary variation in lexical phrases

6.4.1 Frequencies of lexical phrases in abstracts by discipline

The disciplinary results of the LP analysis demonstrated that LPs occurred in 91% of the independent clauses with a MALDIF function in applied linguistics, and that 86% of the independent clauses with a MALDIF function contained LPs in psychology. The comparison of

LP use by discipline revealed both similarities and differences between applied linguistics and psychology. Table 6.4 below shows LP use by discipline.

Table 6.4 Lexical Phrases by discipline

	Applied Linguistics			Psychology				
	raw freq	% of total LP	Per 1,000 Words	raw freq	% of total LP	Per 1,000 Words	X^2	*p*
ITT	217	11.4	4.2	206	10.8	4.3	0.286	.593
SNR	46	2.4	0.9	47	2.5	1.0	0.011	.917
ATR	464	24.4	9.0	434	22.7	9.0	1.002	.317
DTM	360	18.9	7.0	155	8.1	3.2	81.602	.000
PEMF	760	39.9	14.8	993	52.0	20.7	30.969	.000
RPT	58	3.0	1.1	73	3.8	1.5	1.718	.190
Total	1905	100.0	37.0	1908	100.0	39.7	0.002	.961

The total LP use was very similar in both applied linguistics (37 per 1,000 words) and psychology (39.7 per 1,000 words). In Table 6.4, we can also see that the frequencies per 1,000 words are very close in ATR, ITT, RPT and SNR LPs between the two disciplines. Chi-square analysis did not reveal any significant effect of discipline in the use of lexical phrases overall ($X^2(1) = 0.002$, p = .961) or in any of these categories at .05 level.

The largest difference between disciplines was seen in PEMF and DTM LPs, which were both significant by the chi-square analysis (PEMF: $X^2(1) = 30.969$, $p < .001$; DTM: $X^2(1) = 81.602$, $p < .001$). PEMF LPs were the most frequently used LP category in both disciplines; however, psychology abstracts contained more PEMF LPs than applied linguistics abstracts. More than half of all LPs in psychology were PEMF LPs. In applied linguistics, PEMF LPs were 40% of total LPs.

The higher number of PEMF LPs in psychology compared to applied linguistics is largely due to multiple number of studies/experiments that psychology research involves. Psychology researchers tend to give the finding(s) of each study/experiment in the abstract, which increases the number of PEMF LPs. In applied linguistics research, on the other hand, it is

more common to conduct a single study which has multiple findings. This also rises PEMF LPs in applied linguistics, but not as much as in psychology.

There was also a large difference between disciplines in DTM LPs. In applied linguistics abstracts, DTM LPs were more than twice as frequent as those in psychology. Psychology, which is an older discipline than applied linguistics, has a more established methodology and researchers describe methodology only when they think something is not shared knowledge in the community. However, applied linguists need more descriptions of methodology which are new to the members of the discourse community.

Turning to patterns in LP categories, there are similarities as well as differences between applied linguistics and psychology. Comparative results of LP patterns are shown in Tables 6.5, 6.6 and 6.7 below.

The total figures (combined functions) in each table, show that both applied linguists and psychologists used pattern 1 LPs the most (over 60% in each one). In both disciplines, pattern 2 LPs constituted about a quarter of all LPs. Less than 15% of all LPs were of pattern 3 in both applied linguistics and psychology.

These preferences, as explained in section 6.3, are closely related to verb type. Pattern 1 LPs used active voice, pattern 2 LPs used passive and pattern 3 LPs verb be. There is evidence in previous research that active voice is more frequent than passive voice in abstracts (Pho, 2008) as well as in research articles (Heslot 1982, cited in Swales 1990).

If we look at disciplinary preferences of LP categories, we find that both applied linguists and psychologists used PEMF, ATR, ITT and SNR LPs in pattern 1 more than those in other patterns. This tendency is more clear in PEMF and ATR. Also, PEMF, ATR and SNR LPs in pattern 2 were more than those in pattern 3. In ITT, the preference for pattern 2 and 3 was reversed; pattern 3 was slightly higher in both disciplines. DTM was greater in pattern 2 than

in pattern 1 and 3 and RPT was used in pattern 2 more than pattern 1 in applied linguistics as well as in psychology. In both disciplines, no RPT LPs were found in pattern 3.

Table 6.5 Pattern 1 LPs by discipline

	Applied Linguistics			Psychology				
	raw freq	% of total LP	Per 1,000 Words	raw freq	% of total LP	Per 1,000 Words	X^2	*p*
ITT	124	6.5	2.4	104	5.5	2.2	1.754	.185
SNR	23	1.2	0.4	24	1.3	0.5	0.021	.884
ATR	340	17.8	6.6	309	16.2	6.4	1.481	.224
DTM	140	7.3	2.7	67	3.5	1.4	25.744	.000
PEMF	523	27.5	10.2	682	35.7	14.2	20.980	.000
RPT	21	1.1	0.4	30	1.6	0.6	1.588	.208
Total	1171	61.5	22.8	1216	63.7	25.3	0.848	.357

Table 6.6 Pattern 2 LPs by discipline

	Applied Linguistics			Psychology				
	raw freq	% of total LP	Per 1,000 Words	raw freq	% of total LP	Per 1,000 Words	X^2	*p*
ITT	38	2.0	0.7	50	2.6	1.0	1.636	.201
SNR	14	0.7	0.3	17	0.9	0.4	0.290	.590
ATR	64	3.4	1.2	92	4.8	1.9	5.026	.025
DTM	183	9.6	3.6	82	4.3	1.7	38.494	.000
PEMF	141	7.4	2.7	181	9.5	3.8	4.969	.026
RPT	37	1.9	0.7	43	2.3	0.9	0.450	.502
Total	477	25.0	9.3	465	24.4	9.7	0.153	.696

Table 6.7 Pattern 3 LPs by discipline

	Applied Linguistics			Psychology				
	raw freq	% of total LP	Per 1,000 Words	raw freq	% of total LP	Per 1,000 Words	X^2	*p*
ITT	55	2.9	1.1	52	2.7	1.1	0.084	.772
SNR	9	0.5	0.2	6	0.3	0.1	0.600	.439
ATR	60	3.1	1.2	33	1.7	0.7	7.839	.005
DTM	37	1.9	0.7	6	0.3	0.1	22.349	.000
PEMF	96	5.0	1.9	130	6.8	2.7	5.115	.024
RPT	0	0.0	0.0	0	0.0	0.0	-	-
Total	257	13.5	5.0	227	11.9	4.7	1.860	.173

The greatest disciplinary variation was found in PEMF and DTM LPs. The disciplinary effect in these two categories was significant in each of the three lexical phrase patterns (PEMF pattern 1: $X^2(1) = 20.980$, $p < .001$; PEMF pattern 2: $X^2(1) = 4.969$, $p = .026$; PEMF pattern 3: $X^2(1) = 5.115$, $p = .024$; DTM pattern 1: $X^2(1) = 25.744$, $p < .001$; DTM pattern 2: $X^2(1) = 38.494$, $p < .001$; DTM pattern 3: $X^2(1) = 22.349$, $p < .001$). PEMF LPs were the most preferred LP function in pattern 1 and 3 in both applied linguistics and psychology. In pattern 2, psychology writers, again, used PEMF LPs the most while PEMF was the second most frequently used LP category after DTM LPs in applied linguistics. In all three patterns, PEMF LPs were more frequent in psychology than in applied linguistics, but the biggest difference was in pattern 1 (a difference of 8.20%). There was also a small, but a significant disciplinary effect in the ATR category on the use of pattern 2 LPs ($X^2(1) = 5.026$, $p = .025$) and a larger effect on the use of pattern 3 LPs ($X^2(1) = 7.839$, $p = .005$). Psychologists seem to prefer to use ATR pattern 2 LPs more than applied linguists and applied linguists seem to use ATR pattern 3 LPs more than psychologists.

If we look at the figures for three PEMF patterns in both disciplines, we can see a linear increase from pattern 3 through pattern one. In line with this increase, there is also a clear increase in disciplinary difference from pattern 3 through pattern 1. Therefore, the right question to ask here is what causes pattern 1 PEMF LPs in both disciplines to be used more frequently than pattern 2 and 3 LPs in PEMF. As we mentioned before, pattern 1 involves active verbs which were used with certain types of nouns. In applied linguistics, the top three verbs ‘show’, ‘suggest’ and ‘indicate’ were commonly used with nouns like ‘results’ and ‘finding(s)’. In psychology, ‘show’, ‘suggest’ and ‘demonstrate’, which were the most frequent three verbs, were used with nouns such as ‘results’, ‘study/studies’ and ‘finding(s)’. These noun-verb combinations explains why active verb use is more frequent in the PEMF function in both disciplines.

Active verb use was also reported in Santos’ (1996) study where 77% of summarising the results move used active verbs in applied linguistics abstracts. Cross and Oppenheim (2006) found that discussing the research move used more active voice than passive in

protozoology abstracts, but that passive voice was more common than active voice in summarising the results move. Martin (2003) found that the results move in experimental phonetics and experimental psychology abstracts used more passive voice.

Although our findings are similar to Santos' and partly to Cross and Oppenheim, there are differences between Cross and Oppenheim's other findings as well as Martin's. There might be three reasons for such a disparity between findings. First, the move/function regarding the findings was split into two in these studies. They are 'summarising the results' and 'discussing the research' in Cross and Oppenheim's study and 'results' and 'conclusion' in Martin's study. In my study, there is only one function for findings (presenting and evaluating the main findings) which might have an impact on the heavy use of active verbs in both disciplines. Second, the soft/hard knowledge domain or sub-discipline where the abstracts come from might be a factor in differences in findings. Cross and Oppenheim's corpus contained abstracts from hard science disciples while my corpora are from two disciplines (applied linguistics and psychology) from soft knowledge domain. Although Martin's study used abstracts from soft knowledge disciplines (linguistics and psychology), they were from a single sub-discipline of linguistics and psychology. The psychology corpora in my study come from five different sub-disciplines (clinical, social, developmental, experimental and multidisciplinary). The applied linguistics corpora also contain research from a wider range of sub-disciplines. Third, both studies used only RAs while my corpora included TAs as well as RAs, which might have caused different results.

Applied linguistics writers used at least twice more DTM LPs in all three patterns than psychologists did. The widest disciplinary difference (5.30%) in DTM LPs was observed in pattern 2. DTM was the most frequent LP type in pattern 2 for applied linguistics.

Among three DTM patterns, both disciplines used DTM pattern 2 LPs more than the other two DTM patterns. The heavy use of DTM pattern 2 is associated with the verb voice. Pattern 2 which uses passive voice helps writers to give DTM an impersonal look. This is probably a concern not to use personal pronouns repetitively. Otherwise, things such as

procedures, tools and methods, which are common in DTM, should be described with an active verb.

Passive voice use for DTM was also shown in research on abstracts. Pho (2008) reported more passive voice than active voice in DTM in applied linguistics and educational technology abstracts. Santos (1996) found that 70% of DTM was in passive voice in applied linguistics abstracts. Cross and Oppenheim's (2006) study also showed a preponderance in passive voice in DTM in protozoology abstracts. Similarly in Martin's study, DTM were found to use more passive in experimental phonetics and psychology abstracts. There seems to be a unity between hard and soft disciplines in passive use in DTM, which suggests that DTM LPs are more impersonal than other types of LP.

6.4.2 Patterns and uses of lexical phrases in abstracts by discipline

In this section, we will be looking at disciplinary variation between LP patterns. The disciplinary comparison will focus mostly on the obligatory elements in LPs. Firstly, we will compare types of subject used in LPs. Secondly, we will look at nouns in the subject position as well as verbs and tenses. Then, a comparison of verb complements will follow.

Before moving on to the disciplinary results of LPs, it is necessary to explain the methods of calculation. In the calculation of the type-token ratio of head nouns in the subject position and verbs, the type-token ratio (TTR) rather than the corrected type-token ratio (CTTR) was preferred. The reason behind calculating the type-token ratio of head nouns and verbs is to find out the degree of importance of each item in a pattern and to be able to easily compare these items between disciplines. The TTR method gives a result within a range of 0 and 100, which works fine towards this aim, but in the CTTR, there is no range, which makes the comparison of disciplinary data and interpretation of the results difficult. It is intended that the TTRs will show the extent of patterning in the subject and verb positions of particular LPs. A lower TTR indicates that a smaller number of words are used frequently in an LP, which means that the position where those words occurred is patterned.

It is important to state here that TTR has its own limitations. TTR does not provide a fair comparison of texts at different lengths. In longer texts, writers run out of words and tend to repeat the words that they have already used. Therefore, such texts have a low TTR which indicates that these texts use certain types of words to a great extent. However, shorter texts do not provide enough length for writers to use the same words over and over; thus, short texts have high TTRs, that is, types repeat in short texts less than those in longer texts. Arnaud (1984: 15) explains this phenomenon by the 'urn model':

> […] the lexicon of a writer can be compared to an urn, from which a lexeme/type is drawn each time a token is produced in discourse; the type is then placed back into the urn, from which it can be drawn again. Supposing the lexicon of a writer is not infinite, there remain fewer and fewer lexemes that have not been drawn before.

In the present study, we compared the TTRs of word lists, but not texts. Word lists do not have the disadvantage found in texts, which is that words in a word list do not belong to a single text or author. We do not see an effect of text length in word lists in the same way as in texts written by the same writer. However, there might still be an effect caused by using word lists including different number of tokens.

Readers should bear in mind that the results related to TTR in this study are based on comparisons of word lists, but not texts, and that there might also be an effect of unequal number of tokens on the TTR of word lists.

6.4.2.1 Pattern 1 lexical phrases in abstracts by discipline

The disciplinary comparison of pattern 1 LPs showed both similarities and differences. The pattern 1 LPs in applied linguistics and psychology can be found in Appendices 6.1 to 6.12.

6.4.2.1.1 Types of subject in pattern 1 LPs in abstracts by discipline

If we look at pattern 1 LP tables above, we can see that subject, verb and complement are obligatory elements. In the subject position, there are noun phrase, pronoun, there and other subject. 'Other subject' refers to topic-specific subjects or subjects with multiple noun

phrases. Table 6.8 gives proportion of each subject type in pattern 1 LPs in applied linguistics and psychology.

Table 6.8 Types of subject in pattern 1 LPs by discipline (%)

	NP		Pronoun		There		Other subject	
	AL*	PSY**	AL	PSY	AL	PSY	AL	PSY
ITT	60.5	69.2	12.1	7.7	0.0	0.0	27.4	23.1
SNR	73.9	54.2	13.0	16.7	0.0	0.0	13.0	29.2
ATR	79.7	60.5	19.4	38.8	0.0	0.0	0.9	0.6
DTM	77.1	79.1	15.0	17.9	0.0	0.0	7.9	3.0
PEMF	80.1	70.8	9.4	16.6	0.2	0.0	10.3	12.6
RPT	85.7	63.3	14.3	36.7	0.0	0.0	0.0	0.0
Average	76.2	66.2	13.9	22.4	0.0	0.0	9.9	11.4

* Applied linguistics
** Psychology

If we look at the averages in the table above, we can see that noun phrase (NP) is the most common type of subject in both disciplines. Applied linguistics (76.2%) LPs contained more NP subject than psychology (66.2%). Also, pattern 1 LPs used more NP subject on average compared to pattern 2 and 3 LPs (see Table 6.12 and 6.16). NP subject use was not more than 60% in pattern 2 and 3 LPs on average. The comparison of LP types in the table above, however, shows both similarities and differences in NP use. NP use was higher in applied linguistics than in psychology in SNR, ATR, PEMF and RPT LPs. In applied linguistics, highest amount of NP use was in RPT while it was in DTM in psychology. Applied linguists used NP subject in 85.7% of RPT. This was 66.3% in psychology. The largest difference in NP use in pattern 1 LPs between disciplines was in RPT (22.38%). In DTM, we can see a similarity in NP use between applied linguistics (77.1%) and psychology (79.1%). The lowest amount of NP use was in ITT (60.5%) for applied linguistics and in SNR (54.2%) in psychology. NP use in ITT (69.2%) was higher in psychology while SNR NPs (73.9%) were more frequent in applied linguistics. The percentages for SNR NPs reveal a large difference between disciplines (19.75%). This is the second widest disciplinary difference in NP use after RPT. From Table 6.8 above, a third large difference can be seen in ATR (19.19%). Applied linguists used a substantial amount of NP subject in ATR (79.7%) compared to psychologists (60.5%).

The use of pronouns in the subject position was also the highest in pattern 1 LPs. It was higher in psychology (22.4%) than in applied linguistics (13.9%). The greatest variation between disciplines was found in RPT (22.38%) and ATR (19.42%). ATR and RPT pronoun subjects in psychology were about twice as frequent as those in applied linguists. Also, pronoun use was found to be the highest in ATR (38.8%) and RPT (36.7%) in psychology. In applied linguistics, the highest percentages for pronoun subject were found in ATR (19.4%) and DTM (15.1%). The lowest use of pronoun subject was in PEMF (9.4%) for applied linguistics and in ITT (7.7%) for psychology.

The lowest percentages for other subject was found in pattern 1 LPs. It occurred around 10% of pattern 1 LPs in both applied linguistics (9.9%) and psychology (11.4%). This low proportion of other subject in pattern 1 LPs compared to pattern 2 and 3 LPs suggests that there is a better patterning in the subject position for pattern 1 LPs than in those in other patterns. Other subject gives us a subject position which contains multiple noun phrases or references to specific topics. It is the 'no pattern' category in the subject position. Therefore, high uses of other subject category shows low patterning of subjects in LPs. If we look at the other subject figures in Table 6.8, we find the highest percentages in ITT for both disciplines. About a quarter of subjects in ITT were other subject in applied linguistics (27.4%) and psychology (23.1%). The lowest amounts were for ATR (less than 1%) and DTM (less than 10%) in both disciplines. RPT had no other subject type for pattern 1 in both applied linguistics and psychology. The widest difference was in SNR (16.12%), but we should approach this with caution as the number of instances are a bit low. Overall, the other subject figures suggest that there is a better patterning in the subject position, in particular, for RPT, ATR and DTM LPs than for ITT, SNR and PEMF LPs in both disciplines.

6.4.2.1.2 Noun phrase subject in pattern 1 LPs in abstracts by discipline

The figures for type of subject clearly indicated that NP subject was the most preferred subject type in both applied linguistics and psychology. Therefore, it needs further examination. We we will look at type-token ratio (TTR) of head nouns in the subject position as well as the most frequently used nouns which had a low TTR in both corpora. Table 6.9

shows the type-token ratios for pattern 1 nouns in applied linguistics and psychology. The full listing of head nouns in pattern 1 LPs can be found in Appendices 6.69 to 6.74.

Table 6.9 Type-token ratio for pattern 1 nouns (subject position) by discipline

	Applied Linguistics			Psychology		
	Type	Token	TTR	Type	Token	TTR
ITT	32	75	42.7	26	72	36.1
SNR	5	17	29.4	7	13	53.8
ATR	17	271	6.3	16	187	8.6
DTM	31	108	28.7	19	53	35.8
PEMF	54	419	12.9	52	483	10.8
RPT	8	18	44.4	6	19	31.6
Average			27.4			29.5

From the table above, it is observable that the lowest TTRs (below 15%) are for ATR and PEMF, which is quite similar between applied linguistics and psychology. For other LP types, we find figures ranging from 29% to 54%. These figures indicate a greater variability in nouns for ITT, SNR, DTM and RPT than for ATR and PEMF. In other words, ATR and PEMF contain nouns with higher frequencies.

The most frequently used three nouns in ATR pattern 1 in applied linguistics are *study* (137 times), *paper* (35 times) and *article* (30 times), which constitutes 75% of nouns in ATR pattern 1 in applied linguistics. In psychology, we see *study/studies* (77 times), *experiment(s)* (29 times) and *thesis* (20 times) as top nouns in ATR pattern 1 in psychology. These three nouns constitutes 67% of nouns in ATR pattern 1 in psychology. In PEMF pattern 1, *results* (133 times), *finding(s)* (66 times) and *analysis/analyses* (35 times) are the most common nouns used by applied linguists, which makes up 56% of nouns in PEMF pattern 1 in applied linguistics. Psychologists preferred *results* (118 times), *study/studies* (86 times) and *finding(s)* (85 times) in PEMF pattern 1 more than other nouns, equaling the 60% of nouns in PEMF pattern 1 in psychology.

Table 6.9 also presents disciplinary differences in TTRs. There were lower TTRs for SNR and DTM in applied linguistics than in psychology. The difference is more pronounced in SNR. Applied linguistics had higher TTRs than psychology in ITT and RPT, in which the difference was more marked in RPT. These differences indicate that SNR and DTM nouns are more varied in psychology than in applied linguistics, and that ITT and RPT nouns are more diverse in applied linguistics than in psychology.

Apart from the disciplinary comparison of TTRs for LPs, a comparison of the average TTRs between pattern 1 and patterns 2 and 3 reveals lower TTRs (less than 30%) in pattern 1 for both corpora, indicating nouns with higher frequencies in pattern 1.[1]

6.4.2.1.3 Verb in pattern 1 LPs in abstracts by discipline

Table 6.10 gives the type-token ratios for pattern 1 verbs in applied linguistics and psychology.[2] If we compare the TTR averages of pattern 1 and 2 (see Table 6.14), pattern 2 verbs had a higher degree of variability in verbs. Also, applied linguistics verbs are more varied than psychology verbs in both patterns.

Table 6.10 Type-token ratio for pattern 1 verbs by discipline

	Applied Linguistics			Psychology		
	Type	Token	TTR	Type	Token	TTR
ITT	71	124	57.3	53	104	51.0
SNR	15	23	65.2	14	24	58.3
ATR	75	340	22.1	60	309	19.4
DTM	59	140	42.1	43	67	64.2
PEMF	127	523	24.3	117	682	17.2
RPT	15	21	71.4	13	30	43.3
Average			47.1			42.2

1 See Tables 6.9, 6.13 and 6.17.

2 The verbs in pattern 1 LPs are listed in Appendices 6.86 to 6.91.

In pattern 1, ATR and PEMF verbs had the lowest TTRs. ATR verbs are quite similar between disciplines while there is a slight difference in PEMF. This indicates less varied verb types with higher frequencies in ATR and PEMF when compared to other LP categories.

The most common verbs, which were *examine* (59 times), *investigate* (55 times), *explore* (25 times), *present* (18 times) and *report* (18 times), made up 51% of verbs in ATR pattern 1 in applied linguistics. In psychology, the most commonly used verbs were *examine* (65 times), *investigate* (37 times), *test* (28 times), *explore* (26 times) and *use* (12 times), comprising 54% of verbs in ATR pattern 1 in psychology.

The most preferred PEMF verbs were *show* (84 times), *suggest* (64 times), *indicate* (46 times), *reveal* (42 times) and *provide* (16 times) in applied linguistics. These five constitute 48% of verbs in PEMF pattern 1. 48% of verbs in PEMF pattern 1 in psychology were *show* (105 times), *suggest* (81 times), *demonstrate* (67 times), *indicate* (39 times) and *find* (38 times).

ITT, SNR and RPT verbs were more varied in applied linguistics than in psychology. DTM verbs, however, more varied in psychology than in applied linguistics. The differences between disciplines were more marked in RPT and DTM.

Turning to verb tenses in pattern 1 LPs, the simple present was the most frequently used tense (on average) in applied linguistics and psychology. Table 6.11 gives the pattern 1 verb tenses used in applied linguistics and psychology LPs.

As can be seen from Table 6.11, RPT predominantly used simple present (over 95%), which shows similarity between disciplines. Applied linguists used more simple present in ATR (80%) and PEMF (63%) while psychologists preferred more simple past (64% in ATR and 56% in PEMF). There was a clear preference for past simple in DTM. Applied linguists used simple past in 73% of the DTM LPs while simple past was the only preference for psychologists. 27% of DTM LPs used simple present in applied linguistics.

Table 6.11 Verb tenses in pattern 1 by discipline

	Applied Linguistics						Psychology					
	Simp. Pre.	Simp. Past	Simp. Fut.	Pre. Perf.	Past Perf.	Pre. Cont.	Simp. Pre.	Simp. Past	Simp. Fut.	Pre. Perf.	Past Perf.	Pre. Cont.
ITT	54.8	11.3	0.0	32.3	0.0	1.6	72.1	4.8	1.0	22.1	0.0	0.0
SNR	21.7	0.0	0.0	78.3	0.0	0.0	54.2	4.2	0.0	41.7	0.0	0.0
ATR	80.3	17.1	2.6	0.0	0.0	0.0	35.9	64.1	0.0	0.0	0.0	0.0
DTM	27.1	72.9	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0
PEMF	63.1	35.9	0.2	0.6	0.2	0.0	44.0	56.0	0.0	0.0	0.0	0.0
RPT	95.2	4.8	0.0	0.0	0.0	0.0	96.7	3.3	0.0	0.0	0.0	0.0
Average	57.1	23.7	0.5	18.5	0.0	0.3	50.5	38.7	0.2	10.6	0.0	0.0

For ITT and SNR, two tenses were commonly used: present simple and present perfect. In ITT, psychologists overwhelmingly used present simple (72%) while present simple accounted for 55% of the ITT LPs in applied linguistics. Applied linguists used a substantial amount of present perfect (78%) for SNR while psychologists preferred to use present simple (54%) more than present perfect in SNR.

6.4.2.1.4 Complement in pattern 1 LPs in abstracts by discipline

The average percentages for verb complements shows that NP is the most frequently used verb complement in pattern 1 in the applied linguistics and psychology corpora (about 60% in each). This is followed by prepositional phrase and *that*-clause. Prepositional phrase was a little lower in psychology than than in applied linguistics. The percentage tables for pattern 1 verb complements in applied linguistics and psychology abstracts can be found in Appendices 6.98 and 6.99.

NP complement was the highest in ATR, DTM and RPT in applied linguistics and psychology (ranging from 69% to 84%). The two corpora had similar amounts of NP complement in ATR and RPT; however, psychologists (84%) used more NP in DTM than applied linguists (72%) did. There were also similarities between disciplines in the proportions of NP complements for ITT and PEMF. In SNR, NP (56.5%) was more dominant than other complement types in applied linguistics. However, preferences were more varied in psychology. The top frequencies were distributed between NP, adjective phrase, adverb phrase, how clause and

to-infinitive clause. NP was the most frequent one of these which was used in 29% of pattern 1 LPs in psychology.

That-clause was an important complement type in pattern 1 ITT and PEMF LPs in the two corpora. Applied linguists and psychologist used similar amounts of *that*-clause in ITT and PEMF.

Prepositional phrase seems to have more prominence in applied linguistics (15% in pattern 1 on average) than in psychology (7% in pattern 1 on average). Applied linguists used prepositional phrases in mostly DTM (21%) and RPT (24%) complements. In psychology, prepositional phrases were more frequent in ITT (11%) and RPT (10%).

6.4.2.2 Pattern 2 lexical phrases in abstracts by discipline

In pattern 2 LPs, we found both similarities and differences between disciplines. The pattern 2 LPs in applied linguistics and psychology abstracts can be found in Appendices 6.13 to 6.24.

6.4.2.2.1 Types of subject in pattern 2 LPs in abstracts by discipline

A comparison of types of subject in pattern 2 LPs showed that NP was the top subject type in pattern 2 LPs. It was slightly higher in applied linguistics (59.7% on average) than in psychology (55.7% on average). Table 6.12 below shows percentages of subject types in applied linguistics and psychology.

If we look at LP types, we find that applied linguists used more NP subject in all LP types except ATR than psychologist did. The largest differences were found for DTM (10.94%), ATR (9.31%) and RPT (8.93%). DTM was the second type in pattern 2 LPs where NP subject was highly frequent. Applied linguists used NP in 79.2% of DTM subjects whereas psychologist did in 68.3%. NP subject was the highest in RPT in both disciplines. Nearly all instances of RPT used NP subject (97.3%) in applied linguistics while 88.4% of RPT subjects in psychology were NP. In ATR, we see reverse preferences for NP use. In psychology, 61% of subjects were NP while applied linguists used NP in about half of the subjects (51.6%). The lowest

occurrences were found in ITT in both disciplines (36.8% in applied linguistics and 32.0% in psychology).

Table 6.12 Types of subject in pattern 2 LPs by discipline (%)

	NP		Pronoun		Other subject	
	AL*	PSY**	AL	PSY	AL	PSY
ITT	36.8	32.0	21.1	6.0	42.1	62.0
SNR	50.0	47.1	21.4	29.4	28.6	23.5
ATR	51.6	60.9	9.4	2.2	39.1	37.0
DTM	79.2	68.3	1.6	0.0	19.1	31.7
PEMF	43.3	37.6	19.1	10.5	37.6	51.9
RPT	97.3	88.4	0.0	0.0	2.7	11.6
Average	59.7	55.7	12.1	8.0	28.2	36.3

* Applied linguistics
** Psychology

Averages for pronoun use were very similar between disciplines, with an average of 12.1% in applied linguistics and 8.0% in psychology. Disciplinary differences in pronoun use were more pronounced in ITT (15.05%) and PEMF (8.65%). Pronoun subject was used about one fifth of ITT LPs in applied linguistics while it was only 6% in psychology. Also in PEMF, pronouns occurred more in applied linguistics (19.1%) than in psychology (10.5%). Also, SNR and ATR contained more pronoun subjects in applied linguistics than in psychology. No instances of pronoun subject were found in RPT in both disciplines. There were no occurrences of DTM pronouns in psychology while a few instances were found in applied linguistics.

The highest percentages for other subject was found in pattern 2, with an average of 28.2% for applied linguistics and 36.3% for psychology. The greatest variation was found for ITT (19.89%), PEMF (14.35%) and DTM (12.58%). Both disciplines contained a substantial amount of other subject in ITT, which is the most frequent occurrence of other subject in six LP types. While 42.1% of ITT subjects were other subject in applied linguistics, it was 62% in psychology. PEMF subjects were also more frequent in psychology than in applied linguistics (37.6%). About half of the PEMF subjects (51.9%) in psychology were other subject. We see a

similar picture for DTM where there are more other subject in psychology (31.7%) than in applied linguistics (19.1%). In light of the figures in Table 6.12, it is possible to say that there is less patterning in the subject position for ITT and PEMF as well as ATR in both applied linguistics and psychology. The lowest use of other subject was found in RPT (2.7% in applied linguistics and 11.6% in psychology), which suggests a good patterning in the subject position.

6.4.2.2.2 Noun phrase subject in pattern 2 LPs in abstracts by discipline

Table 6.13 below shows the type-token ratios for pattern 2 head nouns in subjects in applied linguistics and psychology LPs. The full listing of head nouns in pattern 2 LPs can be seen in Appendices 6.75 to 6.80.

Table 6.13 Type-token ratio for pattern 2 nouns (subject position) by discipline

	Applied Linguistics			Psychology		
	Type	Token	TTR	Type	Token	TTR
ITT	13	14	92.9	10	16	62.5
SNR	7	7	100.0	7	8	87.5
ATR	25	33	75.8	35	56	62.5
DTM	59	145	40.7	37	56	66.1
PEMF	32	61	52.5	30	68	44.1
RPT	9	36	25.0	15	38	39.5
Average			64.5			60.4

Applied linguistics contained more noun variation than psychology in ITT, SNR, ATR and PEMF. This was reversed in DTM. The TTR was the lowest for RPT (less than 40%) in both corpora where there is a greater variability in RPT nouns in psychology than in applied linguistics. We can also see lower TTRs in applied linguistics for DTM nouns (41%) and in psychology for PEMF nouns (44%). For other LPs, TTRs were above 50%, referring to greater variabilities in head nouns in the subject position.

The most frequently used three nouns in RPT pattern 2 in applied linguistics were *implications* (16 times), *findings* (5 times) and *results* (5 times), which constitutes 72% of

nouns in RPT pattern 2 in applied linguistics. These were also the most frequently used RPT nouns in psychology. *Implications* (17 times), *results* (6 times) and *findings* (3 times) together make up 68% of nouns in RPT pattern 2 in psychology.

In applied linguistics, the top nouns in DTM are *student(s)* (12 times), *data* (11 times), *analysis/analyses* (10 times) and *task(s)* (10 times). These four nouns were 30% of nouns in DTM pattern 2 in applied linguistics. In psychology, 38% of nouns in PEMF pattern 2 were *effect(s)* (12 times) , *difference(s)* (9 times) and *results* (5 times), which were the top three nouns.

6.4.2.2.3 Verb in pattern 2 LPs in abstracts by discipline

Table 6.14 gives the type-token ratios for pattern 2 verbs in applied linguistics and psychology.[1] RPT had the lowest TTRs in pattern 2, indicating higher frequencies for RPT verbs than for other LP verbs. RPT verbs were more varied in applied linguistics than in psychology.

Table 6.14 Type-token ratio for pattern 2 verbs by discipline

	Applied Linguistics			Psychology		
	Type	Token	TTR	Type	Token	TTR
ITT	34	38	89.5	42	50	84.0
SNR	13	14	92.9	12	17	70.6
ATR	37	64	57.8	35	92	38.0
DTM	78	183	42.6	43	82	52.4
PEMF	59	141	41.8	68	181	37.6
RPT	10	37	27.0	7	43	16.3
Average			58.6			49.8

Discuss (23 times) and *make* (4 times) were the most common verbs in RPT, which made up 73% of verbs in RPT pattern 2 in applied linguistics. *Discuss* (37 times) was also the most common verb in RPT pattern 2 in psychology. It constitutes 86% of verbs in RPT pattern 2 in psychology.

1 The full list of verbs in pattern 2 LPs can be found in Appendices 6.92 to 6.97.

ITT and SNR contained the greatest amount of variation in verbs. While the DTM verbs were more varied in psychology than in applied linguistics, the ATR verbs were much more varied in applied linguistics (57.8%) than in psychology (38%). There was not much difference in PEMF verbs in terms of variation.

If we compare the verb tenses in pattern 2 LPs, the simple present was the most commonly used tense (on average) by applied linguists and psychologists, although there is not a large difference between present simple and past simple in psychology. Table 6.15 gives the pattern 2 verb tenses used in applied linguistics and psychology LPs.

Table 6.15 Verb tenses in pattern 2 by discipline

	Applied Linguistics					Psychology				
	Simp. Pre.	Simp. Past	Simp. Fut.	Pre. Perf.	Past Perf.	Simp. Pre.	Simp. Past	Simp. Fut.	Pre. Perf.	Past Perf.
ITT	68.4	2.6	0.0	28.9	0.0	68.0	2.0	0.0	30.0	0.0
SNR	21.4	0.0	0.0	78.6	0.0	58.8	0.0	0.0	35.3	5.9
ATR	45.3	53.1	1.6	0.0	0.0	23.9	76.1	0.0	0.0	0.0
DTM	19.7	80.3	0.0	0.0	0.0	1.2	98.8	0.0	0.0	0.0
PEMF	44.7	54.6	0.0	0.7	0.0	21.0	78.5	0.6	0.0	0.0
RPT	97.3	0.0	2.7	0.0	0.0	95.3	2.3	2.3	0.0	0.0
Average	49.5	31.8	0.7	18.0	0.0	44.7	42.9	5.5	5.9	1.0

It can be seen from the table above that nearly all RPT LPs in applied linguistics and psychology used present simple (over 95%) in pattern 2.

There was a preference for past simple in ATR and PEMF in applied linguistics and psychology. Applied linguists used past simple more than half of the ATR LPs as well as in more than half of the PEMF LPs. The percentages were higher in psychology. Psychologists used past simple in 76% of ATR LPs and 79% of PEMF LPs.

Nearly all DTM LPs used past simple in psychology (99%). In applied linguistics, past simple was used in 80% of the DTM LPs in pattern 2 while 20% used present simple. For ITT, present

simple was the first preference for applied linguists (68%) as well as psychologists (68%). The second most commonly used tense was present perfect for applied linguists (29%) and psychologists (30%). While psychologists used more present simple (59%) than present perfect in SNR pattern 2, applied linguists overwhelmingly used present perfect (79%) in SNR.

6.4.2.2.4 Complement in pattern 2 LPs in abstracts by discipline

More than half of the pattern 2 LPs contained prepositional phrase complements in the applied linguistics and psychology corpora. About one fifth of the LPs did not have a complement. To-infinitive clause was used as complement in around 10% of the pattern 2 LPs. The percentages of pattern 2 verb complements in the applied linguistics and psychology abstracts can be seen in Appendices 6.100 and 6.101.

The percentages for prepositional phrase range between 32% and 71%. The use of prepositional phrase complements was similar between disciplines in ITT, SNR, ATR and DTM. Psychologists used more prepositional phrase in PEMF complements (59%) than applied linguists (48%) did. In RPT, psychologists used prepositional phrases in 40% of the LPs while this was more than half of the RPT complements in applied linguistics (51%).

To-infinitive clause complements were frequently used in ATR (23%), DTM (16%) and PEMF (21%) by applied linguists. Psychologist also used to-infinitive clauses commonly in ATR (24%), DTM (11%) and PEMF (13%) LPs. Also, one fifth of the ITT complements in psychology were to-infinitive clause.

Although *that*-clauses were rare in pattern 2 LPs, we see that applied linguists used *that*-clause complement in ITT (13%) and PEMF (17%) LPs. Zero complement was more common in RPT as well as ATR. 61% of the RPT LPs in psychology did not contain complements whereas this was 46% in applied linguistics. About 29% of the ATR LPs in each corpora were no-complement LPs.

6.4.2.3 Pattern 3 lexical phrases in abstracts by discipline

Disciplinary differences as well as similarities were also observed in Pattern 3 LPs. Six LP types of pattern 3 for applied linguistics and psychology were given in Appendices 6.25 to 6.34.

6.4.2.3.1 Types of subject in pattern 3 LPs in abstracts by discipline

Disciplinary comparison of subject types showed that more than half of pattern 3 subjects were noun phrase, averaging 53.4% in applied linguistics and 58.2% in psychology. Table 6.16 below shows proportion of subject types in pattern 3 LPs for both disciplines.

Table 6.16 Types of subject in pattern 3 LPs by discipline (%)

	NP		Pronoun		There		Other subject	
	AL*	PSY**	AL	PSY	AL	PSY	AL	PSY
ITT	30.9	32.7	5.5	7.7	3.6	5.8	60.0	53.8
SNR	44.4	50.0	11.1	33.3	44.4	16.7	0.0	0.0
ATR	90.0	87.9	6.7	0.0	0.0	0.0	3.3	12.1
DTM	70.3	83.3	0.0	16.7	10.8	0.0	18.9	0.0
PEMF	31.3	36.9	7.3	3.1	10.4	8.5	51.0	51.5
RPT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	53.4	58.2	6.1	12.2	13.9	6.2	26.7	23.5

* Applied linguistics
** Psychology

As can be seen from Table 6.16 above, NP subject was found to occur most frequently in ATR LPs in both applied linguistics (90%) and psychology (87.9%). The least frequent occurrences were in ITT and PEMF, which were less than 40%. If we compare disciplinary percentages, we can see that NP use is quite similar between disciplines for ITT, SNR, ATR and PEMF. There seems to be a wider disciplinary difference (13.06%) in DTM. Psychologists (83.3%) used NP subject in DTM more frequently than applied linguists (70.3%). It is important to note here that instances of DTM pattern 3 were quite low in psychology.

The lowest amount of pronoun subjects between three groups of patterns was seen in Pattern 3 for applied linguistics. This was only 6.1% on average while 12.2% of subjects in

pattern 3 were pronoun in psychology. As shown in the table above, the highest percentages for pronoun subject were found in SNR and DTM in psychology. However, the number of instances were not more than two. In all LP types, pronoun subject did not occur more than 7 instances (in applied linguistics for PEMF). All these low frequencies indicate that pronoun use in the subject position is not prominent in pattern 3 LPs.

About a quarter of pattern 3 subjects were other subject type in applied linguistics (26.7%) and psychology (23.5%). The highest occurrences were in ITT and PEMF. The proportions for PEMF were quite similar between disciplines, 51% in applied linguistics and 51.5% in psychology. In ITT, more other subject occurred in applied linguistics (60%) than in psychology (53.8%). SNR had no other subject while frequencies were very low in ATR. The widest variation between disciplines was for DTM where other subject occurred in 18.9% of subjects in applied linguistics whereas no instances of other subject were found in psychology. These results suggest that patterning in the subject position are better in SNR, ATR and DTM for both disciplines than in ITT and PEMF, and that the patterning is also better in DTM for psychology than for applied linguistics.

In pattern 3 LPs, we can see some occurrences of existential *there*. Applied linguists (13.9% on average) used more than twice as many *there* as psychologists (6.2%). Although the number of instances were a little low, it is possible to say that *there* is important for PEMF LPs in both applied linguistics (10 instances) and psychology (11 instances. In Table 6.16 above, we see high percentages in SNR for both disciplines and in DTM for applied linguistics, yet occurrences were no more than four instances.

6.4.2.3.2 Noun phrase subject in pattern 3 LPs in abstracts by discipline

The type-token ratios for pattern 3 nouns in applied linguistics and psychology showed that the lowest number of variation was in ATR nouns in both corpora (see Table 6.17).[1] This variation was lower in applied linguistics than in psychology. The TTRs were above 56% in

1 The head nouns in pattern 3 LPs are listed in Appendices 6.81 to 6.85.

other LPs. The degree of noun variability in PEMF and SNR was very similar between disciplines. In ITT and DTM, nouns were more varied in psychology than in applied linguistics.

In ATR, where the frequency of nouns are higher, applied linguists used *aim* (13 times), *purpose* (11 times) and *study* (6 times) more frequently than others. These top three nouns make 56% of all nouns in ATR pattern 3 in applied linguistics. In psychology, 52% of nouns in ATR pattern 3 were *goal(s)* (8 times) and *aim(s)* (7 times), which were the two most commonly used nouns in ATR pattern 3.

Table 6.17 Type-token ratio for pattern 3 nouns (subject position) by discipline

	Applied Linguistics			Psychology		
	Type	Token	TTR	Type	Token	TTR
ITT	12	17	70.6	15	17	88.2
SNR	4	4	100.0	3	3	100.0
ATR	17	54	31.5	13	29	44.8
DTM	15	26	57.7	4	5	80.0
PEMF	17	30	56.7	27	48	56.3
RPT	0	0	0.0	0	0	0.0
Average			63.3			73.9

6.4.2.3.3 Verb in pattern 3 LPs in abstracts by discipline

A comparison of verb tenses in pattern 3 LPs showed that the simple present was the most preferred tense (on average) in pattern 3 LPs for applied linguistics and psychology. The proportions of verb tenses used in pattern 3 LPs by applied linguists and psychologists are shown in Table 6.18.

The predominant tense was the present simple for ITT where psychologists used it nearly in all ITT LPs (96%). Applied linguists' first preference was the present simple (84%), but we can see 13% of the LPs used the present perfect. In ATR, the present simple was used more than the past simple by applied linguists (87%) and as well as by psychologists (55%); yet, the preference was more pronounced for applied linguists.

Table 6.18 Verb tenses in pattern 3 by discipline

	Applied Linguistics			Psychology		
	Simp. Pre.	Simp. Past	Pre. Perf.	Simp. Pre.	Simp. Past	Pre. Perf.
ITT	83.6	3.6	12.7	96.2	1.9	1.9
SNR	33.3	0.0	66.7	83.3	0.0	16.7
ATR	86.7	13.3	0.0	54.5	45.5	0.0
DTM	27.0	73.0	0.0	16.7	83.3	0.0
PEMF	43.8	55.2	1.0	17.7	82.3	0.0
RPT	0.0	0.0	0.0	0.0	0.0	0.0
Average	54.9	29.0	16.1	53.7	42.6	3.7

Both applied linguists and psychologists preferred the past simple over the present simple in DTM and PEMF. The difference between disciplines was larger in PEMF where more past simple was used in psychology (82%) than in applied linguistics (55%). Although there were a small number of instances for SNR in both corpora, we can see that two tenses were used: the present simple and present perfect.

6.4.2.3.4 Complement in pattern 3 LPs in abstracts by discipline

NP was the most preferred complement type in pattern 3 LPs in applied linguistics (51%). It (35%) was second behind adjective phrase in psychology LPs. In psychology, adjective phrase accounts for 42% of pattern 3 LPs whereas this was 30% in applied linguistics. To-infinitive clause was the third preferred complement type in pattern 3. Tables of percentages for pattern 3 verb complements in applied linguistics and psychology abstracts can be seen in Appendices 6.102 and 6.103.

Although ITT LPs contained similar amounts of noun phrase complements in applied linguistics and psychology, there were substantial differences in ATR, DTM and PEMF LPs. About three quarters of DTM LPs in applied linguistics included noun phrase complements. This was only half of the psychology LPs; however, we should treat this with caution as the total number of LPs in DTM were only six in psychology. In PEMF, applied linguists used NP complement more than twice as frequently as psychologists. The widest difference was in

ATR where applied linguists used NP in 33% of the ATR LPs while this was only 9% in psychology.

Adjective phrases were used the most frequently in PEMF in both corpora, where they comprised 81% of the LP complements in psychology. This was 57% in applied linguistics. Adjective phrase complements were also common in ITT. Applied linguists (38%) used slightly more adjective phrases in ITT than psychologists (33%). For other LPs, frequencies were not more than six adjective phrases.

To-infinitive clauses were dominantly used in ATR LPs in the two corpora. We found higher proportions for psychology (55%) than for applied linguistics (45%).

6.4.3 Summary and general discussion of the disciplinary results of LPs

In section 6.4, we presented the findings of the LP analysis which answered the third research question: Do LPs associated with particular discourse functions vary between applied linguistic and psychology abstracts?

In this section, we will present a summary of the key findings regarding the disciplinary results of the LPs and compare them to those of previous research. It should be noted that the results in the literature do not contain all types of information related to the results of the present study. Therefore, the comparison will cover what information is available in the literature.

The results of the LP analysis showed similarities as well as differences between applied linguistics and psychology. Applied linguists used LPs in 91% of the independent clauses which were classified into MALDIFs whereas 86% of the independent clauses with a MALDIF in the psychology corpus included LPs. From another perspective, this was 37 times per 1,000 words in applied linguistics and 39.7 times per 1,000 words in psychology. The frequencies of ITT, SNR, ATR and RPT were very similar between disciplines whereas LPs of PEMF and DTM presented disciplinary differences. PEMF LPs constituted 40% (or 14.8 times

per 1,000 words) of the total LPs in applied linguistics while they made up 52% (20.7 times per 1,000 words) of the total LPs in psychology. DTM LPs comprised 18.9% (7 times per 1,000 words) of all LPs in applied linguistics and 8.1% (3.2 times per 1,000 words) of all LPs in psychology.

If we compare the use of LPs in the present study to the use of other patterns explored in previous studies, we find different results for different types of patterns. Akbas (2012) reported that metadiscourse occurred 51.4 times per 1,000 words in the master's dissertation abstracts written by native speakers of English in the social sciences. Khedri et al. (2013) found that interactive metadiscourse markers appeared 53.61 times per 1,000 words in the applied linguistics abstracts and 43.64 times per 1,000 words in the economics abstracts. The frequencies are much lower in the study of Hyland and Tse (2005a), who examined the use of evaluative *that*-patterns in RAs from six disciplines (applied linguistics, biology, business studies, computer science, electrical engineering and public administration). They found the evaluative *that*-patterns occurred no more than 8.5 times per 1,000 words in their corpus.

Over 60% of all LPs were of pattern 1 in applied linguistics and psychology. A quarter of the LPs in the two corpora were of pattern 2. Pattern 3 LPs were not more than 15% of the LPs in applied linguistics and psychology.

6.4.3.1 Type of subject in LPs by discipline

Noun phrase subject was the most common type of subject in all three patterns. Pattern 1 LPs contained more noun phrase subjects than pattern 2 and 3 LPs and presented a larger variation between applied linguistics (76.2%) and psychology (66.2%). Pronouns were more common in pattern 1 LPs than in pattern 2 and 3 LPs in the two corpora. Pattern 2 LPs demonstrated similar uses of pronoun subjects between disciplines, but pattern 1 and 3 LPs demonstrated higher percentages for psychology than for applied linguistics. Other subject occurred in about a quarter of the pattern 3 LPs in both corpora, but the highest occurrences were found in pattern 2 LPs, where the percentages were higher in psychology (36.3%) than

in applied linguistics (28.2%). The proportion of other subject was about 10% in pattern 1 LPs, suggesting that there is a better lexical patterning in the subject position in pattern 1 LPs compared to pattern 2 and 3 LPs in applied linguistics and psychology. There were also occurrences of the existential *there* in pattern 3 LPs. It occurred more frequently in applied linguistics (13.9%) than in psychology (6.2%).

6.4.3.2 Noun phrase subject in LPs by discipline

The head nouns in the subject position presented less variety in pattern 1 than in pattern 2 and 3 LPs of applied linguistics and psychology, suggesting a more patterned use in the subject position in pattern 1 LPs. In pattern 1, the head nouns in the ATR and PEMF LPs in applied linguistics and psychology were found to be less varied than those in ITT, SNR, DTM and RPT, which suggests a more fixed patterning in the subject position in ATR and PEMF LPs than that of other functions. SNR and DTM nouns were more fixed in applied linguistics than in psychology whereas the reverse was observed for the ITT and RPT nouns.

In pattern 2, the head nouns in the subject position of ITT, SNR, ATR and PEMF LPs were less varied in psychology compared to applied linguistics and those of DTM and RPT LPs were also less varied in applied linguistics than in psychology.

In pattern 3, the head nouns in SNR and PEMF showed similarities between disciplines. Differences between disciplines were found in ITT, ATR and DTM LPs, where the head nouns were less varied in applied linguistics than in psychology.

In ATR pattern 1, applied linguists used head nouns such as *study* (137 times), *paper* (35 times) and *article* (30 times) in the subject position, which constitutes 75% of the nouns in ATR pattern 1 in the applied linguistics corpus. Psychologists used nouns such as *study/studies* (77 times), *experiment(s)* (29 times) and *thesis* (20 times) in ATR pattern 1 in psychology, which makes up 67% of the nouns in ATR pattern 1 in psychology. Nouns such as *study*, *paper*, *article*, *experiment* and *research* have also been reported to occur in the subject position of the construction *the/this* + *study/paper/article* +

examine/investigate/report in the purpose move (Santos, 1996; Martín, 2003; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014).

The head nouns that the writers used for ATR pattern 3 LPs were a little different from those used for ATR pattern 1 LPs. The most frequently occurring nouns in the subject position of the ATR pattern 3 LPs were *aim* (13 times), *purpose* (11 times) and *study* (6 times) in applied linguistics, which makes up 56% of all the head nouns in the subject position of ATR pattern 3 LPs in applied linguistics. The most common nouns in psychology were *goal(s)* (8 times) and *aim(s)* (7 times), which forms 52% of the nouns in the subject position of ATR pattern 3 LPs in psychology.

Applied linguists were found to use the nouns *results* (133 times), *finding(s)* (66 times) and *analysis/analyses* (35 times) in the subject position of PEMF pattern 1 LPs. These top three nouns comprise 56% of all head nouns in the subject position of PEMF pattern 1 LPs in applied linguistics. The top three nouns used by psychologists were *results* (118 times), *study/studies* (86 times) and *finding(s)* (85 times) in PEMF pattern 1, which accounts for 60% of all head nouns in the subject position in PEMF pattern 1 LPs in psychology. The nouns such as *results*, *analyses*, *findings*, *paper* and *data* were reported to recur in the subject position of the construction *the results/findings/analyses + show/reveal/indicate* in the results move (Santos, 1996; Martín, 2003; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014).

The nouns *implications* (16 times in applied linguistics and 17 times in psychology), *findings* (5 times in applied linguistics and 3 times in psychology) and *results* (5 times in applied linguistics and 6 times in psychology) were the most common three head nouns in the subject position of RPT pattern 2 LPs in applied linguistics and psychology. These three nouns comprise 72% of the head nouns in the subject position of RPT pattern 2 LPs in applied linguistics whereas they make up 68% of the head nouns in the same pattern in psychology.

Applied linguists commonly used the head nouns *student(s)* (12 times), *data* (11 times), *analysis/analyses* (10 times) and *task(s)* (10 times) in the subject position of DTM pattern 2 LPs, which constitutes 30% of the head nouns in the subject position of DTM pattern 2 LPs in applied linguistics. Psychologists, however, preferred to use the nouns *effect(s)* (12 times) , *difference(s)* (9 times) and *results* (5 times), which makes up 38% of the head nouns in the subject position of PEMF pattern 2 LPs. Previous research has shown that inanimate subjects such as *experiment*, *questionnaire* and *survey* and animate subjects such as *participants* and *learners* were commonly used in the method statements (Saeeaw and Tangkiengsirisin, 2014).

6.4.3.3 Verbs in LPs by discipline

The pattern 1 verbs were found to be less varied than the pattern 2 verbs in applied linguistics and psychology. Also, pattern 1 and 2 verbs were less varied in psychology compared to applied linguistics. These findings point to more lexical patterning in the verb position in pattern 1 LPs than in pattern 2 LPs as well as in psychology than in applied linguistics. The ATR and PEMF verbs in pattern 1 LPs and RPT in pattern 2 LPs were more fixed than those in other LP categories.

In ATR pattern 1 LPs, applied linguists commonly used the verbs *examine* (59 times), *investigate* (55 times), *explore* (25 times), *present* (18 times) and *report* (18 times). These verbs constitute 51% of all the verbs in this pattern in applied linguistics. The top five verbs that psychologists used were *examine* (65 times), *investigate* (37 times), *test* (28 times), *explore* (26 times) and *use* (12 times), accounting for 54% of all the verbs in this pattern in psychology. Previous studies also found that the construction *the/this* + *study/paper/article* + *examine/investigate/report,* which is frequently used in the purpose move of abstracts, include verbs such as *examine*, *investigate*, *report*, *explore*, *attempt to*, *describe*, *focus on*, *present* and *evaluate* (Santos, 1996; Martín, 2003; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014).

48% of the verbs in PEMF pattern 1 LPs in applied linguistics were *show* (84 times), *suggest* (64 times), *indicate* (46 times), *reveal* (42 times) and *provide* (16 times). The top five verbs in this pattern used by psychologist were *show* (105 times), *suggest* (81 times), *demonstrate* (67 times), *indicate* (39 times) and *find* (38 times), which also makes up 48% of all verbs in this pattern in psychology. It has been reported in previous studies that verbs such as *find*, *observe, show, reveal, indicate*, *demonstrate* and *use* were common verbs in the results move (Santos, 1996; Martín, 2003; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014).

73% of the verbs in RPT pattern 2 LPs in applied linguistics consisted of the verbs d*iscuss* (23 times) and *make* (4 times). The verb d*iscuss* (37 times) was the most common verb used by psychologists, which comprises 86% of all the verbs in this pattern in psychology.

6.4.3.4 Verb tenses in LPs by discipline

Overall, the present simple was the most preferred tense in all three pattens by applied linguists and psychologists. Applied linguists and psychologists used predominantly the present simple in RPT LPs of pattern 1 and 2 (more than 95%). They preferred the past simple in all patterns of DTM LPs (more than 72%).

Applied linguists used the present simple in ATR LPs of pattern 1 (80%) and 3 (87%), PEMF LPs of pattern 1 (63%) and ITT LPs of pattern 1 (55%), 2 (68%) and 3 (84%). They preferred the past simple in ATR of pattern 2 (53%) and PEMF LPs of pattern 2 (55%) and 3 (55%). The present perfect commonly occurred in SNR pattern 1 (78%) and 2 (79%).

Psychologists used the present simple in ATR LPs of pattern 3 (55%), ITT LPs of pattern 1 (72%), 2 (68%) and 3 (96%) and SNR LPs of pattern 1 (54%) and 2 (59%). The past simple occurred in ATR pattern 1 (64%) and 2 (76%) and PEMF pattern 1 (56%), 2 (79%) and 3 (82%).

These results are in line with those from previous studies which showed that the present simple was the common tense in the purpose move in applied linguistics, educational

technology and literature RAs (Pho, 2008; Tankó, 2017). The past tense was also reported to be common in the purpose statements (Santos, 1996; Pho, 2008; Tseng, 2011; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014).

The past simple as well as the present tense for the results move were also reported in previous research (Santos, 1996; Tseng, 2011; Suntara and Usaha, 2013; Tankó, 2017).

Previous studies have reported that the preference for the method move was for the past tense (Santos, 1996; Pho, 2008; Tseng, 2011; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014). The use of passive voice together with the past tense was also observed in the method move (Santos, 1996; Pho, 2008; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014). Santos (1996) reported that the past tense was used in 96% of the cases in applied linguistics abstracts whereas Tseng (2011) found the use of past tense in 76% of the verbs in the applied linguistics corpus.

The introduction move has been shown to use verbs in the present simple and the present perfect in previous research, which are congruent with the results of the present study (Santos, 1996; Pho, 2008; Tseng, 2011; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014; Tankó, 2017). Pho (2008) reported that 74% of the verbs in situating the research move contained the present simple with active voice in applied linguistics RAs. Pho (2008) also reported that 63% of the situating the research move in educational technology abstracts contained passive verbs in the present perfect. In Tseng's (2011) corpus of applied linguistics RAs, 94% of the verbs in the background move were in the present tense and the present perfect was used in 56% of these verbs.

6.4.3.5 Complement in LPs by discipline

Noun phrase was found to be the most common type of verb complement in pattern 1 in applied linguistics and psychology, which presented similarities between disciplines. Prepositional phrase and *that*-clause were also common in pattern 1 although the

prepositional phrases in the psychology corpus were nearly half of those in applied linguistics.

Writers preferred prepositional phrases in more than half of the pattern 2 LPs in the two disciplines. A verb complement was absent in about 20% of the LPs and nearly 10% of the LPs contained to-infinitive clauses.

Applied linguists used noun phrases in more than half of the pattern 3 LPs while psychologist preferred adjective phrases (41.8%) more than noun phrases (34.6%). To-infinitive clauses were also observed in pattern 3 LPs.

Previous research has not given much information about the use of verb complement. The only information related to the use of complements in constructions associated with moves is for the *that*-complement clauses. It has been reported that *that*-complement clauses were common in constructions of the results move (Pho, 2008; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014) as well as those of the conclusion move (Suntara and Usaha, 2013; Piqué-Noguera, 2012).

6.4.3.6 Summary

The results of the LP analysis showed that there were similarities between disciplines in the following areas.

- frequencies of LPs:
  - the overall frequency of LPs in applied linguistics and psychology (91% vs 86% or 37 times per 1,000 words vs 39.7 times per 1,000 words)
  - the frequencies of ITT, SNR, ATR and RPT
  - the proportion of pattern 2 and 3 LPs

- types of subject:
  - the amount of noun phrase subject in pattern 2and 3 LPs

- the amount of pronoun subjects in pattern 2 LPs
- the amount of other subject in pattern 1 and 3 LPs

- head nouns in the subject position:
  - the variability of the head nouns in the subject position of ATR and PEMF LPs of pattern 1
  - the variability of the head nouns in the subject position of SNR and PEMF LPs of pattern 3

- verbs:
  - the variability of the verbs in ATR LPs of pattern 1

- verb tenses:
  - the proportion of the verb tenses in RPT LPs of pattern 1
  - the proportion of the verb tenses in ITT and RPT LPs of pattern 2
  - the order of preference for the verb tenses in ITT, DTM and RPT LPs of pattern 1
  - the order of preference for the verb tenses in ITT, ATR, DTM, PEMF and RPT LPs of pattern 2
  - the order of preference for the verb tenses in ITT, ATR, DTM and PEMF LPs of pattern 3

- complements:
  - the preference for the noun phrase in pattern 1 LPs
  - the preference for the prepositional phrase in pattern 2 LPs
  - the preference for the noun phrase and the adjective phrase in pattern 3 LPs
  - the proportion of noun phrases in ITT, ATR, PEMF and RPT LPs of pattern 1
  - the proportion of the prepositional phrases in ITT, SNR, ATR and DTM LPs of pattern 2
  - the proportion of the noun phrases and adjective phrases in ITT LPs of pattern 3

The results of the LP analysis showed that there were differences between disciplines in the following aspects.

- frequencies of LPs:
  - the frequencies of PEMF and DTM
  - the proportion of pattern 1 LPs

- types of subject:
  - the amount of noun phrase subject in pattern 1 LPs
  - the amount of pronoun subjects in pattern 1 and 3 LPs
  - the amount of other subject in pattern 2 LPs
  - the amount of existential *there* in pattern 3 LPs

- head nouns in the subject position:
  - the variability of the head nouns in the subject position of ITT, SNR, DTM and RPT LPs of pattern 1
  - the variability of the head nouns in the subject position of ITT, SNR, ATR, DTM, PEMF and RPT LPs of pattern 2
  - the variability of the head nouns in the subject position of ITT, ATR and DTM LPs of pattern 3

- verbs:
  - the variability of the verbs in ITT, SNR, ATR, DTM, PEMF and RPT LPs of patterns 1 and 2

- verb tenses:
  - the proportion of the verb tenses in ITT, SNR, ATR, DTM and PEMF LPs of pattern 1
  - the proportion of the verb tenses in SNR, ATR, DTM and PEMF LPs of pattern 2
  - the proportion of the verb tenses in ITT, SNR, ATR, DTM and PEMF LPs of pattern 3

- the order of preference for the verb tenses in SNR, ATR and PEMF in pattern 1
- the order of preference for the verb tenses in SNR LPs of pattern 2
- the order of preference for the verb tenses in SNR LPs of pattern 3

- complements:
  - the proportion of noun phrases in SNR and DTM LPs of pattern 1
  - the proportion of the prepositional phrases in PEMF and RPT LPs of pattern 2
  - the proportion of the noun phrases in SNR, ATR, DTM and PEMF LPs of pattern 3
  - the proportion of adjective phrases in SNR, ATR, DTM and PEMF LPs of pattern 3

6.5 Generic variation in lexical phrases

6.5.1 Frequencies of lexical phrases in abstracts by genre

The results of the LP analysis regarding genres demonstrated that LPs occurred in 88% of the independent clauses with a MALDIF function in the RAs as well as the TAs. The generic comparison of the data showed both similarities and differences in LP use. Table 6.19 shows LP frequency results in RAs and TAs.

Table 6.19 Lexical Phrases by genre

	Research Articles			Theses				
	raw freq	% of total LP	Per 1,000 Words	raw freq	% of total LP	Per 1,000 Words	X^2	*p*
ITT	247	11.7	4.5	176	10.3	3.9	11.917	.001
SNR	51	2.4	0.9	42	2.5	0.9	0.871	.351
ATR	442	20.9	8.1	456	26.8	10.1	0.218	.640
DTM	288	13.6	5.3	227	13.3	5.1	7.225	.007
PEMF	1001	47.4	18.3	752	44.2	16.7	35.369	.000
RPT	82	3.9	1.5	49	2.9	1.1	8.313	.004
Total	2111	100.0	38.7	1702	100.0	37.9	43.871	.000

Chi-square analysis showed a significant effect of genre on the overall LP use ($X^2(1) = 43.871$, $p < .001$). However, when considered in terms of occurrences per 1,000 words, LP

frequencies were quite similar between the RA (38.7 times per 1,000 words) and TA LPs (37.9 times per 1,000 words). If we look at the preference order of LP categories, we find that both RA and TA writers followed the same order in LP preferences. These are PEMF, ATR, DTM, ITT, RPT and SNR from the most frequently used LP category to the least frequently used one.

Although LP occurrences were quite similar for DTM, ITT, RPT and SNR across genres, it was only in the SNR category that the genre effect was not significant ($X^2(1) = 0.871$, p = .351). While the generic variation in ATR LPs seems considerable (5.90%), it failed to reach significance ($X^2(1) = 0.218$, p = .640). ATR was the second most frequently used LP type in both the RAs and TAs. ATR constituted one fifth of RA LPs and a quarter of TA LPs. The simple answer to why ATR LPs are higher in the TAs is that the TAs contained more independent clauses with ATR function. As the number of ATR clauses was higher in the TAs than in the RAs, more LPs were found in the TAs for ATR. The TAs contained more ATR clauses probably because the TAs (299 words on average) are longer than the RA abstracts (171 words on average). More importantly, the thesis writer needs to persuade examiners that the research topic is important and the research points to some important issues/questions in the research area. ATR serves as a good place in the abstracts to do this.

PEMF was the most frequent LP type in both genres. Almost half of the LPs were PEMF in the RAs (47%). This was slightly lower in the TAs (44%). Yet, this was shown to be significant by the chi-square analysis ($X^2(1) = 35.369$, p < .001). As mentioned for ATR, both RAs and TAs contained a huge amount of PEMF clauses, which resulted in a large number of PEMF LPs. It is not surprising that the highest amount of LPs were found in PEMF when we think how important it is to present and comment on ones research findings in a short piece of text which plays a key role in showing the contribution of the study to the research area.

If we now turn to LP patterns, we can see that generic comparison of LP patterns present larger differences between genres than those between disciplines. Tables 6.20, 6.21 and 6.22 show the results of LP patterns in RAs and TAs.

Table 6.20 Pattern 1 LPs by genre

	Research Articles			Theses				
	raw freq	% of total LP	Per 1,000 Words	raw freq	% of total LP	Per 1,000 Words	X^2	*p*
ITT	143	6.8	2.6	85	5.0	1.9	14.754	.000
SNR	28	1.3	0.5	19	1.1	0.4	1.723	.189
ATR	363	17.2	6.7	286	16.8	6.4	9.136	.003
DTM	127	6.0	2.3	80	4.7	1.8	10.671	.001
PEMF	727	34.4	13.3	478	28.1	10.6	51.453	.000
RPT	26	1.2	0.5	25	1.5	0.6	0.020	.889
Total	1414	67.0	25.9	973	57.2	21.6	81.475	.000

Table 6.21 Pattern 2 LPs by genre

	Research Articles			Theses				
	raw freq	% of total LP	Per 1,000 Words	raw freq	% of total LP	Per 1,000 Words	X^2	*p*
ITT	51	2.4	0.9	37	2.2	0.8	2.227	.136
SNR	17	0.8	0.3	14	0.8	0.3	0.290	.590
ATR	45	2.1	0.8	111	6.5	2.5	27.923	.000
DTM	140	6.6	2.6	125	7.3	2.8	0.849	.357
PEMF	161	7.6	3.0	161	9.5	3.6	0.000	1.000
RPT	56	2.7	1.0	24	1.4	0.5	12.800	.000
Total	470	22.3	8.6	472	27.7	10.5	0.004	.948

Table 6.22 Pattern 3 LPs by genre

	Research Articles			Theses				
	raw freq	% of total LP	Per 1,000 Words	raw freq	% of total LP	Per 1,000 Words	X^2	*p*
ITT	53	2.5	1.0	54	3.2	1.2	0.009	.923
SNR	6	0.3	0.1	9	0.5	0.2	0.600	.439
ATR	34	1.6	0.6	59	3.5	1.3	6.720	.010
DTM	21	1.0	0.4	22	1.3	0.5	0.023	.879
PEMF	113	5.4	2.1	113	6.6	2.5	0.000	1.000
RPT	0	0.0	0.0	0	0.0	0.0	-	-
Total	227	10.8	4.2	257	15.1	5.7	1.860	.173

The pattern totals, when functions combined, suggest generic variation in all three patterns. The largest difference is in pattern 1, presenting a difference of 9.80%. The smallest one was seen in pattern 3 (4.30%). Even this one is nearly twice of the largest disciplinary difference between patterns (a difference of 2.20% in pattern 1). However, the chi-square statistics revealed only the variation in pattern 1 to be significant ($X^2(1) = 81.475$, $p < .001$).

Both the RA and TA writers used more pattern 1 LPs in total than pattern 2 and 3. The RAs contained more LPs (67%) in pattern 1 than the TAs (57%) did. In patterns 2 and 3, however, more LPs were found in the TAs than in the RAs. These preferences indicate the research article writers' tendency to use more active voice (pattern 1) than the thesis writers do, and also the TA writers' tendency to use slightly more passive voice (pattern 2) and verb be (pattern 3) than the research article writers do.

Among six functional LP categories, the largest generic difference was found in PEMF pattern 1 (6.30%) followed by ATR pattern 2 (4.40%), both of which were significant (PEMF pattern 1: $X^2(1) = 51.453$, $p < .001$; ATR pattern 2: ($X^2(1) = 27.923$, $p < .001$). In both RA and TA corpora, PEMF was the most frequent LP type in all patterns. The highest occurrence was seen in pattern 1 and the lowest in pattern 3. ATR was the second preferred LP type in pattern 1 and quite similar between genres. In pattern 2, however, some variation was seen between RAs and TAs. ATR was the third frequent LP type in the TA corpus (6.5%) while it was very infrequent in the RA corpus (2.1%).

DTM was the fourth preferred LP type in pattern 1 and 3 in both RA and TA corpora. In pattern 2, DTM was the second after PEMF in both corpora. Also, there were more DTM LPs in pattern 2 than in pattern 1 and 3 in both RAs and TAs. Passive verb use in pattern 2 LPs explains why pattern 2 was preferred more for DTM LPs than other two patterns. The use of passive verbs helps to replace personal pronouns, which are highly frequent in DTM, with 'nouns', and enables the writer to gain an impersonal style[1].

1 See Tables 6.23, 6.27 and 6.31 in section 6.5.2 for proportion of pronoun subjects in three patterns.

Although RPT was one of the least frequent LP type in both corpora, the RA writers used more than twice as many RPT pattern 2 as RPT pattern 1. In the TAs, RPT LPs were more evenly distributed across patterns.[1] The RA writers' preference for RPT pattern 2 LPs seems to be a result of passive verb and noun subject combinations. In RPT pattern 2, 'discuss' was the most frequently occurred verb (45 times), constituting 80% of all verbs in RPT pattern 2. It occurred with nouns in the subject position such as 'implications' (21 times), 'results' (6 times) and 'findings' (6 times), which obviously required passive voice.

6.5.2 Patterns and uses of lexical phrases in abstracts by genre

In this section, we will look at LP patterns and uses in the RAs and TAs. We will compare generic uses of obligatory elements in LPs, which are subject, verb and verb complement.

6.5.2.1 Pattern 1 lexical phrases in abstracts by genre

The comparison of pattern 1 LPs showed both similarities and differences between research article and thesis abstracts. The pattern 1 LPs in the two genres can be seen in Appendices 6.35 to 6.46.

6.5.2.1.1 Types of subject in pattern 1 LPs in abstracts by genre

Three elements are obligatory in pattern 1 LPs: subject, verb and complement. If we look at types of subject used in pattern 1 LPs, we find that there are noun phrase, pronoun, there and other subject[2]. Table 6.23 shows percentages for each subject type in pattern 1 LPs in the RAs and TAs.

From the averages in the table below, it is clear that NP subject is the most frequently used subject type in pattern 1 LPs. The proportions of NP subject use were also very similar between genres, with an average of 69.3% in the RAs and 71.9% in the TAs. Also, NP use was higher in pattern 1 LPs than in pattern 2 and 3 LPs (see Tables 6.27 and 6.31 below). When we look at NP use in LP types, we see quite similar figures between genres in NP use for SNR,

1 RPT has no pattern 3 instances in both RA and TA corpora.
2 Other subject was used for subjects that are specific to topic or for subjects with multiple noun phrases.

DTM and PEMF. We find the highest percentages in RPT for the TAs and DTM (78%) for the RAs. The most marked generic difference was found in RPT (14.62%). The research article writers used NP in about 65% of the subjects in RPT while this was 80% in the TAs. There were also differences in NP figures in ATR (7.61%) and ITT (7.13%). In ATR, more NP subject occurred in the TAs (74.8%) than in the RAs (67.2%). In ITT, more NP was used in the RAs (67.1%) than in the TAs (60%).

Table 6.23 Types of subject in pattern 1 LPs by genre (%)

	NP		Pronoun		There		Other subject	
	RA*	TA**	RA	TA	RA	TA	RA	TA
ITT	67.1	60.0	9.8	10.6	0.0	0.0	23.1	29.4
SNR	64.3	63.2	7.1	26.3	0.0	0.0	28.6	10.5
ATR	67.2	74.8	32.2	24.1	0.0	0.0	0.6	1.0
DTM	78.0	77.5	16.5	15.0	0.0	0.0	5.5	7.5
PEMF	74.0	76.2	13.2	13.8	0.1	0.0	12.7	10.0
RPT	65.4	80.0	34.6	20.0	0.0	0.0	0.0	0.0
Average	69.3	71.9	18.9	18.3	0.0	0.0	11.7	9.8

* Research article abstract
** Thesis abstract

The pronoun use in the subject position was also generically similar in pattern 1 LPs. About 18% of subjects were pronoun in both genres. Pronoun use was the highest in pattern 1 in all three LP patterns in both genres. The highest figures for pronoun subject was found in SNR (26.3%) for the TAs and RPT (34.6%) for the RAs. Both research article and thesis writers used similar amounts of pronoun in ITT, DTM and PEMF. The greatest generic variation was found in SNR (19.17%) and RPT (14.62%). More than a quarter of SNR subjects were pronoun in the TAs while this was only about 7% in the RAs. In the RAs, 35% of RPT subjects were pronoun. The thesis writers used pronoun in only a fifth of RPT subjects. The use of pronoun subjects in ATR was also higher in the RAs (32.2%) than in the TAs (24.1%).

The lowest percentages for other subject use was found in pattern 1 LPs for both RAs (11.7%) and TAs (9.8%). Other subject occurred the most frequently in ITT and SNR in both

genres. We also found the widest generic differences in other subject use in SNR (18.05%) and ITT (6.33%). Other subject in SNR was used more frequently by research article writers (28.6%) than by thesis writers (10.5%). The RAs (23.1%) contained less other subject in ITT than the TAs (29.4%) did. Other subject use was no more than 1% in ATR and less than 10% in DTM. No instances of other subject were found in RPT. These results suggest that there is a better patterning in the subject position in pattern 1 than in pattern 2 and 3 LPs. They also suggest that there is a better patterning in subjects in RPT, ATR and DTM than in the other LP types in both genres, and that the patterning in the subject position in SNR is better in the TAs than in the RAs.

6.5.2.1.2 Noun phrase subject in pattern 1 LPs in abstracts by genre

NP subject was the most frequently used subject type in pattern 1 LPs as well as in pattern 2 and 3 LPs in the RA and TA corpora; therefore, it needs further attention. In this section, we will compare type-token ratios of head nouns of NP subjects in the RAs and TAs and look at the most frequently used nouns which had a low TTR. The type-token ratios for pattern 1 nouns in the RAs and TAs are shown in Table 6.24 below. The full list of head nouns in pattern 1 LPs can be seen in Appendices 6.69 to 6.74.

Table 6.24 Type-token ratio for pattern 1 nouns (subject position) by genre

	Research Articles			Theses		
	Type	Token	TTR	Type	Token	TTR
ITT	40	96	41.7	26	51	51.0
SNR	7	18	38.9	4	12	33.3
ATR	15	244	6.1	14	214	6.5
DTM	27	99	27.3	21	62	33.9
PEMF	61	538	11.3	49	364	13.5
RPT	7	17	41.2	7	20	35.0
Average			27.7			28.9

If we look at the averages of TTRs for nouns in three generic patterns, we can see that the lowest TTRs are in pattern 1 (see also Tables 6.28 and 6.32), which indicates low number of noun types with higher frequencies.

ATR and PEMF had the lowest TTRs in both RA and TA corpora. We see similar degrees of noun variability for these two LP types in both corpora.

The highest occurrences for ATR pattern 1 in the RA corpus were seen in *study/studies* (113 times), *paper* (36 times) and *article* (33 times), which comprises 75% of nouns in ATR pattern 1 in the RA corpus. The top three nouns in ATR pattern 1 in the TA corpus were *study/studies* (101 times), *thesis* (34 times) and *dissertation* (22 times), which constitutes 73% of nouns in ATR pattern 1 in the TA corpus.

In PEMF pattern 1 in the RA corpus, nouns with the highest frequencies which were *results* (147 times), *finding(s)* (87 times) and *study/studies* (61 times) make up 55% of nouns in PEMF pattern 1 in the RA corpus. The same nouns were also the most common nouns in the TA corpus and comprised 62% of nouns in PEMF pattern 1 in the TA corpus: *results* (104 times), *finding(s)* (64 times) and *study/studies* (57 times).

There were generic differences in TTRs of head nouns for ITT, SNR, DTM and RPT. The RAs contained slightly more variation in SNR and RPT nouns than the TAs did. The DTM and ITT nouns were more varied in the TAs than in the RAs.

6.5.2.1.3 Verb in pattern 1 LPs in abstracts by genre

The type-token ratios for verbs in the RA and TA corpora showed that pattern 1 verbs contained less variation (on average) compared to pattern 2 verbs. The TTRs also showed generic similarities in verb variation. Table 6.25 shows the type-token ratios for pattern 1 verbs in the RAs and TAs. The full listing of verbs in pattern 1 LPs can be found in Appendices 6.86 to 6.91.

ATR and PEMF verbs had the lowest degrees of variability, which were also very similar between genres. 51% of verbs in ATR pattern 1 in the RA corpus were *examine* (69 times), *investigate* (52 times), *test* (24 times), *explore* (20 times) and *report* (19 times). The top verbs in ATR pattern 1 in the TAs were *examine* (55 times), *investigate* (40 times), *explore* (31

times), *focus* (12 times) and *address* (11 times), comprising 52% of verbs in ATR pattern 1 in the TA corpus.

Table 6.25 Type-token ratio for pattern 1 verbs by genre

	Research Articles			Theses		
	Type	Token	TTR	Type	Token	TTR
ITT	84	143	58.7	53	85	62.4
SNR	20	28	71.4	11	19	57.9
ATR	73	363	20.1	63	286	22.0
DTM	58	127	45.7	47	80	58.8
PEMF	151	727	20.8	95	478	19.9
RPT	16	26	61.5	13	25	52.0
Average			46.4			45.5

Show (110 times), *suggest* (82 times), *indicate* (58 times), *demonstrate* (44 times) and *reveal* (38 times) were the most frequent verbs in PEMF pattern 1 in the RAs. They made up 46% of verbs in PEMF pattern 1 in the RA corpus. These were also the most common verbs in the thesis corpus: *show* (79 times), *suggest* (63 times), *reveal* (39 times), *demonstrate* (35 times) and *indicate* (27 times), comprising 51% of verbs in PEMF pattern 1 in the TA corpus.

ITT verbs were similar between genres in terms of variation. The TAs contained more varied verbs in DTM than the RAs did. SNR and RPT verbs showed more variation in the RAs than in the TAs.

If we now turn to verb tenses in pattern 1 LPs, the simple present was the most frequently used tense (on average) in the RA and TA corpora. Table 6.26 gives the pattern 1 verb tenses used in RA and TA LPs.

From the table below, we can see that the present simple is the dominant tense in RPT (96% in each genre). For ATR and PEMF, the present simple was used more than the past simple by research article writers as well as by thesis writers, although there is only a slight tendency for the present simple in PEMF. The percentages are quite similar between genres.

Table 6.26 Verb tenses in pattern 1 by genre

	Research Articles						Theses					
	Simp. Pre.	Simp. Past	Simp. Fut.	Pre. Perf.	Past Perf.	Pre. Cont.	Simp. Pre.	Simp. Past	Simp. Fut.	Pre. Perf.	Past Perf.	Pre. Cont.
ITT	70.6	4.2	0.7	23.1	0.0	1.4	49.4	15.3	0.0	35.3	0.0	0.0
SNR	46.4	3.6	0.0	50.0	0.0	0.0	26.3	0.0	0.0	73.7	0.0	0.0
ATR	57.6	42.4	0.0	0.0	0.0	0.0	61.2	35.7	3.1	0.0	0.0	0.0
DTM	10.2	89.8	0.0	0.0	0.0	0.0	31.3	68.8	0.0	0.0	0.0	0.0
PEMF	53.1	46.5	0.1	0.1	0.1	0.0	51.0	48.5	0.0	0.4	0.0	0.0
RPT	96.2	3.8	0.0	0.0	0.0	0.0	96.0	4.0	0.0	0.0	0.0	0.0
Average	55.7	31.7	0.1	12.2	0.0	0.2	52.5	28.7	0.5	18.2	0.0	0.0

In DTM, past simple was the top tense for both research article writers and thesis writers. While it was used in only 69% of the DTM LPs in the TAs, DTM LPs was dominated by the past simple (90%) in the RA corpus.

The present simple and present perfect were the most commonly used tenses for ITT and SNR. About half of the ITT LPs used the present simple in the TA corpus. This was 71% in the RA corpus. The thesis writers used the present perfect in ITT more than the research article writers did. The thesis writers also used the past simple (15%) in ITT pattern 1. In the TA corpus, the present perfect (74%) was more prominent in SNR LPs than the present simple. The research article writers used nearly equal amounts of the present simple and present perfect in SNR pattern 1 LPs.

6.5.2.1.4 Complement in pattern 1 LPs in abstracts by genre

NP was found to be the most common type of complement in pattern 1 for the research article (averaging 58%) and thesis abstracts (averaging 62%). *That*-clause and prepositional phrase were also common in this pattern. The use of pattern 1 verb complements in the RAs and TAs can be seen in Appendices 6.104 and 6.105.

Writers used NP complements more frequently in ATR, DTM and RPT LPs. Similarities between genres were seen in ATR and DTM in the proportions of NP complements;

however, the thesis writers (92%) used a substantial amount of NP in RPT complements compared to the article writers (65%).

Less than half of PEMF LPs included NP complement in the two corpora. In ITT, NP use was slightly higher in the TA corpus (51%) than in the RA corpus (43%). In SNR, the article writers (46%) used more NP complement than the thesis writers (37%) did.

That-clause complement was the second most frequently used complement type in pattern 1 in the RA (14% on average) and TA corpora (12% on average). It was seen to be used mostly in ITT (29% in RAs and 28% in TAs) and PEMF (42% in RAs and 43% in TAs) where the figures were very similar between the two corpora.

Prepositional phrase was another commonly used complement in pattern 1. The article writers used prepositional phrases mostly in RPT (27%), DTM (15%) and ITT (13%). Propositional phrases occurred more in DTM (19%) and ITT (11%) in the TA corpus.

6.5.2.2 Pattern 2 lexical phrases in abstracts by genre

Pattern 2 LPs also revealed generic variation as well as similarities. The LPs for the RAs and TAs can be seen in Appendices 6.47 to 6.58.

6.5.2.2.1 Types of subject in pattern 2 LPs in abstracts by genre

The generic comparison of subject types indicated that NP subject was the most preferred subject type in both RAs and TAs, which occurred over 57% (on average) in each genre. Table 6.27 below gives the percentages of subject types in pattern 2 for the two genres.

RPT contained the highest occurrences (over 90%) of NP subject in both corpora. The lowest occurrences were found in ITT (33% for the RAs and 35% for the TAs). While NP use were quite similar in ITT, SNR, PEMF and RPT between the two corpora, there were generic differences in ATR (11.47%) and DTM (10.31%). The thesis writers used more NP in ATR than the article writers did. In DTM, NP was higher in RAs than in TAs.

Table 6.27 Types of subject in pattern 2 LPs by genre (%)

	NP		Pronoun		Other subject	
	RA*	TA**	RA	TA	RA	TA
ITT	33.3	35.1	15.7	8.1	51.0	56.8
SNR	47.1	50.0	29.4	21.4	23.5	28.6
ATR	48.9	60.4	6.7	4.5	44.4	35.1
DTM	80.7	70.4	0.7	1.6	18.6	28.0
PEMF	41.0	39.1	8.7	19.9	50.3	41.0
RPT	92.9	91.7	0.0	0.0	7.1	8.3
Average	57.3	57.8	10.2	9.3	32.5	33.0

* Research article abstract
** Thesis abstract

The overall use of pronoun subjects was very similar between research article (10.2%) and thesis (9.3%) abstracts. In LP categories, we also found similarities in ATR and DTM. ATR (less than 10%) and DTM (less than 2%) contained the lowest amounts of pronouns. RPT had no occurrences of pronoun in pattern 2. There were differences in pronoun use between corpora in ITT, SNR and PEMF. The widest difference was in PEMF (11.18%), in which the thesis writers used more than twice as many pronoun subjects as the article writers. There were differences also in SNR (7.98%) and ITT (7.58%). The highest amount of pronoun in pattern 2 LPs occurred in SNR. It was higher in the RAs (29%) than in the TAs (21%). The proportion of ITT pronouns in the RAs doubled that in the TAs.

Other subject occurred most frequently in pattern 2 LPs in both RAs and TAs, with an average of 33% in each. The highest occurrences of other subject were in ITT (over 50%) and the lowest were in RPT (less than 10%). The greatest variation between genres was seen in DTM (9.43%), PEMF (9.32%) and ATR (9.31%). Other subject occurred more in the RAs than in the TAs in ATR and PEMF, whereas the TAs contained more other subject in DTM than the RAs did.

The results in Table 6.27 suggests that, in both corpora, there is a better patterning in the subject position in pattern 2 LPs for RPT, DTM and SNR than for ITT, PEMF and ATR. Also, the

patterning in the subject position in DTM was better in the RAs than in the TA while it was better in the TAs than in the RAs for ATR and PEMF. If we compare the overall percentages for other subject in three LP patterns of RAs and TAs, pattern 2 LPs has a lower amount of patterning in the subject position than pattern 1 and 3 (see Tables 6.23 and 6.31).

6.5.2.2.2 Noun phrase subject in pattern 2 LPs in abstracts by genre

Table 6.28 gives the type-token ratios for pattern 2 nouns in the RAs and TAs.[1] The RPT nouns had the lowest TTRs in the RA and TA corpora. They were less varied but with higher frequencies in the RAs than in the TAs.

Table 6.28 Type-token ratio for pattern 2 nouns (subject position) by genre

	Research Articles			Theses		
	Type	Token	TTR	Type	Token	TTR
ITT	15	17	88.2	12	13	92.3
SNR	8	8	100.0	5	7	71.4
ATR	15	22	68.2	44	67	65.7
DTM	52	113	46.0	50	88	56.8
PEMF	31	66	47.0	34	63	54.0
RPT	16	52	30.8	10	22	45.5
Average			63.4			64.3

The most common nouns, which were *implications* (25 times), *results* (8 times) and *findings* (6 times), made up 75% of nouns in RPT pattern 2 in the RA corpus. In the TA corpus, *implications* (8 times), *results* (3 times) and *suggestions* (3 times), which had the highest frequencies, comprised 64% of nouns in RPT pattern 2 in the TA corpus.

ITT and SNR contained more variation in nouns than other LP types in both corpora. Noun variation in DTM and PEMF was higher in the TA corpus than in the RA corpus. In ITT and ATR, we see a similarity in noun variation between genres. There seems to exist a large

1 The full list of head nouns in pattern 2 LPs can be found in Appendices 6.75 to 6.80.

difference between genres in SNR nouns; however, this should be treated with caution as there is a small number of instances.

6.5.2.2.3 Verb in pattern 2 LPs in abstracts by genre

The type-token ratios for pattern 2 verbs in the RAs and TAs were shown in Table 6.29.[1] The lowest TTRs were for RPT, indicating limited types of verbs with higher frequencies. The TAs contained more verb variation in RPT than the RAs did.

80% of verbs in RPT pattern 2 in the RA corpus consisted of *discuss* (45 times). *Discuss* (15 times) and *make* (3 times) composed 75% of verbs in RPT pattern 2 in the TA corpus.

Table 6.29 Type-token ratio for pattern 2 verbs by genre

	Research Articles			Theses		
	Type	Token	TTR	Type	Token	TTR
ITT	43	51	84.3	33	37	89.2
SNR	13	17	76.5	10	14	71.4
ATR	28	45	62.2	48	111	43.2
DTM	65	140	46.4	63	125	50.4
PEMF	64	161	39.8	65	161	40.4
RPT	10	56	17.9	8	24	33.3
Average			54.5			54.7

ITT and SNR verbs contained the highest degrees of variation compared to others. There was not much generic difference in verb variation in ITT and SNR as well as in DTM. PEMF verbs showed similarities between genres in variation. ATR verbs are noticeably varied in the RA corpus than in the TA corpus.

A comparison of verb tenses in pattern 2 LPs revealed that the simple present was the most frequently used tense (on average) in pattern 2 LPs for the article and thesis writers. Table 6.30 gives the percentages of verb tenses used in pattern 2 LPs in the RA and TA corpora.

1 The verbs in pattern 2 LPs are listed in Appendices 6.92 to 6.97.

Table 6.30 Verb tenses in pattern 2 by genre

	Research Articles					Theses				
	Simp. Pre.	Simp. Past	Simp. Fut.	Pre. Perf.	Past Perf.	Simp. Pre.	Simp. Past	Simp. Fut.	Pre. Perf.	Past Perf.
ITT	68.6	0.0	0.0	31.4	0.0	67.6	5.4	0.0	27.0	0.0
SNR	47.1	0.0	0.0	47.1	5.9	35.7	0.0	0.0	64.3	0.0
ATR	26.7	73.3	0.0	0.0	0.0	35.1	64.0	0.9	0.0	0.0
DTM	8.6	91.4	0.0	0.0	0.0	20.0	80.0	0.0	0.0	0.0
PEMF	29.2	70.2	0.0	0.6	0.0	33.5	65.8	0.6	0.0	0.0
RPT	100.0	0.0	0.0	0.0	0.0	87.5	4.2	8.3	0.0	0.0
Average	46.7	39.2	0.0	13.2	1.0	46.6	36.6	1.6	15.2	0.0

The thesis writers predominantly used the present simple (88%) for RPT LPs in pattern 2. The research article writers preferred the present simple in all RPT LPs.

The writers preferred the past simple over the present simple in ATR, DTM and PEMF. The highest percentages for the past simple was seen for DTM (91% in the RAs and 80% in the TAs). The RA corpus contained more past simple in these three LPs than the TA corpus did.

The article and thesis writers used the present simple and present perfect frequently in ITT and SNR. The present simple was used more than the present perfect in ITT, which had similar percentages between the two corpora. The present perfect was more common than the present simple in SNR in the TA corpus. The article writers used the present simple and present perfect equally in SNR pattern 2.

6.5.2.2.4 Complement in pattern 2 LPs in abstracts by genre

Two complement types were found to occur frequently in pattern 2: prepositional phrase and to-infinitive clause. More than half of the complements in each corpora contained prepositional phrase complements. To-infinitive clauses were used in about 10% of the LPs in pattern 2. No-complement LPs were also common in this pattern. 24% of the LPs in the RA corpus did not have a complement. This was 20% in the TA corpus. The percentage tables for

pattern 2 verb complements in the RAs and TAs can be found in Appendices 6.106 and 6.107.

The use of prepositional phrase in pattern 2 ranges between 29% and 71%. The highest occurrences were found in SNR and DTM for the RA corpus and SNR and ITT for the TA corpus. The RA (71%) and TA (71%) corpora contained a similar amount of prepositional phrase complements in SNR LPs. The thesis writers used prepositional phrases more frequently than the article writers in ITT, ATR and RPT. The article writers used more prepositional phrase in DTM and PEMF than the thesis writers did.

To-infinitive clauses were commonly used in ATR, DTM and PEMF. The percentages were very similar between the two corpora in DTM and PEMF. The thesis writers (26%) used more to-infinitive clause complements in ATR than the RA writers (18%). We also found that the article writers used to-infinitive clauses in 20% of the ITT LPs.

Although *that*-clauses were not very common in pattern 2 LPs, we found that 17% of PEMF LPs contained it in the TA corpus and 12% of the ITT LPs in the RA corpus. Absence of complements were more common in ATR and RPT. It was higher in the RA corpus than in the TA corpus.

6.5.2.3 Pattern 3 lexical phrases in abstracts by genre

We also found differences as well as similarities in pattern 3 LPs between RAs and TAs. The pattern 3 LPs for the two genres can be found in Appendices 6.59 to 6.68.

6.5.2.3.1 Types of subject in pattern 3 LPs in abstracts by genre

As in pattern 1 and 2, NP subject was the most common subject type in pattern 3 LPs. NP was more frequent in the RAs (60.6%) than in the TAs (50.2%). Table 6.31 shows the proportion of subject types in pattern 3 LPs for the RAs and TAs.

Table 6.31 Types of subject in pattern 3 LPs by genre (%)

	NP		Pronoun		There		Other subject	
	RA*	TA**	RA	TA	RA	TA	RA	TA
ITT	37.7	25.9	3.8	9.3	1.9	7.4	56.6	57.4
SNR	66.7	33.3	16.7	22.2	16.7	44.4	0.0	0.0
ATR	85.3	91.5	2.9	5.1	0.0	0.0	11.8	3.4
DTM	76.2	68.2	0.0	4.5	4.8	13.6	19.0	13.6
PEMF	37.2	31.9	6.2	3.5	10.6	8.0	46.0	56.6
RPT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	60.6	50.2	5.9	8.9	6.8	14.7	26.7	26.2

* Research article abstract
** Thesis abstract

In six LP categories, the highest proportions of NP subject was in ATR (over 85%). PEMF and ITT used NP (less than 38%) less than other LPs. The largest difference seems to be in SNR (33.33%); however, we should treat this difference with caution since the number of instances for SNR was highly low in pattern 3[1]. There were also generic differences in ITT (11.81%) and DTM (8.01%). NP use in both ITT and DTM were higher in the RAs than in the TAs.

Pattern 3 contained the lowest amounts in terms of pronoun use, which was less than 10% in both genres. In the RAs, PEMF contained the highest frequencies of pronoun subject, which was 7 instances. In the TAs, there were 5 occurrences in ITT and four occurrences in RPT. The other occurrences of pronouns were less than 4 instances in both corpora.

Over 26% of subjects in pattern 3 LPs were other subject type in both genres. Other subject was the highest in ITT (57% in each corpora). It was also very high in PEMF (46% in the RAs and 57% in the TAs). We see the largest difference between genres in PEMF (10.62%). Another important difference was in ATR (8.37%). Although percentages are no more than 12%, we see that the RAs contained three times as many other subject in ATR as the TAs.

1 SNR had 6 instances in RAs and 9 instances in TAs in pattern 3.

While there was no instances of other subject in SNR, other subject was used in less than 20% in DTM in both corpora.

These results suggest that there is less patterning in the subject position of ITT and PEMF LPs for both genres when compared to other LP types. In PEMF, there is a better subject patterning in the RAs than in the TAs. The reverse is true in ATR.

We also found instances of *there* in pattern 3 LPs. Article writers used *there* in 6.8% of the subjects while this was 14.7% in the TAs. In the RAs, 12 instances were found in PEMF. No more than one instance of *there* was found in other LPs in the RA corpus. Also in the TAs, the highest occurrence was in PEMF (9 instances). The frequency of *there* was less than five in other LPs in the TA corpus.

6.5.2.3.2 Noun phrase subject in pattern 3 LPs in abstracts by genre

The type-token ratios for pattern 3 nouns in the RAs and TAs are given in Table 6.32 below.[1] The ATR nouns had the lowest degrees of variability in nouns. They were slightly more varied in the RA corpus than in the TA corpus.

Table 6.32 Type-token ratio for pattern 3 nouns (subject position) by genre

	Research Articles			Theses		
	Type	Token	TTR	Type	Token	TTR
ITT	17	20	85.0	12	14	85.7
SNR	3	4	75.0	3	3	100.0
ATR	11	29	37.9	17	54	31.5
DTM	9	16	56.3	9	15	60.0
PEMF	20	42	47.6	21	36	58.3
RPT	0	0	0.0	0	0	0.0
Average			60.4			67.1

1 The head nouns in pattern 3 LPs are listed in Appendices 6.81 to 6.85.

The top three ATR nouns were *purpose* (7 times), *aim* (6 times) and *goal* (4 times) in pattern 3 in the RA corpus. This is equal to 59% of nouns in ATR pattern 3 in the RA corpus.

We see the same nouns with different frequencies as the top nouns in ATR pattern 3 in the TA corpus: *aim(s)* (14 times), *goal(s)* (8 times) and *purpose* (5 times), three of which make up 50% of nouns in ATR pattern 3 in the TA corpus.

Noun variation was greater in ITT and SNR than the other LP types. PEMF and SNR nouns were more varied in the TAs than in the RAs although there were only a few SNR nouns in both corpora. ITT and and DTM nouns were very similar between genres in terms of variation.

6.5.2.3.3 Verb in pattern 3 LPs in abstracts by genre

An examination of verb tenses used in pattern 3 LPs showed a preference for the simple present by the article and thesis writers. The proportions of verb tenses used in pattern 3 LPs by the article and thesis writers are shown in Table 6.33.

Table 6.33 Verb tenses in pattern 3 by genre

	Research Articles			Theses		
	Simp. Pre.	Simp. Past	Pre. Perf.	Simp. Pre.	Simp. Past	Pre. Perf.
ITT	90.6	1.9	7.5	88.9	3.7	7.4
SNR	83.3	0.0	16.7	33.3	0.0	66.7
ATR	67.6	32.4	0.0	79.7	20.3	0.0
DTM	28.6	71.4	0.0	22.7	77.3	0.0
PEMF	25.7	74.3	0.0	31.9	67.3	0.9
RPT	0.0	0.0	0.0	0.0	0.0	0.0
Average	59.2	36.0	4.8	51.3	33.7	15.0

The writers overwhelmingly used the present simple (over 88%) in ITT LPs in pattern 3 where the percentages were very similar between the two corpora. The present simple was also common in ATR. It is used more in the TA corpus (80%) than in the RA corpus (68%).

The past simple was preferred more than the present simple in DTM and PEMF. The TA writers used slightly more past simple in DTM than the RA writers did. This was reversed for PEMF, where again the differences were small. Although SNR contained a small number of LP instances, we can see that the tense preferences are for the present simple and present perfect.

6.5.2.3.4 Complement in pattern 3 LPs in abstracts by genre

The most frequent complement type in pattern 3 was NP in the RAs and TAs. It occurred more than 40% of the LPs. Adjective phrases were slightly more common in the RA corpus (39%) than in the TA corpus (32%). Around 10% of the LPs contained to-infinitive complements. The proportion of pattern 3 verb complements in the RAs and TAs can be found in Appendices 6.108 and 6.109.

The article and thesis writers used NP complements in ATR and PEMF with similar amounts. The article writers (57%) used more NP in ITT than the thesis writers (44%) did. They (76%) also used more NP in DTM than the thesis writers (68%).

The highest amounts of adjective phrase complements were found in PEMF LPs, which are quite similar in proportion between the RA (70%) and TA (72%) corpora. 32% of ITT LPs in the RA contained adjective phrases while this was slightly higher in the TA corpus (39%).

ATR LPs included a substantial amount of to-infinitive complements in the RA (50%) and TA (48%) corpora.

6.5.3 Summary and general discussion of the generic results of LPs

In section 6.5, we presented the findings of the LP analysis which answered the fourth research question: Do LPs associated with particular discourse functions vary between research article and thesis abstracts?

The results of the LP analysis showed similarities as well as differences between research article and thesis abstracts. If we look at the total use of LPs, we can see similarities in proportions of use. The use of LP was found in 88% of the independent clauses with a MALDIF function in the RAs and TAs. LPs occurred 38.7 times per 1,000 words in the RAs and 37.9 times in the TAs.

The comparison of these results with those in the literature shows that there are different results for different types of pattern. In the study of Hyland and Tse (2005b), the evaluative *that*-clauses were found to occur 6.9 times per 1,000 words in the RAs and 4.1 times per 1,000 words in the master's dissertation and doctoral thesis abstracts. Durrant and Mathews-Aydınlı (2011) reported that the 'what' constructions constituted 93% of the indicating structure category of the research article introductions whereas the 'where' constructions were used in 98% of indicating structure in by article authors.

The LPs concerning the ITT, SNR, DTM and RPT were very similar between genres; however, ATR and PEMF LPs presented generic differences. ATR LPs occurred in 20.9% (or 8.1 times per 1,000 words) of the total LPs in the research article corpus while they constituted 26.8% (or 10.1 times per 1,000 words) of all the LPs in the thesis corpus. PEMF LPs made up in 47.4% (or 18.3 times per 1,000 words) of the LPs in the RAs whereas its percentage was slightly lower in the TAs, which was 44.2% (or 16.7 times per 1,000 words) of all LPs in the thesis corpus.

The generic comparison of LP patterns indicated variation between the RAs and TAs. The widest range of variation was found in pattern 1 LPs between the research article corpus (67%) and the thesis corpus (57.2%). 22.3% of the LPs in the research article corpus were of pattern 2 while it was 27.7% of the thesis corpus. Pattern 3 LPs were the least common type of patterns in the two genre, occurring in 10.8% of the RAs and 15.1% of the TAs. The differences in these three patterns of LPs were larger between genres than between disciplines.

6.5.3.1 Type of subject in LPs by genre

The results for the type of subjects in patterns showed that noun phrase subject was the most frequently occurring subject in all three LP patterns. Pattern 1 and 2 LPs presented similarities between genres in terms of percentage of use whereas variation was observed in pattern 3. Higher frequencies were found for NP subject in pattern 1 LPs in the article corpus (69.3% on average) and the thesis corpus (71.9% on average) than in pattern 2 and 3 LPs. The NP subject occurred in 50.2% of the pattern 3 LPs in the thesis corpus while 60.6% of the pattern 3 LPs in the article corpus contained the NP subject. Pronoun subjects were used more frequently in the pattern 1 LPs (about 18% in each corpus) than the pattern 2 and 3 LPs and presented generic similarities. The highest occurrences of the other subject were found in pattern 2 LPs while the lowest occurrences were in the pattern 1 LPs. The proportion of the other subject was generically similar in all three patterns. Other subject occurred about one third of the pattern 2 LPs and about a quarter of the pattern 3 LPs in the two genres. Less than 12% of the subjects in pattern 3 LPs were of the other subject type in the article and thesis corpora. A small number of existential *there* appeared in pattern 3 where the thesis writers used it in 14.7% of the LPs in pattern 3 while only 6.8% of the subjects were of other subject type in pattern 3 in the article corpus.

6.5.3.2 Noun phrase subject in LPs by genre

If we look at the head nouns used in the subject position in the LP patterns, we find generic similarities in the fixedness of noun subjects for the combined data of the functional categories. The head nouns in the subject position in pattern 1 LPs were found to be less varied than those of the pattern 2 and 3 LPs in the article and thesis corpora, indicating more patterning in the subject position of pattern 1 LPs.

In pattern 1, the head nouns in the ATR and PEMF LPs were less varied in the two corpora than those in other LP categories, suggesting a more fixed patterning in the subject position in the ATR and PEMF LPs than in ITT, SNR, DTM and RPT. While the nouns in the ATR and PEMF LPs were very similar in terms of variability, those in the ITT and DTM LPs were less

varied in the article corpus than in the thesis corpus and those in the SNR and RPT LPs were slightly more fixed in the thesis corpus than in the article corpus.

The most common head nouns in the ATR pattern 1 LPs were *study/studies* (113 times), *paper* (36 times) and *article* (33 times) in the RAs, which makes up 75% of all head nouns in the subject position of ATR pattern 1 LPs in the RA corpus. 73% of all the nouns in the subject position of ATR pattern 1 LPs consisted of *study/studies* (101 times), *thesis* (34 times) and *dissertation* (22 times) in the TA corpus. Similar nouns were also reported to occur in the subject position of the common construction *the/this + study/paper/article + examine/investigate/report* in the purpose move of RAs (Santos, 1996; Martín, 2003; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014).

The article authors used *results* (147 times), *finding(s)* (87 times) and *study/studies* (61 times) in the subject position in 55% of all head nouns in the PEMF pattern 1 LPs. The thesis writers used the same nouns in 62% of the nouns in PEMF pattern 1: *results* (104 times), *finding(s)* (64 times) and *study/studies* (57 times). Nouns such as *results*, *analyses*, *findings*, *paper* and *data* were also found to be commonly used by research article authors in the construction *the results/findings/analyses + show/reveal/indicate* in the results move (Santos, 1996; Martín, 2003; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014).

In pattern 2, the RPT nouns presented the lowest degree of variation in the two corpora, which suggests a more patterned subject position in the RPT LPs. The nouns in the ITT and SNR LPs were more varied than those in other categories. The nouns in the DTM, PEMF and RPT LPs presented greater variability in the thesis corpus than in the article corpus, where the generic variation was larger in the RPT LPs. The ITT and ATR LPs were generically similar in terms of noun variability.

The nouns *implications* (25 times), *results* (8 times) and *findings* (6 times) used by the research article writers constituted 75% of the nouns in the subject position of RPT pattern 2. The top three preferences of nouns for the same pattern were *implications* (8 times),

results (3 times) and *suggestions* (3 times) in the thesis corpus, comprising 64% of the nouns in the subject position of RPT pattern 2.

In pattern 3, the ATR nouns were less varied than the other LP nouns, indicating a more fixed patterning in the subject position in the ATR LPs. The variability in the nouns of ITT and DTM LPs presented similarities between genres. PEMF nouns were more fixed in article corpus than in the thesis corpus.

59% of the nouns in the subject position in ATR patten 3 LPs included the nouns *purpose* (7 times), *aim* (6 times) and *goal* (4 times) in the RA corpus. The thesis writers also preferred the same nouns in the subject position of the ATR pattern 3 LPs: *aim(s)* (14 times), *goal(s)* (8 times) and *purpose* (5 times), comprising 50% of the nouns in the subject position of ATR pattern 3.

6.5.3.3 Verbs in LPs by genre

The results concerning the verbs in LP patterns showed that the variability of verbs was similar between genres, and that the verbs in pattern 1 (functions combined) presented a lower degree of variability than those in pattern 2 in the article as well as the thesis corpora. These findings suggest that there is amore patterning in the verb position in pattern 1 LPs than in pattern 2 LPs in the RAs and TAs. ATR and PEMF verbs in pattern 1 and RPT verbs in pattern 2 contained less variation than those in other LP types.

The article writers frequently used *examine* (69 times), *investigate* (52 times), *test* (24 times), *explore* (20 times) and *report* (19 times) in ATR pattern 1 LPs. These five verbs constituted 51% of the verbs in ATR pattern 1 LPs in the article corpus. The most common verbs used by the thesis writers in the same pattern include *examine* (55 times), *investigate* (40 times), *explore* (31 times), *focus* (12 times) and *address* (11 times), which makes up 52% of all verbs in this pattern. Verbs such as *examine*, *investigate*, *report*, *explore*, *attempt to*, *describe*, *focus on*, *present* and *evaluate* were also found to occur frequently in the common construction *the/this* + *study/paper/article* + *examine/investigate/report* in the purpose

move of RAs (Santos, 1996; Martín, 2003; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014).

46% of the verbs in PEMF pattern 1 LPs in the article corpus were *show* (110 times), *suggest* (82 times), *indicate* (58 times), *demonstrate* (44 times) and *reveal* (38 times). The same verbs were also used commonly in the thesis corpus, which makes up 51% of the verbs in this pattern: *show* (79 times), *suggest* (63 times), *reveal* (39 times), *demonstrate* (35 times) and *indicate* (27 times). The frequently used verbs in the results move of RAs were reported to include verbs such as *find*, *observe, show, reveal, indicate*, *demonstrate* and *use* (Santos, 1996; Martín, 2003; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014).

The RA authors predominantly used the verb *discuss* (45 times) in the RPT pattern 2 LPs (80% of the verbs in RPT pattern 2) whereas 75% of the verbs in RPT pattern 2 in the thesis corpus consisted of the verbs d*iscuss* (15 times) and *make* (3 times).

6.5.3.4 Verb tenses in LPs by genre

The results regarding the use of verb tenses revealed that the present simple was the most preferred tense in all LP patterns (functions combined) in the RA and TA corpora. The article and thesis writers used the present simple predominantly in the RPT LPs of pattern 1 and 2 (over 87%) and in the ITT LPs of pattern 3 (over 88%).

The research article writers preferred mostly the present simple in ITT LPs of pattern 1 (70.6%), 2 (68.6%) and 3 (90.6%), SNR LPs of pattern 1 (83.3%), ATR LPs of pattern 1 (57.6%) and 3 (67.6%) and PEMF LPs of pattern 1 (53.1%). They preferred the past simple for ATR LPs of pattern 2 (73.3%), DTM LPs of pattern 1 (89.8%), 2 (91.4%) and 3 (71.4%) and PEMF LPs of pattern 2 (70.2%) and 3 (74.3%). The present perfect tense was also used in the ITT and SNR LPs of all three patterns. It was as frequent as the present simple in the SNR LPs of pattern 1 and 2.

These results are in agreement with those of previous research which demonstrated that research article authors used the present simple (Pho, 2008; Tankó, 2017) as well as the past tense (Santos, 1996; Pho, 2008; Tseng, 2011; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014) in the purpose move in abstracts.

In the results move of RAs, the use of past simple as well as the present tense were reported (Santos, 1996; Pho, 2008; Tseng, 2011; Saeeaw and Tangkiengsirisin, 2014).

The past tense was reported to be used predominantly in the method move of the RAs (Santos, 1996; Pho, 2008; Tseng, 2011; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014). Constructions using past passive verbs were also commonly found in the method move (Santos, 1996; Pho, 2008; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014).

The present simple and present perfect were also found to occur in the constructions of the introduction move in RAs (Santos, 1996; Pho, 2008; Tseng, 2011; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014; Tankó, 2017).

The thesis writers preferred the present simple in ITT LPs of pattern 1 (49.4%), 2 (67.6%) and 3 (88.9%) and ATR LPs of pattern 1 (61.6%) and 3 (79.7%). The past simple was used mostly in ATR LPs of pattern 2 (64%), DTM LPs of pattern 1 (68.8%), 2 (80%) and 3 (77.3%) and PEMF LPs of pattern 2 (65.8%) and 3 (67.3%). The present perfect was used predominantly in SNR LPs of all patterns (over 64%). It was the second common tense in ITT LPs of pattern 1 and 2 in the thesis corpus.

6.5.3.5 Complement in LPs by genre

The generic results for the complement types in LP patterns showed that NP was the most common type in pattern 1 LPs in the RA and TA corpora, Other two common types were prepositional phrases and *that*-clauses. All these three types occurred in similar amounts in the two corpora (when the functions combined).

The RA and TA writers used the prepositional phrase complements in roughly half of the LPs in pattern 2. About 10% of the pattern 2 LPs contained to-infinitive clauses in the two corpora whereas nearly one fifth of the pattern 2 LPs did not have any verb complements.

In less than half of the cases, a noun phrase appeared after a verb in pattern 3 LPs in the article and thesis corpora. The article writers (39.3%) used adjective phrases slightly more than the thesis writers (31.9%). To-infinitive clauses were used in about 10% of the pattern 3 LPs in the two corpora.

In a number of studies, *that*-complement clauses have been shown to occur commonly in constructions of the results move (Pho, 2008; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014) and those of the conclusion move (Suntara and Usaha, 2013; Piqué-Noguera, 2012) in RAs.

6.5.3.6 Summary

The results of the LP analysis showed that there were similarities between genres in the following areas.

- frequencies of LPs:
  - the overall frequency of LPs in the research article and doctoral thesis abstracts (88% in each corpus or 38.7 times per 1,000 words vs 37.9 times per 1,000 words)
  - the frequencies of ITT, SNR, DTM and RPT

- types of subject:
  - the amount of noun phrase subject in pattern 1 and 2 LPs
  - the amount of pronoun subjects in pattern 1, 2 and 3 LPs
  - the amount of other subject in pattern 1, 2 and 3 LPs

- head nouns in the subject position:

- the variability of the head nouns in the subject position of ATR and PEMF LPs of pattern 1
- the variability of the head nouns in the subject position of ITT and ATR LPs of pattern 2
- the variability of the head nouns in the subject position of ITT and DTM LPs of pattern 3

- verbs:
  - the variability of the verbs in ITT, ATR and PEMF LPs of pattern 1
  - the variability of the verbs in DTM and PEMF LPs of pattern 2

- verb tenses:
  - the proportion of the verb tenses in ATR, PEMF and RPT LPs of pattern 1
  - the proportion of the verb tenses in ITT and PEMF LPs of pattern 2
  - the proportion of the verb tenses in ITT LPs of pattern 3
  - the order of preference for the verb tenses in ITT, SNR, ATR, DTM, PEMF and RPT LPs of pattern 1
  - the order of preference for the verb tenses in ITT, ATR, DTM, PEMF and RPT LPs of pattern 2
  - the order of preference for the verb tenses in ITT, ATR, DTM and PEMF LPs of pattern 3

- complements:
  - the preference for the noun phrase in pattern 1 LPs
  - the preference for the prepositional phrase in pattern 2 LPs
  - the preference for the noun phrase and the adjective phrase in pattern 3 LPs
  - the proportion of noun phrases in ATR, DTM and PEMF LPs of pattern 1
  - the proportion of the prepositional phrases in SNR and ATR LPs of pattern 2
  - the proportion of the noun phrases in ATR and PEMF LPs of pattern 3
  - the proportion of adjective phrases in ATR, DTM and PEMF LPs of pattern 3

The results of the LP analysis showed that there were differences between genres in the following aspects.

- frequencies of LPs:
  - the frequencies of ATR and PEMF
  - the proportion of patterns 1, 2 and 3 LPs

- types of subject:
  - the amount of noun phrase subject in pattern 3 LPs
  - the amount of existential *there* in pattern 3 LPs

- head nouns in the subject position:
  - the variability of the head nouns in the subject position of ITT, SNR, DTM and RPT LPs of pattern 1
  - the variability of the head nouns in the subject position of SNR, DTM, PEMF and RPT LPs of pattern 2
  - the variability of the head nouns in the subject position of SNR, ATR and PEMF LPs of pattern 3

- verbs:
  - the variability of the verbs in SNR, DTM and RPT LPs of pattern 1
  - the variability of the verbs in ITT, SNR, ATR and RPT LPs of pattern 2

- verb tenses:
  - the proportion of the verb tenses in ITT, SNR and DTM LPs of pattern 1
  - the proportion of the verb tenses in SNR, ATR, DTM and RPT LPs of pattern 2
  - the proportion of the verb tenses in SNR, ATR, DTM and PEMF LPs of pattern 3
  - the order of preference for the verb tenses in SNR LPs of pattern 2

- the order of preference for the verb tenses in SNR LPs of pattern 3

- complements:
  - the proportion of noun phrases in ITT, SNR and RPT LPs of pattern 1
  - the proportion of the prepositional phrases in ITT, DTM, PEMF and RPT LPs of pattern 2
  - the proportion of the noun phrases in ITT, SNR and DTM LPs of pattern 3
  - the proportion of adjective phrases in ITT and SNR LPs of pattern 3

6.6 Summary of Chapter

In this chapter, we presented and discussed the results regarding the LP analysis. The use of LPs were compared between applied linguistics and psychology as well as between the research article and PhD thesis abstracts. The comparison of disciplines and genres focussed on the frequencies of LP patterns and the individual elements such as the type of subject, head nouns in the subject position, verbs and verb tenses and verb complements. Differences as well as similarities were found in these aspects between disciplines and genres.

In the next chapter, we will discuss the contributions made by this study and the limitations of the study and suggestions for future research.

CHAPTER SEVEN

CONCLUSION

7.1 Contributions made by this thesis

7.1.1 Introduction

This chapter focuses on the theoretical issues and methodological insights of the study related to macro-level discourse functions (MALDIFs) and lexical phrases. It also summarises the findings which show how the abstracts are described in terms of MALDIFs and lexical phrases. In the last two sections, we address pedagogical implications and limitations of the study, and give recommendations for further research.

The present study explored the macro-level discourse functions in abstracts and the lexical phrases distinctive to these MALDIFs. A corpus of abstracts from research articles and doctoral theses in applied linguistics and psychology was collected for this purpose. Two analyses were conducted to answer the following research questions: the analysis of MALDIFs in abstracts to answer the first two research questions; and the lexical phrase analysis to answer the third and fourth research questions.

1. Is there variation in macro-level discourse functions between applied linguistics and psychology abstracts in terms of frequency of occurrence, sequencing of use and cyclicity?
2. Is there variation in macro-level discourse functions between research article and thesis abstracts in terms of frequency of occurrence, sequencing of use and cyclicity?
3. Do LPs associated with particular discourse functions vary between applied linguistic and psychology abstracts?
4. Do LPs associated with particular discourse functions vary between research article and thesis abstracts?

7.1.2 Description of abstracts

The study described abstracts in terms of macro-level discourse functions and their

associated lexical phrases. It showed that there are similarities and differences in macro level discourse functions and lexical phrases between disciplines and genres.

Two functions were found to be predominantly used in all four corpora of abstracts: presenting and evaluating the main findings (PEMF) and announcing the research (ATR). Introducing the topic (ITT) was more important for psychologists while applied linguists made more descriptions of methodology. MALDIFs were very similar in the research article and thesis abstracts.

Applied linguists had a tendency to use more ATR patterns in abstracts, suggesting a focus on own research. Psychologists tended to start abstracts with ITT, which suggests an attempt to situate the research in the field of study. Research article and thesis writers preferred ATR patterns more in abstracts.

Psychology abstracts contained more functional cycles than applied linguistics abstracts. The thesis abstracts contained more than four times as many cycles as the research article abstracts.

The comparison of LP use by discipline revealed both similarities and differences between applied linguistics and psychology in terms of LP patterns and the obligatory elements.

The disciplinary and generic comparison of LP patterns showed similarities between disciplines in pattern totals (functions combined), but pointed to differences between RAs and TAs. The largest generic variation was seen in pattern 1 (9.80%). Pattern 1 LPs were found to be used more frequently compared to pattern 2 and 3 LPs in the comparative data of disciplines and genres.

The greatest degree of variability between disciplines and genres was found in PEMF. The widest range of differences for PEMF were seen in pattern 1 in the disciplinary as well as the generic data.

The disciplinary comparison presented variation in DTM LPs. Applied linguistics writers used at least twice more DTM LPs in all three patterns than psychologists did. The largest difference between disciplines was found in DTM pattern 2. DTM was the most frequent LP type in pattern 2 for applied linguistics. Another important generic difference was seen in ATR. ATR pattern 2 was three times more common in the TA corpus than in the RA corpus.

The comparison of subject types, NP subject, verb and verb complement also showed disciplinary and generic differences as well as similarities.

7.1.3 Methodological insights

The present study has made some contributions to genre research and the study of academic discourse in terms of the model of analysis and the identification of lexical phrases.

This study proposed a model of analysis (the MALDIF model) for research article and thesis abstracts, which has a number of advantages for the analysis of macro-level discourse functions and lexical phrases in abstracts. Firstly, the MALDIF model was designed to reveal the macro-level discourse functions in abstracts. These functions are closely associated with the initial elements in independent clauses which constitute the unit of analysis for the macro-level discourse functions in abstracts. The MALDIFs match pretty well with sentence builder lexical phrases which form the second dimension of this study. The initial elements in an independent clause are where the sentence builder type of lexical phrases might be residing. Therefore, the MALDIF model targets to analyse sentence builder lexical phrases as well as the MALDIFs in abstracts.

Secondly, the MALDIF model presents linear categories which uses functional terms. The functional terms save the categories from being vague. They are transparent terms which clearly show what a category is about.

Thirdly, the study has a clearly defined unit of analysis, which is the independent clause. In this respect, it diverges from the rhetorical moves which might be a few words as well as a

paragraph. Narrowing down the unit of analysis to independent clause serves well the aims of this study since, as mentioned above, the MALDIFs and lexical phrases are closely associated with the initial elements in independent clauses. It also made it possible to conduct an easier analysis of MALDIFs and lexical phrases.

This study also contributes to the identification of lexical phrases in abstracts. First, it proposed a function-first approach in the analysis of lexical phrases, which made it possible to look for lexical phrases in a functional category rather than in the whole corpus. A function-first approach helped to identify the independent clause within its context. This is thought to prevent inaccurate analyses which might occur in a post-function identification following lexical phrase analysis where the lexical phrases are dragged out of their context. A function-first approach to linguistic patterns has also been used in previous studies. Durrant and Mathews-Aydınlı (2011) took a function-first approach; they first identified the rhetorical moves in MA student essays and research article introductions, and then identified the forms associated with particular moves. Similar functional analyses have also been used in the analysis of rhetorical moves in abstracts (Santos, 1996; Martín, 2003; Pho, 2008; Breeze, 2009; Tseng, 2011; Piqué-Noguera, 2012; Suntara and Usaha, 2013; Saeeaw and Tangkiengsirisin, 2014; Tankó, 2017). The approach in these studies consisted similarly of identifying the rhetorical moves in abstracts and then identifying the linguistic features associated with particular moves.

Second, the study also proposed a simple way of analysis for lexical phrases. Sentence builder lexical phrases are complex patterns which include substantial degrees of variation. One way of analysing lexical phrases is grouping repeating strings together. However, it is quite difficult to find words occurring together frequently in abstracts. Another way is a grouping by repeating words. Even if we find repeating words in, for example, subject position, the other elements vary considerably. In other words, whatever element we choose to base the groping, the other elements will vary. Such a grouping decreases the frequency of lexical phrases for a particular group which creates problems in terms of disciplinary and generic comparison of lexical phrases. In order to overcome these obstacles, we used a

simplified grouping by verb type. This is related to verb voice as well as the verb be. This grouping gave us three lexical phrase patterns: pattern 1 with the active voice, pattern 2 with the passive voice, and pattern 3 with verb be. Each of the six LP types (the MALDIF categories) contained three patterns. This method of grouping allowed variation in each type of element (such as verb and subject) in a pattern which has similar lexical phrases in terms of structure and function.

7.1.4 Theoretical issues

In this section, we will address two issues which are related to the status of abstracts in the genre research and the definition of lexical phrases.

My aim in investigating MALDIFs in abstracts was not to determine if abstracts were a separate genre, that is, a genre which is not a part genre within the research article and thesis. My aim was to describe abstracts in terms of MALDIFs and lexical phrases and to explore if there was variation in MALDIFs and lexical phrases between disciplines (applied linguistics and psychology) and genres (research article abstracts and PhD thesis abstracts). However, the MALDIF analysis produced results that we can refer to in discussing the status of abstracts as a 'genre' in academic discourse or a 'part-genre' within the research article or the PhD thesis.

The idea behind the argument that the abstract is a part-genre lies in the perception that the abstract is a part of the full text, which is the research article or the doctoral thesis. In this view (Swales and Feak, 2009), the abstract is a synopsis of the full text (e.g. Lorés, 2004; Golebiowski, 2009; Ansarifar et al., 2018). In such a summary model abstract, the structure of the abstract is expected to match the full text. It is also expected that all abstracts should contain functions which represent the sections in a research article or thesis and these functions should mirror the sequential order of the sections of the article or thesis. However, the results of this study showed that the abstracts did not contain all the functions nor did they follow the order of the sections of the article or thesis.

The corpus of abstracts in the present study contained three functions which are related to the introductory sections of the articles and theses: ITT, SNR and ATR. The most frequently occurring one of these was ATR, which occurred in 91% of the article corpus and 97% of the thesis corpus. Only half of the article and thesis abstracts contained an introduction (52% vs 53%) and SNR appeared in less than a quarter of the abstracts (16% vs 22%). DTM, which is related to the method section, was used by roughly half of the writers (49% in the RA corpus and 52% in the TA corpus). PEMF, which is related to the findings and conclusion sections, also did not occurred in all the article and thesis abstracts (98% vs 93%). RPT seems to be unique to abstracts. It is worth mentioning here that RPT fulfils two functions in abstracts: indicating the structure of the thesis and referring to parts of texts. Although the introduction section of the theses contains sentences describing the structure of the thesis, it is hard to say that RPT is related to a section of research articles.

The results of the present study showed that there were five common sequential patterns in the abstracts:

- ITT [SNR] ATR-DTM-PEMF [RPT]
- ITT [SNR] ATR-PEMF [RPT]
- ITT [SNR] PEMF [RPT]
- ATR [ITT/SNR] DTM-PEMF [RPT]
- ATR [ITT/SNR] PEMF [RPT]

The first one of these patterns contains all the MALDIF functions and also follows the same order of sections in the articles and theses. In others, we can see either missing functions or different orders of functions. Apart from these five common patterns, the results also showed that 11% of the research article abstracts and 21% of the thesis abstracts did not follow any particular sequential pattern.

Missing moves have also been reported in previous studies. The results move was found to range between 41% and 100% (Hyland, 2000; Martín, 2003; Tankó, 2017). For purpose

move, percentages between 57% and 100% were reported in abstracts (Santos, 1996; Hyland, 2000; Pho, 2008; Tseng, 2011; Doró, 2013; Suntara and Usaha, 2013). An introduction was reported to occur in 60% (on average) of the soft-science abstracts (Pho, 2008; Suntara and Usaha, 2013; Can et al., 2016; Tankó, 2017) and in 37% (on average) of the hard-science abstracts (Hyland, 2000; Samraj, 2005; Saeeaw and Tangkiengsirisin, 2014;). The method move was found in 75% (on average) of the soft disciplines (Breeze, 2009; Ren and Li, 2011; Piqué-Noguera, 2012; Suntara and Usaha, 2013) and in 70% (on average) of the hard disciplines (Hyland, 2000; Samraj, 2005; Saeeaw and Tangkiengsirisin, 2014). Finally, previous studies have found that conclusion appeared in 53% of the abstracts (on average) (Santos, 1996; Hyland, 2000; Ren and Li, 2011; Tseng, 2011; Doró, 2013; Kanoksilapatham, 2013; Suntara and Usaha, 2013).

All these results point to generic preferences in the use of functions and sequencing of those functions in abstracts, which suggests that the writers' purpose of writing an abstract is not to summarise the article or thesis. Hyland (2000: 64) argues that abstracts differ from the research article in their purpose, rhetorical structure and persuasive motivation. He goes on to argue that the abstract functions to persuade the reader to read the accompanying text. Samraj (2005) also argues that abstracts are not a summary of the associated text, on the basis that the method move was used by only half of the abstract writers in her study.

The second issue that I would like to discuss is related to the need to redefine lexical phrases according to research purposes. In their seminal work, Nattinger and DeCarrico (1992: 1) define lexical phrases as:

> 'chunks' of language of varying length, phrases like *as it were*, *on the other hand*, as *X would have us believe*, and so on. As such, they are multi-word lexical phenomena that exist somewhere between the traditional poles of lexicon and syntax, conventionalized form/function composites that occur more frequently and have more idiomatically determined meaning than language that is put together each time. These phrases include short, relatively fixed phrases such as *a* ____ *ago*, or longer phrases or clauses such as *if I X, then I Y*, *the* ____*er X*, *the* ____*er Y*, each with a fixed, basic frame, with slots for various

> fillers (*a year ago*, *a month ago*, *the higher X*, *the higher Y*, *the longer you wait*, *the sleepier you get*). Each is associated with a particular discourse function such as expressing time, *a month ago*, or relationships among ideas, *the higher X*, *the higher Y*.

Nattinger and DeCarrico's (1992) definition of the term 'lexical phrase' is a good starting point to use in an analysis of lexical phrases; however, it is too broad and it is not genre-specific. In this study, a specific definition of lexical phrases was formulated. The definition targets only sentence builder lexical phrases in the abstract genre. It specifies what such a lexical phrase includes:

> A sentence builder lexical phrase in abstracts forms the structure of an independent clause. Lexical phrases are word strings which consist of a combination of content and function words. These strings constitute a meaningful unit and are distinctive to a macro-level discourse function in abstracts. Obligatory elements are subject and verb as well as complement depending on the verb. A lexical phrase may include many optional points such as pre-modifier or post-modifier of a noun in the subject position, or adverbs before verbs. A lexical phrase allows insertion of additional words within a phrase and variation in both the obligatory and optional elements.

Genre-specific definitions are important to clarify the type of patterns which a researcher chooses to focus on in the investigation of a given genre. The definition above made it clear that the lexical phrase that we were interested in this study was the sentence builder type which was distinctive to macro-level discourse functions in scientific abstracts. Specifying the lexical phrase in this way helped to determine the boundaries of the analysis. The definition implies the criteria for lexical phrases. A lexical phrase in the present study:

- should be a sentence builder
- should form the structure of an independent clause
- should consist of a combination of content and function words
- should constitute a meaningful unit
- should be distinctive to a macro-level discourse function in abstracts

- should have obligatory elements which are subject and verb (and complement depending on the verb)
- might include optional points (e.g. pre-modifier or post-modifier of a noun in the subject position, or adverbs before verbs)
- allows insertion of additional words within a phrase
- allows variation in the obligatory and optional elements

In this study, we investigated the sentence builder type of lexical phrase which was distinctive to a MALDIF. This type of LP was chosen in this study because it is parallel to the independent clause, which was the unit of analysis in the MALDIF analysis. This decision enabled us to look for sentence builder LPs in independent clauses with a MALDIF function. The type of the LP and the discourse functions that we were interested in abstracts determined how to define the lexical phrase in the present study. It is clear that the definition of LPs should be reconsidered according to the type of LP, functions and genres.

7.1.5 Pedagogical implications

The MALDIF model might be used in EAP courses to train master's and PhD students and early career researchers about abstracts using different MALDIF sequences as well as lexical phrases associated with those MALDIFs. This will help them to learn their disciplinary conventions related to MALDIFs and lexical phrases, which is advantageous in improving academic reading and writing skills.

Disciplinary conventions also bring with them the disciplinary epistemologies. A mastery of these conventions makes it easier to understand the knowledge and concepts related to a particular research area. Learning the conventional usages carrying disciplinary knowledge also improves academic reading skills. It enables faster and better reading. Reading more abstracts in a short time will keep the researcher up-to-date on research in his disciplinary area.

MALDIFs and lexical phrases also enable an easier writing. A training in MALDIF structures and lexical phrases in one's disciplinary area will help him to acquire the conventional sequences and lexical phrases in that area and this will probably lead to a better abstract writing. An abstract which is written using the conventions of the discourse community draws the reader's attention more easily. This encourages the reader to read further when the associated text is accessible. It may also increase the chance for the study be cited, which makes the research recognised in the discourse community.

7.2 Limitations and future research

In this study, we limited the unit of analysis in identifying MALDIFs to the independent clause and counted each independent clause as one instance of a function. An alternative way of analysis which includes assigning more than one function to each clause would cause the same clause to appear in more than one functional category. In the case that the data contains a great number of these clauses with multiple functions, then it may cause that we do not find any difference between the lexical phrases of different functions. By adopting a single-function approach, we maximized the linguistic homogeneity among functions. As each function in a multi-function clause was often realised by a different part of the clause this did not necessarily result in incorrect analysis. Yet, it, to a small extent, led to an underanalysis of functions expressed in subordinate clauses or phrases. However, lexical phrases involved in subordinate clauses or phrases are of different types from the sentence builder type, and therefore out of the scope of the present study. In future studies, different units of analysis corresponding to such units could be selected for more detailed descriptions of lexical phrases. Using different units of analysis might be more appropriate for micro-level discourse functions such as exemplifier, summariser and topic shifter as well as for other types of lexical phrase in future studies. The independent clause helped to investigate the macro-level discourse functions in abstracts and the sentence builder type of lexical phrase which is distinctive to these functions. The structures of the independent clause, macro-level discourse function and a sentence builder lexical phrase presented a good match which made an easy and accurate analysis of the MALDIFs and LPs. Units such as the subordinate clause or noun phrase are expected to reveal different discourse functions

as well as different types of lexical phrase such as polywords (e.g. *in essence* as a summariser) and phrasal constraints (e.g. *for instance / example* as an exemplifier).

In the lexical phrase analysis, we used one way comparisons of lexical phrases between disciplines. In this comparison, disciplinary subsections of the corpora contained research article abstracts as well as thesis abstracts. Again we did generic comparison of lexical phrases by combining firstly research article abstracts of applied linguistics and psychology and then the thesis abstracts of these two disciplines. These comparisons show disciplinary and generic variation in lexical phrases in our abstracts corpora, but it fails to show how the lexical phrases in the thesis abstracts in a single discipline are different from those in the research article abstracts in the same discipline. Further research should use two-way comparisons to address variations of lexical phrases between research article and thesis abstracts within a discipline and should compare the differences found with those for other disciplines. This will better show how thesis writers differ from research article writers in the use of lexical phrases within a particular discipline. Carrying out analysis using this method within each discipline enables a better comparison across disciplines and it helps to see how these differences are parallel to or distinct from those in other disciplines.

The size of some functional categories (SNR and RPT) were not big enough to make strong generalisations about the patterns found. The size limits was a result of a concern that would increase the excessive load of manual analysis of MALDIF. The future research might focus on a single function in a larger data.

Future research is recommended to expand the number of disciplines and genres. This study focussed on only applied linguistics and psychology abstracts. Even these two soft knowledge disciplines, which are quite similar, showed differences in terms of MALDIFs and lexical phrases. The future studies should explore MALDIFs and lexical phrases in other disciplines from the soft-knowledge fields as well as from the hard knowledge domain.

In this study, we concentrated on only research article and thesis abstracts. In future research, a descriptive study of MALDIFs and LPs might be conducted on different sections of the research articles and theses. This may result in functions as well as functional models of lexical phrases which are specific to particular sections.

APPENDICES

Appendix 2.1 Terms used to refer to formulaic language *

-academic clusters	-gambits	-phraseological patterns
-amalgams	-gestalt	-praxons
-automatic	-holistic	-preassembled speech
-chunks	-holophrases	-prefabricated routines and patterns
-clichés	-idiomatic	-ready-made expressions
-co-ordinate constructions	-idioms	-ready-made utterances
-collocations	-institutionalized utterances	-recurring utterances
-composites	-irregular	-rote
-conventionalized language forms	-lexical bundles	-routine formulae
- Corpus-derived recurrent clusters	-lexical chunks	-schemata
-FEI [fixed expressions including idioms]	-lexical phrases	-semi-preconstructed phrases that constitute single choices
-fixed expressions	-lexicalized phrases	-sentence builders
-formulaic expressions	-lexicalized sentence stems	-stable and familiar expressions with specialized subsenses
-formulaic language	- Morpheme equivalent unit (MEU)	-stereotyped phrases
-formulaic sequence	-multiword items	-stereotypes
-formulaic speech	-multiword units	-stock utterances
-formulas/formulae	-non-compositional	-synthetic
-fossilized forms	-non-computational	-unanalysed chunks of speech
-frozen metaphors	-non-productive	
-frozen phrases	-non-propositional	
	-patterns	
	-petrifications	

* This is an adapted list from Wray (2000).

Appendix 3.1 The ALRA Corpus

Code	Journal	Year /Volume /Issue	Pages	Author(s)	Title
AAAL001	Applied Linguistics	2010 / 31 / 2	282 - 300	Gary Barkhuizen	An Extended Positioning Analysis of a Pre-Service Teacher's *Better Life* Small Story
AAAL002	Applied Linguistics	2010 / 31 / 2	260 - 281	Phoenix W. Y. Lam	Discourse Particles in Corpus Data and Textbooks: The Case of *Well*
AAAL003	Applied Linguistics	2010 / 31 / 2	236 - 259	Guoxing Yu	Lexical Diversity in Writing and Speaking Task Performances
AAAL004	Applied Linguistics	2010 / 31 / 2	193 - 214	John Bitchener & Ute Knoch	The Contribution of Written Corrective Feedback to Language Development: A Ten Month Investigation
AAAL005	Applied Linguistics	2010 / 31 / 1	136 - 155	Jin-Hwa Lee	A Subject–Object Asymmetry in the Comprehension of *wh*-Questions by Korean Learners of English
AAAL006	Applied Linguistics	2010 / 31 / 1	94 - 114	Leendert Plug & Basil Sharrack & Markus Reuber	Seizure, Fit or Attack? The Use of Diagnostic Labels by Patients with Epileptic or Non-epileptic Seizures
AAAL007	Applied Linguistics	2010 / 31 / 1	45 - 71	Noriko Iwasaki	Style Shifts among Japanese Learners before and after Study Abroad in Japan: Becoming Active Social Agents in Japanese
AAAL008	Applied Linguistics	2010 / 31 / 1	25 - 44	Julie Radford	Practices of Other-Initiated Repair in the Classrooms of Children with Specific Speech and Language Difficulties
AAAL009	Applied Linguistics	2010 / 31 / 1	1 – 24	Ling Shi	Textual Appropriation and Citing Behaviors of University Undergraduates
AAAL010	Applied Linguistics	2009 / 30 / 3	358 - 388	Simon Borg	English Language Teachers' Conceptions of Research
AAAL011	Applied Linguistics	2009 / 30 / 3	335 - 357	Søren W. Eskildsen	Constructing another Language—Usage-Based Linguistics in Second Language Acquisition

AAAL012	Applied Linguistics	2009 / 30 / 3	315 - 334	Zhengdong Gan & Chris Davison & Liz Hamp-Lyons	Topic Negotiation in Peer Group Oral Assessment Situations: A Conversation Analytic Approach
AAAL013	Applied Linguistics	2009 / 30 / 2	253 - 275	Machiko Tomiyama	Age and Proficiency in L2 Attrition: Data from Two Siblings
AAAL014	Applied Linguistics	2009 / 30 / 2	236 - 252	Winnie Cheng & Chris Greaves & John Mch. Sinclair & Martin Warren	Uncovering the Extent of the Phraseological Tendency: Towards a Systematic Analysis of Concgrams
AAAL015	Applied Linguistics	2009 / 30 / 2	216 - 235	Kimberly Anne Brooks-Lewis	Adult Learners' Perceptions of the Incorporation of their L1 in Foreign Language Teaching and Learning
AAAL016	Applied Linguistics	2009 / 30 / 2	186 - 215	John Hellermann & Elizabeth Cole	Practices for Social Interaction in the Language-Learning Classroom: Disengagements from Dyadic Task Interaction
AAAL017	Applied Linguistics	2009 / 30 / 2	166 - 185	Kata Csizér & Judit Kormos	Modelling the Role of Inter-Cultural Contact in the Motivation of Learning English as a Foreign Language
AAAL018	Applied Linguistics	2009 / 30 / 1	93 - 114	Jieun Lee	Interpreting Inexplicit Language during Courtroom Examination
AAAL019	Applied Linguistics	2009 / 30 / 1	49 - 69	Cade Bushnell	'Lego my keego!': An Analysis of Language Play in a Beginning Japanese as a Foreign Language Classroom
AAAL020	Applied Linguistics	2009 / 30 / 1	26 - 48	Asta Cekaite	Soliciting Teacher Attention in an L2 Classroom: Affect Displays, Classroom Artefacts, and Embodied Action
AAAL021	Applied Linguistics	2009 / 30 / 1	1 – 25	Masahiro Takimoto	The Effects of Input-Based Tasks on the Development of Learners' Pragmatic Proficiency
AAAL022	Applied Linguistics	2008 / 29 / 4	694 - 716	Batia Laufer & Nany Girsai	Form-focused Instruction in Second Language Vocabulary Learning: A Case for Contrastive Analysis and Translation
AAAL023	Applied Linguistics	2008 / 29 / 4	619 - 644	Steven Talmy	The Cultural Productions of the ESL Student at Tradewinds High: Contingency, Multidirectionality, and Identity in L2 Socialization

AAAL024	Applied Linguistics	2008 / 29 / 4	555 - 577	Polly Björk-Willén	Routine Trouble: How Preschool Children Participate in Multilingual Instruction
AAAL025	Applied Linguistics	2008 / 29 / 3	428 - 455	Graham Low & Jeannette Littlemore & Almut Koester	Metaphor Use in Three UK University Lectures
AAAL026	Applied Linguistics	2008 / 29 / 3	404 - 427	Numa Markee	Toward a Learning Behavior Tracking Methodology for CA-for-SLA
AAAL027	Applied Linguistics	2008 / 29 / 3	381 - 403	Thomas S. C. Farrell & Serena Tan Kiat Kun	Language Policy, Language Teachers' Beliefs, and Classroom Practices
AAAL028	Applied Linguistics	2008 / 29 / 3	339 - 358	Eton Churchill	A Dynamic Systems Account of Learning a Word: From Ecology to Form Relations
AAAL029	Applied Linguistics	2008 / 29 / 2	290 - 311	Stephen J. Caldas	Changing Bilingual Self-Perceptions from Early Adolescence to Early Adulthood: Empirical Evidence from a Mixed-Methods Case Study
AAAL030	Applied Linguistics	2008 / 29 / 2	267 - 289	Julia Menard-Warwick	'Because She Made Beds. Every Day'. Social Positioning, Classroom Discourse, and Language Learning
AAAL031	Applied Linguistics	2008 / 29 / 2	244 - 266	Michelle Y. Szpara & E. Caroline Wylie	Writing Differences in Teacher Performance Assessments: An Investigation of African American Language and Edited American English
AAAL032	Applied Linguistics	2008 / 29 / 2	223 - 243	Nelya Koteyko & Brigitte Nerlich & Paul Crawford & Nick Wright	'Not rocket science' or 'No silver bullet'? Media and Government Discourses about MRSA and Cleanliness
AAAL033	Applied Linguistics	2008 / 29 / 2	200 - 222	Seth Lindstromberg & Frank Boers	The Mnemonic Effect of Noticing Alliteration in Lexical Chunks
AAAL034	Applied Linguistics	2008 / 29 / 2	173 - 199	Karen Roehr	Metalinguistic Knowledge and Language Ability in University-Level L2 Learners
AAAL035	Applied Linguistics	2008 / 29 / 1	120–148	Adela Gánem Gutiérrez	Microgenesis, *Method* and *Object:* A Study of Collaborative Activity in a Spanish as a Foreign Language Classroom

AAAL036	Applied Linguistics	2008 / 29 / 1	50–71	An Cheng	Analyzing Genre Exemplars in Preparation for Writing: The Case of an L2 Graduate Student in the ESP Genre-based Instructional Framework of Academic Literacy
AAAL037	Applied Linguistics	2007 / 28 / 3	440–465	John Flowerdew & Yongyan Li	Language Re-use among Chinese Apprentice Scientists Writing for Publication
AAAL038	Applied Linguistics	2007 / 28 / 3	410–439	Loretta Fung & Ronald Carter	Discourse Markers and Spoken English: Native and Learner Use in Pedagogic Settings
AAAL039	Applied Linguistics	2007 / 28 / 3	383–409	J. Charles Alderson	Judging the Frequency of English Words
AAAL040	Applied Linguistics	2007 / 28 / 3	339–360	Jae-Eun Park	Co-construction of Nonnative Speaker Identity in Cross-cultural Interaction
AAESP001	English for Specific Purposes	2010 / 29 / 4	281–295	Mary Jane Curry & Theresa M. Lillis	Academic research networks: Accessing resources for English-medium publishing
AAESP002	English for Specific Purposes	2010 / 29 / 4	268–280	Belinda Crawford Camiciottoli	Meeting the challenges of European student mobility: Preparing Italian Erasmus students for business lectures in English
AAESP003	English for Specific Purposes	2010 / 29 / 4	253–267	Réka Jablonkai	English *in the context of* European integration: A corpus-driven analysis of lexical bundles in English EU documents
AAESP004	English for Specific Purposes	2010 / 29 / 4	243–252	Séverine Wozniak	Language needs analysis from a perspective of international professional mobility: The case of French mountain guides
AAESP005	English for Specific Purposes	2010 / 29 / 4	225–242	Brigitte Planken & Frank van Meurs & Ania Radlinska	The effects of the use of English in Polish product advertisements: Implications for English for business purposes
AAESP006	English for Specific Purposes	2010 / 29 / 3	191–203	Anne Kari Bjørge	Conflict or cooperation: The use of backchannelling in ELF negotiations
AAESP007	English for Specific Purposes	2010 / 29 / 3	168–182	Hafizoah Kassim & Fatimah Ali	English communicative events and skills needed at the workplace: Feedback from the industry

AAESP008	English for Specific Purposes	2010 / 29 / 3	153–167	Stephen Evans	Business as usual: The use of English in the professional world in Hong Kong
AAESP009	English for Specific Purposes	2010 / 29 / 2	133–147	Mark Andrew James	Transfer climate and EAP education: Students' perceptions of challenges to learning transfer
AAESP010	English for Specific Purposes	2010 / 29 / 2	121–132	Stephen Bremner	Collaborative writing: Bridging the gap between the textbook and the workplace
AAESP011	English for Specific Purposes	2010 / 29 / 2	94–107	Jonathon Reinhardt	Directives in office hour consultations: A corpus-informed investigation of learner and expert usage
AAESP012	English for Specific Purposes	2010 / 29 / 1	54–67	Nigel Harwood & Liz Austin &Rowena Macaulay	Ethics and integrity in proofreading: Findings from an interview-based study
AAESP013	English for Specific Purposes	2010 / 29 / 1	30–42	Hanna Skorczynska Sznajder	A corpus-based evaluation of metaphors in a business English textbook
AAESP014	English for Specific Purposes	2010 / 29 / 1	4–18	Rebecca Hincks	Speaking rate and information content in English lingua franca oral presentations
AAESP015	English for Specific Purposes	2009 / 28 / 4	266–278	Chamnong Kaewpet	Communication needs of Thai civil engineering students
AAESP016	English for Specific Purposes	2009 / 28 / 4	251–265	Elena Sheldon	From one *I* to another: Discursive construction of self-representation in English and Castilian Spanish research articles
AAESP017	English for Specific Purposes	2009 / 28 / 4	240–250	Eliana Hirano	Research article introductions in English for specific purposes: A comparison between Brazilian Portuguese and English
AAESP018	English for Specific Purposes	2009 / 28 / 4	230–239	Dong Wan Cho	Science journal paper writing in an EFL context: The case of Korea
AAESP019	English for Specific Purposes	2009 / 28 / 4	217–229	Janne Morton	Genre and disciplinary competence: A case study of contextualisation in an academic speech genre
AAESP020	English for Specific Purposes	2009 / 28 / 3	199–210	Anna Trebits	Conjunctive cohesion in English language EU documents – A corpus-based analysis and its implications

AAESP021	English for Specific Purposes	2009 / 28 / 3	183–198	Iliana A. Martínez & Silvia C. Beck & Carolina B. Panza	Academic vocabulary in agriculture research articles: A corpus-based study
AAESP022	English for Specific Purposes	2009 / 28 / 3	170–182	Jeremy Ward	A basic engineering English word list for less proficient foundation engineering undergraduates
AAESP023	English for Specific Purposes	2009 / 28 / 3	157–169	Philip Durrant	Investigating the viability of a collocation list for students of English for academic purposes
AAESP024	English for Specific Purposes	2009 / 28 / 3	142–156	Given Lee	Speaking up: Six Korean students' oral participation in class discussions in US graduate seminars
AAESP025	English for Specific Purposes	2009 / 28 / 2	105–124	Ian Bruce	Results sections in sociology and organic chemistry articles: A genre analysis
AAESP026	English for Specific Purposes	2009 / 28 / 2	93–104	Li-Juan Li & Guang-Chun Ge	Genre analysis: Structural and linguistic evolution of the English-medium medical research article (1985–2004)
AAESP027	English for Specific Purposes	2009 / 28 / 1	58–68	Elena Afros & Catherine F. Schryer	Promotional (meta)discourse in research articles in language and literary studies
AAESP028	English for Specific Purposes	2009 / 28 / 1	42–57	Joseph J. Lee	Size matters: an exploratory comparison of small- and large-class university lecture introductions
AAESP029	English for Specific Purposes	2009 / 28 / 1	33–41	Viphavee Vongpumivitch & Ju-yu Huang & Yu-Chia Chang	Frequency analysis of the words in the Academic Word List (AWL) and non-AWL content words in applied linguistics research papers
AAESP030	English for Specific Purposes	2009 / 28 / 1	19–32	HuiDan Wu & Richard G. Badger	In a strange and uncharted land: ESP teachers' strategies for dealing with unpredicted problems in subject knowledge during class
AAESP031	English for Specific Purposes	2009 / 28 / 1	4–18	Astrid Jensen	Discourse strategies in professional e-mail negotiation: a case study
AAESP032	English for Specific Purposes	2008 / 27 / 4	424–441	Jane Lung	Discursive hierarchical patterning in Law and Management cases
AAESP033	English for Specific Purposes	2008 / 27 / 4	371–386	Susanne Tietze	The work of management academics: An English language perspective

AAESP034	English for Specific Purposes	2008 / 27 / 3	338–360	Pamela Rogerson-Revell	Participation and performance in international business meetings
AAESP035	English for Specific Purposes	2008 / 27 / 2	233–252	Dacia Dressen-Hammouda	From novice to disciplinary expert: Disciplinary identity and genre mastery
AAESP036	English for Specific Purposes	2008 / 27 / 2	212–232	Davide Simone Giannoni	Popularizing features in English journal editorials
AAESP037	English for Specific Purposes	2008 / 27 / 2	193–211	Betty Samraj & Lenore Monk	The statement of purpose in graduate program applications: Genre structure and disciplinary variation
AAESP038	English for Specific Purposes	2008 / 27 / 2	175–192	Sunny Hyon	Convention and inventiveness in an occluded academic genre: A case study of retention–promotion–tenure reports
AAESP039	English for Specific Purposes	2008 / 27 / 2	143–160	Ken Hyland	'Small bits of textual material': A discourse analysis of Swales' writing
AAESP040	English for Specific Purposes	2008 / 27 / 2	74–93	Nahla Nola Bacha & Rima Bahous	Contrasting views of business students' writing needs in an EFL environment
AALL001	Language Learning	2010 / 60 / 2	470–497	Larry Vandergrift & Marzieh H. Tafaghodtari	Teaching L2 Learners How to Listen Does Make a Difference: An Empirical Study
AALL002	Language Learning	2010 / 60 / 2	446–469	Yanli Yuan & Dan Woltz & Robert Zheng	Cross-Language Priming of Word Meaning During Second Language Sentence Comprehension
AALL003	Language Learning	2010 / 60 / 2	366–408	Xiaoshi Li	Sociolinguistic Variation in the Speech of Learners of Chinese as a Second Language
AALL004	Language Learning	2009 / 59 / 4	866–896	Pauline Foster & Parvaneh Tavakoli	Native Speakers and Task Performance: Comparing Effects on Complexity, Fluency, and Lexical Diversity
AALL005	Language Learning	2009 / 59 / 4	825–865	Youn-Hee Kim & Eunice Eunhee Jang	Differential Functioning of Reading Subskills on the OSSLT for L1 and ELL Students: A Multidimensionality Model-Based DBF/DIF Approach
AALL006	Language Learning	2009 / 59 / 4	796–824	Hansun Zhang Waring	Moving out of IRF (Initiation-Response-Feedback): A Single Case Analysis

AALL007	Language Learning	2009 / 59 / 4	755–795	Kathleen Bardovi-Harlig	Conventional Expressions as a Pragmalinguistic Resource: Recognition and Production of Conventional Expressions in L2 Pragmatics
AALL008	Language Learning	2009 / 59 / 3	647–686	Tatiana M. Nekrasova	English L1 and L2 Speakers' Knowledge of Lexical Bundles
AALL009	Language Learning	2009 / 59 / 3	623–646	Claudio Tonzar & Lorella Lotto & Remo Job	L2 Vocabulary Acquisition in Children: Effects of Learning Method and Cognate Status
AALL010	Language Learning	2009 / 59 / 3	581–621	D. Victoria Rau & Hui-Huan Ann Chang & Elaine E. Tarone	Think or Sink: Chinese Learners' Acquisition of the English Voiceless Interdental Fricative
AALL011	Language Learning	2009 / 59 / 3	503–535	Gregory D. Keating	Sensitivity to Violations of Gender Agreement in Native and Nonnative Spanish: An Eye-Movement Investigation
AALL012	Language Learning	2009 / 59 / 2	453–498	Roy Lyster & Jesús Izquierdo	Prompts Versus Recasts in Dyadic Interaction
AALL013	Language Learning	2009 / 59 / 2	411–452	Hossein Nassaji	Effects of Recasts and Elicitations in Dyadic Interaction and the Role of Feedback Explicitness
AALL014	Language Learning	2009 / 59 / 2	367–409	Aoju Chen	Perception of Paralinguistic Intonational Meaning in a Second Language
AALL015	Language Learning	2009 / 59 / 2	307–334	Scott Crossley & Tom Salsbury & Danielle McNamara	Measuring L2 Lexical Growth Using Hypernymic Relationships
AALL016	Language Learning	2009 / 59 / 1	203–243	Richard Sparks & Jon Patton & Leonore Ganschow & Nancy Humbach	Long-Term Crosslinguistic Transfer of Skills From L1 to L2
AALL017	Language Learning	2009 / 59 / 1	153–202	Christopher J. Hall & Denise Newbrand & Peter Ecke & Ulrike Sperr & Vanessa Marchand & Lisa Hayes	Learners' Implicit Assumptions About Syntactic Frames in New L3 Words: The Role of Cognates, Typological Proximity, and L2 Status
AALL018	Language Learning	2009 / 59 / 1	1–31	Kenneth J. de Jong & Noah H. Silbert & Hanyong Park	Generalization Across Segments in Second Language Consonant Identification

AALL019	Language Learning	2008 / 58 / 4	911–960	Jean-Marc Dewaele & K. V. Petrides & Adrian Furnham	Effects of Trait Emotional Intelligence and Sociobiographical Variables on Communicative Anxiety and Foreign Language Anxiety Among Adult Multilinguals: A Review and Empirical Investigation
AALL020	Language Learning	2008 / 58 / 4	875–909	Carrie Jackson	Proficiency Level and the Interaction of Lexical and Morphosyntactic Information During L2 Sentence Processing
AALL021	Language Learning	2008 / 58 / 4	835–874	Younghee Sheen	Recasts, Language Anxiety, Modified Output, and L2 Learning
AALL022	Language Learning	2008 / 58 / 4	785–834	Alejandro A. Lazarte & Sue Barry	Syntactic Complexity and L2 Academic Immersion Effects on Readers' Recall and Pausing Strategies for English and Spanish Texts
AALL023	Language Learning	2008 / 58 / 4	747–783	Suzanne Graham & Ernesto Macaro	Strategy Instruction in Listening for Lower-Intermediate Learners of French
AALL024	Language Learning	2008 / 58 / 4	703–746	Vera Kempe & Patricia J. Brooks	Second Language Learning of Complex Inflectional Systems
AALL025	Language Learning	2008 / 58 / 3	665–695	Ronald P. Leow & Hui-Chen Hsieh & Nina Moreno	Attention to Form and Meaning Revisited
AALL026	Language Learning	2008 / 58 / 3	625–663	Sun-Young Lee	Argument-Adjunct Asymmetry in the Acquisition of Inversion in Wh-Questions by Korean Learners of English
AALL027	Language Learning	2008 / 58 / 3	597–624	Gábor Kovács & Mihály Racsmány	Handling L2 Input in Phonological STM: The Effect of Non-L1 Phonetic Segments and Non-L1 Phonotactics on Nonword Repetition
AALL028	Language Learning	2008 / 58 / 3	555–595	Dalila Ayoun & M. Rafael Salaberry	Acquisition of English Tense-Aspect Morphology by Advanced French Instructed Learners
AALL029	Language Learning	2008 / 58 / 2	401–437	Gerald P. Berent & Ronald R. Kelly & Jeffrey E. Porter & Judith Fonzi	Deaf Learners' Knowledge of English Universal Quantifiers
AALL030	Language Learning	2008 / 58 / 2	357–400	Wen-Ta Tseng & Norbert Schmitt	Toward a Model of Motivated Vocabulary Learning: A

					Structural Equation Modeling Approach
AALL031	Language Learning	2008 / 58 / 2	285–325	YouJin Kim	The Role of Task-Induced Involvement and Learner Proficiency in L2 Vocabulary Acquisition
AALL032	Language Learning	2008 / 58 / 2	237–283	Paul D. Toth	Teacher- and Learner-Led Discourse in Task-Based Grammar Instruction: Providing Procedural Assistance for L2 Morphosyntactic Development
AALL033	Language Learning	2008 / 58 / 1	185–231	Louise Jansen	Acquisition of German Word Order in Tutored Learners: A Cross-Sectional Study in a Wider Theoretical Context
AALL034	Language Learning	2008 / 58 / 1	151–183	Jackie Xiu Yan & Elaine Kolker Horwitz	Learners' Perceptions of How Anxiety Interacts With Personal and Instructional Factors to Influence Their Achievement in English: A Qualitative Analysis of EFL Learners in China
AALL035	Language Learning	2008 / 58 / 1	117–150	Christine Dimroth	Age Effects on the Process of L2 Acquisition? Evidence From the Acquisition of Negation and Finiteness in L2 German
AALL036	Language Learning	2008 / 58 / 1	73–115	Hui-Tzu Min	EFL Vocabulary Acquisition and Retention: Reading Plus Vocabulary Enhancement Activities and Narrow Reading
AALL037	Language Learning	2008 / 58 / 1	1–31	Megumi Hamada & Keiko Koda	Influence of First Language Orthographic Experience on Second Language Decoding and Word Learning
AALL038	Language Learning	2007 / 57 / 4	651–685	EunHee Lee & Hae-Young Kim	On Crosslinguistic Variations in Imperfective Aspect: The Case of L2 Korean
AALL039	Language Learning	2007 / 57 / 4	611–649	John McE. Davis	Resistance to L2 Pragmatics in the Australian ESL Context
AALL040	Language Learning	2007 / 57 / 4	595–610	Thomas Holtgraves	Second Language Learners and Speech Act Comprehension
AASSLA001	Studies in Second Language Acquision	2010 / 32 / 1	111–140	Mousa Qasem & Rebecca Foote	Crosslanguage Lexical Activation: A Test of the Revised Hierarchical and Morphological Decomposition Models in Arabic-English Bilinguals

AASSLA002	Studies in Second Language Acquision	2010 / 32 / 1	79–109	Anne Rah & Dany Adone	Processing of the Reduced Relative Clause versus Main Verb Ambiguity in L2 Learners at Different Proficiency Levels
AASSLA003	Studies in Second Language Acquision	2010 / 32 / 1	47– 77	Jason Rothman & Tiffany Judy & Pedro Guijarro-Fuentes & Acrisio Pires	On the (Un)-Ambiguity of Adjectival Modification in Spanish Determiner Phrases: Informing Debates on the Mental Representations of L2 Syntax
AASSLA004	Studies in Second Language Acquision	2009 / 31 / 4	609–639	Pavel Trofimovich & Patsy M. Lightbown & Randall H. Halter & Hyojin Song	Comprehension-Based Practice: The Development of L2 Pronunciation in a Listening and Reading Program
AASSLA005	Studies in Second Language Acquision	2009 / 31 / 4	577–607	Lars Stenius Stæhr	Vocabulary Knowledge and Advanced Listening Comprehension in English as a Foreign Language
AASSLA006	Studies in Second Language Acquision	2009 / 31 / 4	533–557	Tracey M. Derwing & Murray J. Munro & Ronald I. Thomson & Marian J. Rossiter	The Relationship between L1 Fluency and L2 Fluency Development
AASSLA007	Studies in Second Language Acquision	2009 / 31 / 3	471–500	Rémi A. van Compernolle & Lawrence Williams	Learner versus Nonlearner Patterns of Stylistic Variation in Synchronous Computer-Mediated French: Yes/No Questions and Nous Versus On
AASSLA008	Studies in Second Language Acquision	2009 / 31 / 3	437–470	Andrea Révész	Task Complexity, Focus on Form, and Second Language Development
AASSLA009	Studies in Second Language Acquision	2009 / 31 / 3	403–435	Kathleen Neubauer & Harald Clahsen	Decomposition of Inflected Words in a Second Language: An Experimental Study of German Participles
AASSLA010	Studies in Second Language Acquision	2009 / 31 / 3	371–402	Alison Gabriele	Transfer and Transition in the SLA of Aspect: A Bidirectional Study of Learners of English and Japanese
AASSLA011	Studies in Second Language Acquision	2009 / 31 / 1	93–123	Nigel G. Duffield & Ayumi Matsuo	Native Speakers' versus L2 Learners' Sensitivity to Parallelism in Vp-Ellipsis
AASSLA012	Studies in Second Language	2009 / 31 / 1	59– 92	Ineke van de Craats	The Role of *is* in the Acquisition of Finiteness by Adult Turkish Learners of Dutch

	Acquision				
AASSLA013	Studies in Second Language Acquision	2009 / 31 / 1	31– 58	Diana Pulido	How Involved are American L2 Learners of Spanish in Lexical Input Processing Tasks during Reading?
AASSLA014	Studies in Second Language Acquision	2009 / 31 / 1	1– 29	Eve Zyzik & Clara Azevedo	Word Class Distinctions in Second Language Acquisition: An Experimental Study of L2 Spanish
AASSLA015	Studies in Second Language Acquision	2008 / 30 / 4	511– 538	Ute Bohnacker & Christina Rosén	The Clause-Initial Position in L2 German Declaratives-Transfer of Information Structure
AASSLA016	Studies in Second Language Acquision	2008 / 30 / 4	481– 509	Niclas Abrahamsson & Kenneth Hyltenstam	The Robustness of Aptitude Effects in Near-Native Second Language Acquisition
AASSLA017	Studies in Second Language Acquision	2008 / 30 / 4	453– 480	Laurent Dekydtspotter & Bryan Donaldson & Amanda C. Edmonds & Audrey Liljestrand Fultz & Rebecca A. Petrush	Syntactic and Prosodic Computations in the Resolution of Relative Clause Attachment Ambiguity by English-French Learners
AASSLA018	Studies in Second Language Acquision	2008 / 30 / 4	423– 452	Naoko Taguchi	The Role of Learning Environment in the Development of Pragmatic Comprehension: A Comparison of Gains Between EFL and ESL Learners
AASSLA019	Studies in Second Language Acquision	2008 / 30 / 3	359– 387	Melissa A. Bowles	Task Type and Reactivity of Verbal Reports in SLA: A First Look at a L2 Task other than Reading
AASSLA020	Studies in Second Language Acquision	2008 / 30 / 3	333– 357	Leah Roberts & Marianne Gullberg & Peter Indefrey	Online Pronoun Resolution in L2 Discourse: L1 Influence and General Learner Effects
AASSLA021	Studies in Second Language Acquision	2008 / 30 / 3	277– 305	Claudia Fernández	Reexamining the Role of Explicit Information in Processing Instruction
AASSLA022	Studies in Second Language Acquision	2008 / 30 / 1	79–95	Stuart Webb	Receptive and Productive Vocabulary Sizes of L2 Learners

AASSLA023	Studies in Second Language Acquision	2008 / 30 / 1	49–77	Hanh thi Nguyen & Marlys A. Macken	Factors Affecting the Production of Vietnamese Tones: A Study of American Learners
AASSLA024	Studies in Second Language Acquision	2008 / 30 / 1	31–47	Kim McDonough & Alison Mackey	Syntactic Priming and ESL Question Development
AASSLA025	Studies in Second Language Acquision	2008 / 30 / 1	1–29	Bruce Anderson	Forms of Evidence and Grammatical Development in the Acquisition of Adjective Position in L2 French
AASSLA026	Studies in Second Language Acquision	2007 / 29 / 4	583–615	María Cristina Cuervo	Double Objects in Spanish as a Second Language: Acquisition of Morphosyntax and Semantics
AASSLA027	Studies in Second Language Acquision	2007 / 29 / 4	557–582	Irena O'Brien & Norman Segalowitz & Barbara Freed & Joe Collentine	Phonological Memory Predicts Second Language Oral Fluency Gains in Adults
AASSLA028	Studies in Second Language Acquision	2007 / 29 / 4	539–556	Roy C. Major	Identifying a Foreign Accent in an Unfamiliar Language
AASSLA029	Studies in Second Language Acquision	2007 / 29 / 4	511–537	Takako Egi	Interpreting Recasts as Linguistic Evidence: The Roles of Linguistic Target, Length, and Degree of Change
AASSLA030	Studies in Second Language Acquision	2007 / 29 / 3	449–484	Margarita P. Steinel & Jan H. Hulstijn & Wolfgang Steinel	Second Language Idiom Learning in a Paired-Associate Paradigm: Effects of Direction of Learning, Direction of Testing, Idiom Imageability, and Idiom Transparency
AASSLA031	Studies in Second Language Acquision	2007 / 29 / 3	381–406	Laura Colantoni & Jeffrey Steele	Acquiring 'Alveolar Approximant' in Context
AASSLA032	Studies in Second Language Acquision	2007 / 29 / 1	67–100	Rebecca Sachs & Charlene Polio	Learners' Uses of Two Types of Written Feedback on a L2 Writing Revision Task
AASSLA033	Studies in Second Language Acquision	2007 / 29 / 1	39–66	Amy E. Rossomondo	The Role of Lexical Temporal Indicators and Text Interaction Format in the Incidental Acquisition of the Spanish Future Tense

AASSLA034	Studies in Second Language Acquision	2007 / 29 / 1	1–38	Natsue Sugaya & Yasuhiro Shirai	The Acquisition of Progressive and Resultative Meanings of the Imperfective Aspect Marker by L2 Learners of Japanese: Transfer, Universals, or Multiple Factors?
AASSLA035	Studies in Second Language Acquision	2006 / 28 / 4	601–632	Tetsuo Harada	The Acquisition of Single and Geminate Stops by English-Speaking Children in a Japanese Immersion Program
AASSLA036	Studies in Second Language Acquision	2006 / 28 / 4	543–574	Ahlem Ammar & Nina Spada	One Size Fits All? Recasts, Prompts, and L2 Learning
AASSLA037	Studies in Second Language Acquision	2006 / 28 / 3	423–448	Moti Lieberman & Sachiko Aoshima & Colin Phillips	Nativelike Biases in Generation of *Wh*-Questions by Nonnative Speakers of Japanese
AASSLA038	Studies in Second Language Acquision	2006 / 28 / 3	387–422	Gretchen Sunderman & Judith F. Kroll	First Language Activation during Second Language Lexical Processing: An Investigation of Lexical Form, Meaning, and Grammatical Class
AASSLA039	Studies in Second Language Acquision	2006 / 28 / 1	31–65	Kara Morgan-Short & Harriet Wood Bowden	Processing Instruction and Meaningful Output-Based Instruction: Effects on Second Language Development
AASSLA040	Studies in Second Language Acquision	2005 / 27 / 4	567–595	Alla Zareva & Paula Schwanenflugel & Yordanka Nikolova	Relationship between lexical competence and language proficiency: Variable sensitivity

Appendix 3.2 The PRA Corpus

Code	Journal	Year /Volume /Issue	Pages	Author(s)	Title
APDP001	Developmental Psychology	2010 / 46 / 4	955–972	Nicolas Chevalier & Agnès Blaye & Stéphane Dufau & Joanna Lucenet	What Visual Information Do Children and Adults Consider While Switching Between Tasks? Eye-Tracking Investigation of Cognitive Flexibility Development
APDP002	Developmental Psychology	2010 / 46 / 4	949–954	Anja Geiger & Peter Achermann & Oskar G. Jenni	Association Between Sleep Duration and Intelligence Scores in Healthy Children
APDP003	Developmental Psychology	2010 / 46 / 4	939–948	Christopher Hertzog & Starlette M. Sinclair & John Dunlosky	Age Differences in the Monitoring of Learning: Cross-Sectional Evidence of Spared Resolution Across the Adult Life Span
APDP004	Developmental Psychology	2010 / 46 / 4	927–938	Maarten Herman Walter Van Zalk & Margaret Kerr & Susan J. T. Branje & Håkan Stattin & Wim H. J. Meeus	It Takes Three: Selection, Influence, and De-Selection Processes of Depression in Adolescent Friendship Networks
APDP005	Developmental Psychology	2010 / 46 / 4	915–926	Markus Jokela	Characteristics of the First Child Predict the Parents' Probability of Having Another Child
APDP006	Developmental Psychology	2010 / 46 / 4	905–914	Joscha Kärtner & Heidi Keller & Nandita Chaudhary	Cognitive and Social Influences on Early Prosocial Behavior in Two Sociocultural Contexts
APDP007	Developmental Psychology	2010 / 46 / 4	886–904	Greg D. Reynolds & Mary L. Courage & John E. Richards	Infant Attention and Visual Preferences: Converging Evidence From Behavior, Event-Related Potentials, and Cortical Source Localization
APDP008	Developmental Psychology	2010 / 46 / 4	869–885	Alice C. Schermerhorn & Sy-Miin Chow & E. Mark Cummings	Developmental Family Processes and Interparental Conflict: Patterns of Microlevel Influences
APDP009	Developmental Psychology	2010 / 46 / 4	853–868	Sarah D. Lynne-Landsman & Julia A. Graber & Judy A. Andrews	Do Trajectories of Household Risk in Childhood Moderate Pubertal Timing Effects on Substance Initiation in Middle

					School?
APDP010	Developmental Psychology	2010 / 46 / 4	842–852	Stephanie J. Cox & Amy H. Mezulis & Janet S. Hyde	The Influence of Child Gender Role and Maternal Feedback to Child Stress on the Emergence of the Gender Difference in Depressive Rumination in Adolescence
APDP011	Developmental Psychology	2010 / 46 / 4	815–826	Melissa A. Koenig & Amanda L. Woodward	Sensitivity of 24-Month-Olds to the Prior Inaccuracy of the Source: Possible Mechanisms
APDP012	Developmental Psychology	2010 / 46 / 4	805–814	Rebecca Cristina Malvar Pargas & Patricia A. Brennan & Constance Hammen & Robyne Le Brocque	Resilience to Maternal Depression in Young Adulthood
APDP013	Developmental Psychology	2010 / 46 / 4	791–804	Julia M. Braungart-Rieker & Ashley L. Hill-Soderlund & Jan Karrass	Fear and Anger Reactivity Trajectories From 4 to 16 Months: The Roles of Temperament, Regulation, and Maternal Sensitivity
APDP014	Developmental Psychology	2010 / 46 / 4	773–790	Marie-Hélène Véronneau & Frank Vitaro & Mara Brendgen & Thomas J. Dishion & Richard E. Tremblay	Transactional Analysis of the Reciprocal Links Between Peer Experiences and Academic Achievement From Middle Childhood to Early Adolescence
APDP015	Developmental Psychology	2010 / 46 / 4	761–772	Jack J. Bauer & Dan P. McAdams	Eudaimonic Growth: Narrative Growth Goals Predict Increases in Ego Development and Subjective Well-Being 3 Years Later
APDP016	Developmental Psychology	2010 / 46 / 4	749–760	Danielle Matthews & Elena Lieven & Michael Tomasello	What's in a Manner of Speaking? Children's Sensitivity to Partner-Specific Referential Precedents
APDP017	Developmental Psychology	2010 / 46 / 3	735–746	Monisha Pasupathi & Cecilia Wainryb	On Telling the Whole Story: Facts and Interpretations in Autobiographical Memory Narratives From Childhood Through Midadolescence
APDP018	Developmental Psychology	2010 / 46 / 3	717–734	Wim Van den Broeck & Astrid Geudens & Kees P.	The Nonword-Reading Deficit of Disabled Readers: A Developmental Interpretation

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APDP019	Developmental Psychology	2010 / 46 / 3	699–716	Julie Sallquist & Nancy Eisenberg & Doran C. French & Urip Purwono & Telie A. Suryanti	Indonesian Adolescents' Spiritual and Religious Experiences and Their Longitudinal Relations With Socioemotional Functioning
APDP020	Developmental Psychology	2010 / 46 / 3	691–698	Timothy N. Odegard & Kara M. Jenkins & Joshua D. Koen &	Developmental Differences in the Use of Recognition Memory Rejection Mechanisms
APDP021	Developmental Psychology	2010 / 46 / 3	681–690	Rebecca J. Woods & Teresa Wilcox	Covariation of Color and Luminance Facilitate Object Individuation in Infancy
APDP022	Developmental Psychology	2010 / 46 / 3	669–680	Margaret M. Swingler & Monica A. Sweet & Leslie J. Carver	Brain–Behavior Correlations: Relationships Between Mother–Stranger Face Processing and Infants' Behavioral Responses to a Separation From Mother
APDP023	Developmental Psychology	2010 / 46 / 3	651–668	Maria A. Gartstein & David J. Bridgett & Mary K. Rothbart & Christopher Robertson & Erin Iddins & Kristin Ramsay & Sarah Schlect	A Latent Growth Examination of Fear Development in Infancy: Contributions of Maternal Depression and the Risk for Toddler Anxiety
APDP024	Developmental Psychology	2010 / 46 / 3	636–650	Adriana J. Umaña-Taylor & Amy B. Guimond	A Longitudinal Examination of Parenting Behaviors and Perceived Discrimination Predicting Latino Adolescents' Ethnic Identity
APDP025	Developmental Psychology	2010 / 46 / 3	619–635	Matthew A. Diemer & Qiu Wang & Traymanesha Moore & Shannon R. Gregory & Keisha M. Hatcher & Adam M. Voight	Sociopolitical Development, Work Salience, and Vocational Expectations Among Low Socioeconomic Status African American, Latin American, and Asian American Youth
APDP026	Developmental Psychology	2010 / 46 / 3	602–618	Carola Suárez-Orozco & Francisco X. Gaytán & Hee Jin Bang & Juliana Pakes & Erin	Academic Trajectories of Newcomer Immigrant Youth

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APDP027	Developmental Psychology	2010 / 46 / 3	593–601	Angélica López & Maricela Correa-Chávez & Barbara Rogoff & Kris Gutiérrez	Attention to Instruction Directed to Another by U.S. Mexican-Heritage Children of Varying Cultural Backgrounds
APDP028	Developmental Psychology	2010 / 46 / 3	579–592	Claudia Galindo & Bruce Fuller	The Social Competence of Latino Kindergartners and Growth in Mathematical Understanding
APDP029	Developmental Psychology	2010 / 46 / 2	545–551	Ilaria Berteletti & Daniela Lucangeli & Manuela Piazza & Stanislas Dehaene & Marco Zorzi	Numerical Estimation in Preschoolers
APDP030	Developmental Psychology	2010 / 46 / 2	530–544	Elizabeth Pellicano	Individual Differences in Executive Function and Central Coherence Predict Developmental Changes in Theory of Mind in Autism
APDP031	Developmental Psychology	2010 / 46 / 2	502–515	Nora Benjamin & Catherine A. Haden & Erin Wilkerson	Enhancing Building, Conversation, and Learning Through Caregiver–Child Interactions in a Children's Museum
APDP032	Developmental Psychology	2010 / 46 / 2	455–467	Ruth Feldman & Shafiq Masalha	Parent–Child and Triadic Antecedents of Children's Social Competence: Cultural Specificity, Shared Process
APDP033	Developmental Psychology	2010 / 46 / 2	446–454	Sabine Hunnius & Harold Bekkering	The Early Development of Object Knowledge: A Study of Infants' Visual Anticipations During Action Observation
APDP034	Developmental Psychology	2010 / 46 / 2	437–445	Kathleen H. Corriveau & Paul L. Harris	Preschoolers (Sometimes) Defer to the Majority in Making Simple Perceptual Judgments
APDP035	Developmental Psychology	2010 / 46 / 2	428–436	Ross Flom & Lorraine E. Bahrick	The Effects of Intersensory Redundancy on Attention and Memory: Infants' Long-Term Memory for Orientation in Audiovisual Events
APDP036	Developmental Psychology	2010 / 46 / 2	417–427	Anne-Lise Leclercq & Steve Majerus	Serial-Order Short-Term Memory Predicts Vocabulary Development: Evidence From

					a Longitudinal Study
APDP037	Developmental Psychology	2010 / 46 / 2	404–416	Karla Holmboe & Zsofia Nemoda & R. M. Pasco Fearon & Gergely Csibra & Maria Sasvari-Szekely & Mark H. Johnson	Polymorphisms in Dopamine System Genes Are Associated With Individual Differences in Attention in Infancy
APDP038	Developmental Psychology	2010 / 46 / 2	391–403	Rebecca McKenzie & Jonathan St. B. T. Evans & Simon J. Handley	Conditional Reasoning in Autism: Activation and Integration of Knowledge and Belief
APDP039	Developmental Psychology	2010 / 46 / 2	379–390	Michael Pluess & Jay Belsky	Differential Susceptibility to Parenting and Quality Child Care
APDP040	Developmental Psychology	2010 / 46 / 2	350–365	Marc H. Bornstein & Martha E. Arterberry	The Development of Object Categorization in Young Children: Hierarchical Inclusiveness, Age, Perceptual Attribute, and Group Versus Individual Analyses
APEPG001	Journal of Experimental Psychology-General	2010 / 139 / 3	558–578	Talia Konkle & Timothy F. Brady & George A. Alvarez & Aude Oliva	Conceptual Distinctiveness Supports Detailed Visual Long-Term Memory for Real-World Objects
APEPG002	Journal of Experimental Psychology-General	2010 / 139 / 3	535–557	David B. Miele & Daniel C. Molden	Naive Theories of Intelligence and the Role of Processing Fluency in Perceived Comprehension
APEPG003	Journal of Experimental Psychology-General	2010 / 139 / 3	520–534	Assaf Kron & Yaacov Schul & Asher Cohen & Ran R. Hassin	Feelings Don’t Come Easy: Studies on the Effortful Nature of Feelings
APEPG004	Journal of Experimental Psychology-General	2010 / 139 / 3	490–519	Karl Christoph Klauer & Kerstin Dittrich	From Sunshine to Double Arrows: An Evaluation Window Account of Negative Compatibility Effects
APEPG005	Journal of Experimental Psychology-General	2010 / 139 / 3	464–489	Markus Kiefer & Ulla Martens	Attentional Sensitization of Unconscious Cognition: Task Sets Modulate Subsequent Masked Semantic Priming
APEPG006	Journal of Experimental Psychology-General	2010 / 139 / 3	418–435	Iris Berent & Evan Balaban & Tracy Lennertz & Vered Vaknin-Nusbaum	Phonological Universals Constrain the Processing of Nonspeech Stimuli

APEPG007	Journal of Experimental Psychology-General	2010 / 139 / 3	399–417	Andrew J. Elliot & Daniela Niesta Kayser & Tobias Greitemeyer & Stephanie Lichtenfeld & Richard H. Gramzow & Markus A. Maier & Huijun Liu	Red, Rank, and Romance in Women Viewing Men
APEPG008	Journal of Experimental Psychology-General	2010 / 139 / 3	383–398	Spee Kosloff & Jeff Greenberg & Toni Schmader & Mark Dechesne & David Weise	Smearing the Opposition: Implicit and Explicit Stigmatization of the 2008 U.S. Presidential Candidates and the Current U.S. President
APEPG009	Journal of Experimental Psychology-General	2010 / 139 / 2	222–246	Lauri Nummenmaa & Jukka Hyönä & Manuel G. Calvo	Semantic Categorization Precedes Affective Evaluation of Visual Scenes
APEPG010	Journal of Experimental Psychology-General	2010 / 139 / 2	365–381	Samantha Bouwmeester & Peter P. J. L. Verkoeijen	Latent Variable Modeling of Cognitive Processes in True and False Recognition of Words: A Developmental Perspective
APEPG011	Journal of Experimental Psychology-General	2010 / 139 / 2	341–364	Serge V. Onyper & Yaofei X. Zhang & Marc W. Howard	Some-or-None Recollection: Evidence From Item and Source Memory
APEPG012	Journal of Experimental Psychology-General	2010 / 139 / 2	319–340	Aaron B. Hoffman & Bob Rehder	The Costs of Supervised Classification: The Effect of Learning Task on Conceptual Flexibility
APEPG013	Journal of Experimental Psychology-General	2010 / 139 / 2	299–318	Sally Andrews & Jolyn Hersch	Lexical Precision in Skilled Readers: Individual Differences in Masked Neighbor Priming
APEPG014	Journal of Experimental Psychology-General	2010 / 139 / 2	266–298	Maarten Speekenbrink & David R. Shanks	Learning in a Changing Environment
APEPG015	Journal of Experimental Psychology-General	2010 / 139 / 2	247–265	Stefanie I. Becker	The Role of Target–Distractor Relationships in Guiding Attention and the Eyes in Visual Search
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APEPG017	Journal of Experimental Psychology-General	2010 / 139 / 1	180–190	Wim Gevers & Seppe Santens & Elisah Dhooge & Qi Chen & Lisa Van den Bossche & Wim Fias & Tom Verguts	Verbal-Spatial and Visuospatial Coding of Number–Space Interactions
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APEPG020	Journal of Experimental Psychology-General	2010 / 139 / 1	117–137	Jason M. Chein & Julie A. Fiez	Evaluating Models of Working Memory Through the Effects of Concurrent Irrelevant Information
APEPG021	Journal of Experimental Psychology-General	2010 / 139 / 1	95–116	Elena G. Patsenko & Erik M. Altmann	How Planful Is Routine Behavior? A Selective-Attention Model of Performance in the Tower of Hanoi
APEPG022	Journal of Experimental Psychology-General	2010 / 139 / 1	70–94	Roger Ratcliff & Philip L. Smith	Perceptual Discrimination in Static and Dynamic Noise: The Temporal Relation Between Perceptual Encoding and Decision Making
APEPG023	Journal of Experimental Psychology-General	2010 / 139 / 1	49–69	Daniel M. Bartels & Lance J. Rips	Psychological Connectedness and Intertemporal Choice
APEPG024	Journal of Experimental Psychology-General	2010 / 139 / 1	32–48	Joachim Vosgerau	How Prevalent Is Wishful Thinking? Misattribution of Arousal Causes Optimism and Pessimism in Subjective Probabilities
APEPG025	Journal of Experimental Psychology-General	2010 / 139 / 1	16–31	Ying Zhang & Ayelet Fishbach	Counteracting Obstacles With Optimistic Predictions

APEPG026	Journal of Experimental Psychology-General	2010 / 139 / 1	1–15	Frank C. Keil & Kristi L. Lockhart & Esther Schlegel	A Bump on a Bump? Emerging Intuitions Concerning the Relative Difficulty of the Sciences
APEPG027	Journal of Experimental Psychology-General	2009 / 138 / 4	535–545	Carey K. Morewedge	Negativity Bias in Attribution of External Agency
APEPG028	Journal of Experimental Psychology-General	2009 / 138 / 4	517–534	Håkan Nilsson & Anders Winman & Peter Juslin & Göran Hansson	Linda Is Not a Bearded Lady: Configural Weighting and Adding as the Cause of Extension Errors
APEPG029	Journal of Experimental Psychology-General	2009 / 138 / 4	503–516	Lisa K. Libby & Eric M. Shaeffer & Richard P. Eibach	Seeing Meaning in Action: A Bidirectional Link Between Visual Perspective and Action Identification Level
APEPG030	Journal of Experimental Psychology-General	2009 / 138 / 4	469–486	Jeffrey D. Karpicke	Metacognitive Control and Strategy Selection: Deciding to Practice Retrieval During Learning
APEPG031	Journal of Experimental Psychology-General	2009 / 138 / 4	449–468	Nate Kornell & Robert A. Bjork	A Stability Bias in Human Memory: Overestimating Remembering and Underestimating Learning
APEPG032	Journal of Experimental Psychology-General	2009 / 138 / 3	416–431	Karin H. James & Isabel Gauthier	When Writing Impairs Reading: Letter Perception's Susceptibility to Motor Interference
APEPG033	Journal of Experimental Psychology-General	2009 / 138 / 3	400–415	Elinor Amit & Daniel Algom & Yaacov Trope	Distance-Dependent Processing of Pictures and Words
APEPG034	Journal of Experimental Psychology-General	2009 / 138 / 3	383–399	Jens Förster & Nira Liberman & Oren Shapira	Preparing for Novel Versus Familiar Events: Shifts in Global and Local Processing
APEPG035	Journal of Experimental Psychology-General	2009 / 138 / 3	368–382	Leaf Van Boven & Katherine White & Michaela Huber	Immediacy Bias in Emotion Perception: Current Emotions Seem More Intense Than Previous Emotions
APEPG036	Journal of Experimental Psychology-General	2009 / 138 / 3	351–367	Daniel Casasanto	Embodiment of Abstract Concepts: Good and Bad in Right- and Left-Handers
APEPG037	Journal of Experimental Psychology-	2009 / 138 / 3	341–350	Ilan Fischer	Friend or Foe: Subjective Expected Relative Similarity as a Determinant of

	General				Cooperation
APEPG038	Journal of Experimental Psychology-General	2009 / 138 / 3	329–340	David J. Hardisty & Elke U. Weber	Discounting Future Green: Money Versus the Environment
APEPG039	Journal of Experimental Psychology-General	2009 / 138 / 2	307–327	Jeffrey M. Zacks & Nicole K. Speer & Jeremy R. Reynolds	Segmentation in Reading and Film Comprehension
APEPG040	Journal of Experimental Psychology-General	2009 / 138 / 2	291–306	Yoonhee Jang & John T. Wixted & David E. Huber	Testing Signal-Detection Models of Yes/No and Two-Alternative Forced-Choice Recognition Memory
APPSP001	Journal of Personality and Social Psychology	2010 / 99 / 1	174–190	Dustin Wood & Peter Harms & Simine Vazire	Perceiver Effects as Projective Tests: What Your Perceptions of Others Say About You
APPSP002	Journal of Personality and Social Psychology	2010 / 99 / 1	162–173	Brandon J. Schmeichel & Cindy Harmon-Jones & Eddie Harmon-Jones	Exercising Self-Control Increases Approach Motivation
APPSP003	Journal of Personality and Social Psychology	2010 / 99 / 1	148–161	Ian McGregor & Kyle Nash & Mike Prentice	Reactive Approach Motivation (RAM) for Religion
APPSP004	Journal of Personality and Social Psychology	2010 / 99 / 1	120–132	Phillip S. Kavanagh & Sarah C. Robins & Bruce J. Ellis	The Mating Sociometer: A Regulatory Mechanism for Mating Aspirations
APPSP005	Journal of Personality and Social Psychology	2010 / 99 / 1	107–119	Isabel R. Pinto & José M. Marques & John M. Levine & Dominic Abrams	Membership Status and Subjective Group Dynamics: Who Triggers the Black Sheep Effect?
APPSP006	Journal of Personality and Social Psychology	2010 / 99 / 1	78–106	Amy Canevello & Jennifer Crocker	Creating Good Relationships: Responsiveness, Relationship Quality, and Interpersonal Goals
APPSP007	Journal of Personality and Social Psychology	2010 / 99 / 1	62–77	Saul L. Miller & Jon K. Maner & D. Vaughn Becker	Self-Protective Biases in Group Categorization: Threat Cues Shape the Psychological Boundary Between “Us” and “Them”
APPSP008	Journal of Personality and Social Psychology	2010 / 98 / 6	980–994	Shigehiro Oishi & Ulrich Schimmack	Residential Mobility, Well-Being, and Mortality
APPSP009	Journal of Personality and Social Psychology	2010 / 98 / 6	956–966	Brian S. Lowery & Daryl A. Wout	When Inequality Matters: The Effect of Inequality Frames on Academic Engagement

APPSP010	Journal of Personality and Social Psychology	2010 / 98 / 6	933–945	Carlos David Navarrete & Melissa M. McDonald & Ludwin E. Molina & Jim Sidanius	Prejudice at the Nexus of Race and Gender: An Outgroup Male Target Hypothesis
APPSP011	Journal of Personality and Social Psychology	2010 / 98 / 6	917–932	Frederick L. Philippe & Robert J. Vallerand & Nathalie Houlfort & Geneviève L. Lavigne & Eric G. Donahue	Passion for an Activity and Quality of Interpersonal Relationships: The Mediating Role of Emotions
APPSP012	Journal of Personality and Social Psychology	2010 / 98 / 6	904–916	Young-Hoon Kim & Dov Cohen & Wing-Tung Au	The Jury and Abjury of My Peers: The Self in Face and Dignity Cultures
APPSP013	Journal of Personality and Social Psychology	2010 / 98 / 6	886–903	Alan J. Lambert & Laura D. Scherer & John Paul Schott & Kristina R. Olson & Rick K. Andrews & Thomas C. O'Brien & Alison R. Zisser	Rally Effects, Threat, and Attitude Change: An Integrative Approach to Understanding the Role of Emotion
APPSP014	Journal of Personality and Social Psychology	2010 / 98 / 6	857–871	Shira Gabriel & Kerry Kawakami & Christopher Bartak & So-Jin Kang & Nikki Mann	Negative Self-Synchronization: Will I Change to Be Like You When It Is Bad for Me?
APPSP015	Journal of Personality and Social Psychology	2010 / 98 / 5	841–855	Omri Gillath & Amanda K. Sesko & Phillip R. Shaver & David S. Chun	Attachment, Authenticity, and Honesty: Dispositional and Experimentally Induced Security Can Reduce Self- and Other-Deception
APPSP016	Journal of Personality and Social Psychology	2010 / 98 / 5	830–840	Benjamin M. Wilkowski & Michael D. Robinson & Wendy Troop-Gordon	How Does Cognitive Control Reduce Anger and Aggression? The Role of Conflict Monitoring and Forgiveness Processes
APPSP017	Journal of Personality and Social Psychology	2010 / 98 / 5	794–808	Andreas Mojzisch & Stefan Schulz-Hardt	Knowing Others' Preferences Degrades the Quality of Group Decisions
APPSP018	Journal of Personality and Social Psychology	2010 / 98 / 5	775–793	Elizabeth Page-Gould & Rodolfo Mendoza-Denton & Jan Marie Alegre & John	Understanding the Impact of Cross-Group Friendship on Interactions With Novel Outgroup Members

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APPSP019	Journal of Personality and Social Psychology	2010 / 98 / 5	761–774	Mauro Giacomantonio & Carsten K. W. De Dreu & Lucia Mannetti	Now You See It, Now You Don't: Interests, Issues, and Psychological Distance in Integrative Negotiation
APPSP020	Journal of Personality and Social Psychology	2010 / 98 / 5	750–760	Jeroen Vaes & Nathan A. Heflick & Jamie L. Goldenberg	"We Are People": Ingroup Humanization as an Existential Defense
APPSP021	Journal of Personality and Social Psychology	2010 / 98 / 5	702–720	Ara Norenzayan & Albert Lee	It Was Meant to Happen: Explaining Cultural Variations in Fate Attributions
APPSP022	Journal of Personality and Social Psychology	2010 / 98 / 5	683–701	David Faro & Ann L. McGill & Reid Hastie	Naïve Theories of Causal Force and Compression of Elapsed Time Judgments
APPSP023	Journal of Personality and Social Psychology	2010 / 98 / 4	645–658	Ulrich Orth & Kali H. Trzesniewski & Richard W. Robins	Self-Esteem Development From Young Adulthood to Old Age: A Cohort-Sequential Longitudinal Study
APPSP024	Journal of Personality and Social Psychology	2010 / 98 / 4	631–644	Kieran T. Sullivan & Lauri A. Pasch & Matthew D. Johnson & Thomas N. Bradbury	Social Support, Problem Solving, and the Longitudinal Course of Newlywed Marriage
APPSP025	Journal of Personality and Social Psychology	2010 / 98 / 4	618–630	Christopher Oveis & E. J. Horberg & Dacher Keltner	Compassion, Pride, and Social Intuitions of Self-Other Similarity
APPSP026	Journal of Personality and Social Psychology	2010 / 98 / 4	587–604	James K. McNulty & V. Michelle Russell	When "Negative" Behaviors Are Positive: A Contextual Analysis of the Long-Term Effects of Problem-Solving Behaviors on Changes in Relationship Satisfaction
APPSP027	Journal of Personality and Social Psychology	2010 / 98 / 4	573–586	Tim Wildschut & Constantine Sedikides & Clay Routledge & Jamie Arndt & Filippo Cordaro	Nostalgia as a Repository of Social Connectedness: The Role of Attachment-Related Avoidance
APPSP028	Journal of Personality and Social Psychology	2010 / 98 / 4	559–572	E. Tory Higgins & Joseph Cesario & Nao Hagiwara & Scott Spiegel & Thane Pittman	Increasing or Decreasing Interest in Activities: The Role of Regulatory Fit

APPSP029	Journal of Personality and Social Psychology	2010 / 98 / 3	520–534	Sanjay Srivastava & Steve Guglielmo & Jennifer S. Beer	Perceiving Others' Personalities: Examining the Dimensionality, Assumed Similarity to the Self, and Stability of Perceiver Effects
APPSP030	Journal of Personality and Social Psychology	2010 / 98 / 3	507–519	Yulia E. Chentsova-Dutton & Jeanne L. Tsai	Self-Focused Attention and Emotional Reactivity: The Role of Culture
APPSP031	Journal of Personality and Social Psychology	2010 / 98 / 3	434–449	Daniel Sullivan & Mark J. Landau & Zachary K. Rothschild	An Existential Function of Enemyship: Evidence That People Attribute Influence to Personal and Political Enemies to Compensate for Threats to Control
APPSP032	Journal of Personality and Social Psychology	2010 / 98 / 3	420–433	Robert B. Lount, Jr.	The Impact of Positive Mood on Trust in Interpersonal and Intergroup Interactions
APPSP033	Journal of Personality and Social Psychology	2010 / 98 / 3	405–419	Máire B. Ford & Nancy L. Collins	Self-Esteem Moderates Neuroendocrine and Psychological Responses to Interpersonal Rejection
APPSP034	Journal of Personality and Social Psychology	2010 / 98 / 3	392–404	Vladas Griskevicius & Joshua M. Tybur & Bram Van den Bergh	Going Green to Be Seen: Status, Reputation, and Conspicuous Conservation
APPSP035	Journal of Personality and Social Psychology	2010 / 98 / 3	375–391	Peter Hegarty & Anthony F. Lemieux & Grant McQueen	Graphing the Order of the Sexes: Constructing, Recalling, Interpreting, and Putting the Self in Gender Difference Graphs
APPSP036	Journal of Personality and Social Psychology	2010 / 98 / 3	356–374	Juliane Degner & Dirk Wentura	Automatic Prejudice in Childhood and Early Adolescence
APPSP037	Journal of Personality and Social Psychology	2010 / 98 / 3	343–355	Nicholas O. Rule & James V. Garrett & Nalini Ambady	Places and Faces: Geographic Environment Influences the Ingroup Memory Advantage
APPSP038	Journal of Personality and Social Psychology	2010 / 98 / 2	175–189	Leslie A. Zebrowitz & Masako Kikuchi & Jean-Marc Fellous	Facial Resemblance to Emotions: Group Differences, Impression Effects, and Race Stereotypes
APPSP039	Journal of Personality and Social Psychology	2010 / 98 / 2	190–200	Gregory S. Pettit & Patrick S. Malone & Jennifer E. Lansford & Kenneth A. Dodge & John E. Bates	Domain Specificity in Relationship History, Social-Information Processing, and Violent Behavior in Early Adulthood

APPSP040	Journal of Personality and Social Psychology	2010 / 98 / 2	222–244	Netta Weinstein & Richard M. Ryan	When Helping Helps: Autonomous Motivation for Prosocial Behavior and Its Influence on Well-Being for the Helper and Recipient
APPS001	Psychological Science	2010 / 21 / 8	1184–1190	Michael Inzlicht & Alexa M. Tullett	Reflecting on God: Religious Primes Can Reduce Neurophysiological Response to Errors
APPS002	Psychological Science	2010 / 21 / 8	1176–1183	William B. Swann, Jr. & Ángel Gómez & John F. Dovidio & Sonia Hart & Jolanda Jetten	Dying and Killing for One's Group : Identity Fusion Moderates Responses to Intergroup Versions of the Trolley Problem
APPS003	Psychological Science	2010 / 21 / 8	1168–1175	Edward Vul & Anina N. Rich	Independent Sampling of Features Enables Conscious Perception of Bound Objects
APPS004	Psychological Science	2010 / 21 / 8	1158–1167	David P. Vinson, Robin L. Thompson, Robert Skinner, Neil Fox and Gabriella Vigliocco	The Hands and Mouth Do Not Always Slip Together in British Sign Language: Dissociating Articulatory Channels in the Lexicon
APPS005	Psychological Science	2010 / 21 / 8	1150–1157	Igor Grossmann & Ethan Kross	The Impact of Culture on Adaptive Versus Maladaptive Self-Reflection
APPS006	Psychological Science	2010 / 21 / 8	1141–1149	A. Peter McGraw & Caleb Warren	Benign Violations: Making Immoral Behavior Funny
APPS007	Psychological Science	2010 / 21 / 8	1134–1140	Tamar Kushnir & Fei Xu & Henry M. Wellman	Young Children Use Statistical Sampling to Infer the Preferences of Other People
APPS008	Psychological Science	2010 / 21 / 8	1123–1133	Ilke Öztekin & Lila Davachi & Brian McElree	Are Representations in Working Memory Distinct From Representations in Long-Term Memory? Neural Evidence in Support of a Single Store
APPS009	Psychological Science	2010 / 21 / 8	1117–1122	Dan Lin & Catherine McBride-Chang & Hua Shu & Yuping Zhang & Hong Li & Juan Zhang & Dorit Aram & Iris Levin	Small Wins Big: Analytic Pinyin Skills Promote Chinese Word Reading

APPS010	Psychological Science	2010 / 21 / 8	1106–1116	Paula J. Clarke & Margaret J. Snowling & Emma Truelove & Charles Hulme	Ameliorating Children's Reading-Comprehension Difficulties: A Randomized Controlled Trial
APPS011	Psychological Science	2010 / 21 / 8	1098–1105	Brett Q. Ford & Maya Tamir & Tad T. Brunyé & William R. Shirer & Caroline R. Mahoney & Holly A. Taylor	Keeping Your Eyes on the Prize: Anger and Visual Attention to Threats and Rewards
APPS012	Psychological Science	2010 / 21 / 8	1090–1097	Claudine N. Raffray & Martin J. Pickering	How Do People Construct Logical Form During Language Comprehension?
APPS013	Psychological Science	2010 / 21 / 8	1083–1089	Li Wang & Kan Zhang & Sheng He & Yi Jiang	Searching for Life Motion Signals: Visual Search Asymmetry in Local but Not Global Biological-Motion Processing
APPS014	Psychological Science	2010 / 21 / 8	1075–1082	Kristin Laurin & Steven Shepherd & Aaron C. Kay	Restricted Emigration, System Inescapability, and Defense of the Status Quo: System-Justifying Consequences of Restricted Exit Opportunities
APPS015	Psychological Science	2010 / 21 / 7	1036–1042	Peter F. Delaney & Lili Sahakyan & Colleen M. Kelley & Carissa A. Zimmerman	Remembering to Forget: The Amnesic Effect of Daydreaming
APPS016	Psychological Science	2010 / 21 / 7	1028–1035	Michael K. Scullin & Mark A. McDaniel	Remembering to Execute a Goal: Sleep on It!
APPS017	Psychological Science	2010 / 21 / 7	1014–1020	Lysann Damisch & Barbara Stoberock & Thomas Mussweiler	Keep Your Fingers Crossed! How Superstition Improves Performance
APPS018	Psychological Science	2010 / 21 / 7	1006–1013	Hugo Bruggeman & William H. Warren	The Direction of Walking—but Not Throwing or Kicking—Is Adapted by Optic Flow
APPS019	Psychological Science	2010 / 21 / 7	1000–1005	Thomas A. Carlson & George Alvarez & Daw-an Wu & Frans A.J. Verstraten	Rapid Assimilation of External Objects Into the Body Schema

APPS020	Psychological Science	2010 / 21 / 7	992–999	Greg L. West & Adam K. Anderson & Jeffrey S. Bedwell & Jay Pratt	Red Diffuse Light Suppresses the Accelerated Perception of Fear
APPS021	Psychological Science	2010 / 21 / 7	977–983	Liane Schmidt & Stefano Palminteri & Gilles Lafargue & Mathias Pessiglione	Splitting Motivation: Unilateral Effects of Subliminal Incentives
APPS022	Psychological Science	2010 / 21 / 7	970–976	Stephan Schwan & Sermin Ildirar	Watching Film for the First Time: How Adult Viewers Interpret Perceptual Discontinuities in Film
APPS023	Psychological Science	2010 / 21 / 7	960–969	Jonathan D. Nelson & Craig R.M. McKenzie & Garrison W. Cottrell & Terrence J. Sejnowski	Experience Matters: Information Acquisition Optimizes Probability Gain
APPS024	Psychological Science	2010 / 21 / 7	952–959	Aneeta Rattan & Carol S. Dweck	Who Confronts Prejudice? The Role of Implicit Theories in the Motivation to Confront Prejudice
APPS025	Psychological Science	2010 / 21 / 7	944–951	Margaret S. Clark & Edward P. Lemay, Jr. & Steven M. Graham & Sherri P. Pataki & Eli J. Finkel	Ways of Giving Benefits in Marriage: Norm Use, Relationship Satisfaction, and Attachment-Related Variability
APPS026	Psychological Science	2010 / 21 / 6	882–889	Hajo Adam & Aiwa Shirako & William W. Maddux	Cultural Variance in the Interpersonal Effects of Anger in Negotiations
APPS027	Psychological Science	2010 / 21 / 6	873–881	Stella F. Lourenco & Matthew R. Longo	General Magnitude Representation in Human Infants
APPS028	Psychological Science	2010 / 21 / 6	865–872	M. Kikutani & D. Roberson & J.R. Hanley	Categorical Perception for Unfamiliar Faces: The Effect of Covert and Overt Face Learning
APPS029	Psychological Science	2010 / 21 / 6	857–864	Soonhee Lee & Ronald D. Rogge & Harry T. Reis	Assessing the Seeds of Relationship Decay: Using Implicit Evaluations to Detect the Early Stages of Disillusionment

APPS030	Psychological Science	2010 / 21 / 6	848–856	Gregory E. Miller & Edith Chen	Harsh Family Climate in Early Life Presages the Emergence of a Proinflammatory Phenotype in Adolescence
APPS031	Psychological Science	2010 / 21 / 6	840–847	I.T. Kurniawan & B. Seymour & I. Vlaev & J. Trommershäuser & R.J. Dolan & N. Chater	Pain Relativity in Motor Control
APPS032	Psychological Science	2010 / 21 / 6	820–828	Colin G. DeYoung & Jacob B. Hirsh & Matthew S. Shane & Xenophon Papademetris & Nallakkandi Rajeevan & Jeremy R. Gray	Testing Predictions From Personality Neuroscience: Brain Structure and the Big Five
APPS033	Psychological Science	2010 / 21 / 6	811–819	Jonas W.B. Lang & Jessica Lang	Priming Competence Diminishes the Link Between Cognitive Test Anxiety and Test Performance: Implications for the Interpretation of Test Scores
APPS034	Psychological Science	2010 / 21 / 6	804–810	Jonathan Levav & Jennifer J. Argo	Physical Contact and Financial Risk Taking
APPS035	Psychological Science	2010 / 21 / 5	737–744	Joris Lammers & Diederik A. Stapel & Adam D. Galinsky	Power Increases Hypocrisy: Moralizing in Reasoning, Immorality in Behavior
APPS036	Psychological Science	2010 / 21 / 5	729–736	Mark Nielsen & Keyan Tomaselli	Overimitation in Kalahari Bushman Children and the Origins of Human Cultural Cognition
APPS037	Psychological Science	2010 / 21 / 5	721–728	Lane Beckes & Jeffry A. Simpson & Alyssa Erickson	Of Snakes and Succor: Learning Secure Attachment Associations With Novel Faces via Negative Stimulus Pairings
APPS038	Psychological Science	2010 / 21 / 5	712–720	Francesca Gino & Michael I. Norton & Dan Ariely	The Counterfeit Self: The Deceptive Costs of Faking It
APPS039	Psychological Science	2010 / 21 / 5	692–699	Derek H. Arnold & Holly E. Erskine & Warrick Roseboom & Thomas S.A. Wallis	Spatiotemporal Rivalry: A Perceptual Conflict Involving Illusory Moving and Static Forms

APPS040	Psychological Science	2010 / 21 / 5	682–691	Gary Lupyan & Sharon L. Thompson-Schill & Daniel Swingley	Conceptual Penetration of Visual Processing

Appendix 3.3 The ALTA Corpus

Code	University	Year	Author	Title
TA001	University of Birmingham	2007	Blackwell, S. A.	Power and solidarity revisited: the acquisition and use of personal pronouns in modern English and Dutch
TA002	University of Birmingham	2007	Brooks, D. J.	Unsupervised natural language syntax induction from corpora
TA003	University of Birmingham	2007	Don, A. C.	A framework for the investigation for interactive norms and the construction of textual identity in written discourse communities: the case of an email discussion list
TA004	University of Birmingham	2007	Groom, N. W.	Phraseology and epistemology in humanities writing: a corpus-driven study
TA005	University of Birmingham	2007	Karaouza, E.	Cohesion and text structure in Attic Greek prose
TA006	University of Birmingham	2007	Shortall, T.	Cognition, corpus, curriculum
TA007	University of Birmingham	2006	Guerra-Bernal, N.	Conflict management in English and Spanish colloquial interactions
TA008	University of Birmingham	2006	Koteyko, N.	Bias in presenting the business world: English loanwords in Russian print media
TA009	University of Birmingham	2006	Mason, O. J.	The automatic extraction of linguistic information from text corpora
TA010	University of Birmingham	2006	Bastow, A. J.	Persuasion and consensus in US defence speeches: a corpus study
TA011	University of Essex	2009	Al-Amri, S.	Computer-based testing vs. paper-based testing: establishing the comparability of reading tests through the evolution of a new comparability model in a Saudi EFL context
TA012	University of Essex	2009	Aleid, S.H.	Acquisition of English question formation by native speakers of Arabic
TA013	University of Essex	2009	Hajjar, M.	The acquisition of the English article system by adult Syrian and Japanese L2 learners
TA014	University of Essex	2009	Kondo, T.	Argument structure-morphosyntactic links in the second language English of adult speakers
TA015	University of Essex	2009	Latif, M. M. M. A.	Egyptian EFL student teachers' writing processes and products: the role of linguistic knowledge and writing affect

TA016	University of Essex	2009	Llaven-Nucamendi, M.-E.	Autonomy in learning languages: what students, teachers and authorities in an institution of higher education understand by autonomy in language learning
TA017	University of Essex	2009	Roubou, E.	The effects of the word processor on writing quality, revisions and attitudes towards its use: a classroom-based study of Greek learners of L2 English
TA018	University of Essex	2008	Chan, M.	Acquisition of *be* by Cantonese ESL learners in Hong Kong and its pedagogical implications
TA019	University of Essex	2008	Sarantis, K.	The acquisition of argument structure alternations in English by native speakers of Greek and German: the case of the dative and locative alternations
TA020	University of Essex	2007	Lee, D. J.	Corpora and the classroom: a computer-aided error analysis of Korean students' writing and the design and evaluation of data-driven learning materials
TA021	University of Nottingham	2009	Li, J.	Advanced Chinese L2 learners' formulaic language use and acquisition in academic writing
TA022	University of Nottingham	2008	Durrant, P.	High frequency collocations and second language learning
TA023	University of Nottingham	2008	Evison, J.	Turn-openers in academic talk: an exploration of discourse responsibility
TA024	University of Nottingham	2008	Huang, M. Z.	Metaphor, salience and literary discourse
TA025	University of Nottingham	2007	Kubanyiova, M.	Teacher development in action: An empirically-based model of promoting conceptual change in in-service language teachers in Slovakia
TA026	University of Nottingham	2007	Pechapan, S.	Intercultural communication in guided-tour discourse: a comparative analysis
TA027	University of Nottingham	2006	Edwards P. A.	Willingness to communicate among Korean learners of English
TA028	University of Nottingham	2006	Sheen, Y.	Corrective feedback, individual differences, and the acquisition of English articles by second language learners
TA029	University of Nottingham	2006	Tun, S. S. H.	Discourse marking in Burmese and English: a corpus-based approach
TA030	University of Nottingham	2006	Handford, M. J. A.	The genre of the business meeting: a corpus-based study
TA031	University of Reading	2010	Papangeli, A.	Language development and on-line processing in L1 and L2 children

TA032	University of Reading	2007	Bach Baoueb, S. L.	Communication in Tunisian business companies: Arabic, French and English: language choice and code switching
TA033	University of Reading	2010	Iida, T.	Instructed and naturalistic L2 learners' metalinguistic knowledge: does metalinguistic knowledge contribute to L2 proficiency?
TA034	University of Reading	2007	Cribb, V.M.	Coherence in the extended spoken discourse of non-native speakers of English
TA035	University of Reading	2009	Giannoni, D.	A corpus-based investigation of the academic value system
TA036	University of Reading	2009	Kurimoto, Y.	Mothers' regulation speech toward their children: a comparison between middle class mothers in England and Japan
TA037	University of Reading	2007	Yu, B-B.	Aspects of parliamentary discourse in Taiwan: a pragmatic analysis
TA038	University of Reading	2006	Lu, Y.	A discourse analytic study of EFL test-takers' spoken discourse competence and its impact on their oral proficiency and spoken grammatical competence
TA039	University of Reading	2005	Ruan, Z.	Metacognitive knowledge in language learning and writing: a study of self-regulation in a Chinese ELT context
TA040	University of Reading	2005	Jin, J.	Child second language acquisition: acquisition of English functional categories by Korean child L2 learners
TA041	Northern Arizona University	2009	Grieve, Jack	A Corpus-Based Regional Dialect Survey of Grammatical Variation in Written Standard American English
TA042	Northern Arizona University	2009	Iberri-Shea, Gina	University Student Public Speech: Language Variation in Classroom Contexts
TA043	Northern Arizona University	2009	Kim, YouJin	The Role of Task Complexity and Pair Grouping on the Occurrence of Learning Opportunities and L2 Development
TA044	Northern Arizona University	2009	Komiyama, Reiko	Second Language Reading Motivation of Adult English-for-Academic-Purposes Students
TA045	Northern Arizona University	2009	Poonpon, Kornwipa	Expanding a Second Language Speaking Rating Scale For Instructional and Assessment Purposes
TA046	Northern Arizona University	2009	Tongpoon, Angkana	The Enhancement of EFL Learners' Receptive and Productive Vocabulary Knowledge through Concordance-Based Methods
TA047	Northern Arizona University	2008	Barbieri, Federica	Involvement in University Classroom Discourse

TA048	Northern Arizona University	2008	Friginal, Eric	The Language of Outsourced Call Centers: A Corpus-Based Study of Cross-Cultural Interaction
TA049	Northern Arizona University	2008	Tracy-Ventura, Nicole	Developmental Readiness and Tense/Aspect: An Instructional Study of L2 Preterit and Imperfect Acquisition in Spanish
TA050	Northern Arizona University	2008	Vellenga, Heidi E.	Instructional Effectiveness and Interlanguage Pragmatics
TA051	University of Arizona	2010	Kuo, Li-feng	Children's use of requests in Chinese (L1) and English (L2): A case study in Taiwan
TA052	University of Arizona	2010	Lowther Pereira, Kelly Anne	Identity and language ideology in the intermediate Spanish heritage language classroom
TA053	University of Arizona	2010	Williams, Clay H.	Semantic vs. phonetic decoding strategies in non-native readers of Chinese
TA054	University of Arizona	2009	Guerrero-Nieto, Carmen Helena	National standards for the teaching of English in Colombia: A critical discourse analysis
TA055	University of Arizona	2009	Lindsey, Brittany Anne	La is better than el: The role of regularity and lexical familiarity in noun phrase production by young Spanish-speaking children
TA056	University of Arizona	2009	Liu, Yingliang	ESL students in the college writing conferences: Perception and participation
TA057	University of Arizona	2009	Meadows, Bryan	Nationalism and language learning at the US/Mexico border: An ethnographically-sensitive critical discourse analysis of the reproduction of nation, power, and privilege in an English language classroom
TA058	University of Arizona	2009	Palmer, Jeremy	Student acculturation, language preference, and L2 competence in study abroad programs in the Arabic-speaking world
TA059	University of Arizona	2009	Qiao, Xiaomei	The representation of newly learned words in the mental lexicon
TA060	University of Arizona	2009	Saltourides, Eleni	The sociocultural impact of technology on adult immigrant English as a second language learners
TA061	University of Hawai'i	2009	Kim, Younhee	Achieving Reference in Talk-in-Interaction: L1 and L2 English Speakers' Conversation
TA062	University of Hawai'i	2008	González-Lloret, Marta	"*No Me Llames De Usted, Trátame De Tú*": L2 Address Behavior Development through Synchronous Computer-Mediated Communication
TA063	University of Hawai'i	2008	Joo, Hye Ri	Agentivity of Passives and Inchoatives in Second Language Learners of English and

				Korean
TA064	University of Hawai'i	2008	Lee, Sang-Ki	Salience, Frequency, and Aptitude in the Learning of Unaccusativity in a Second Language: An Input Enhancement Study
TA065	University of Hawai'i	2008	Su, Dantao	Why Passivize the Nonpassivizable? Conceptual Space, Argument Structure and L1 Transfer in L2 Acquisition of English Unaccusatives
TA066	University of Hawai'i	2007	Clark, Martyn Keeler	Listening Placement Test Development and Analysis from a Rasch Perspective
TA067	University of Hawai'i	2007	Hasegawa, Tomomi	The Critical Period Hypothesis in Very Early Child L2 Acquisition of Japanese: The Uninevitability of Native-like Attainment
TA068	University of Hawai'i	2007	Ko, HyunSook	Different Anticipations of Sentence Structures in Reading by Native English Speakers and Korean Bilinguals
TA069	University of Hawai'i	2007	Margolis, Douglas Paul	Impacts of Oral Error Feedback in Korean University EFL Classrooms
TA070	University of Hawai'i	2007	Tremblay, Annie	Bridging the Gap between Theoretical Linguistics and Psycholinguistics in L2 Phonology: Acquisition and Processing of Word Stress by French Canadian L2 Learners of English
TA071	Pennsylvania State University	2009	Brua, Charles R.	Health-care access in a rural area: Perspectives from Russian-speaking immigrants, English-speaking doctors, and volunteer interpreters
TA072	Pennsylvania State University	2009	Morrison, Elizabeth Leigh	Negotiating learner-centeredness in an IEP ESL classroom: A critical ethnographic discourse analysis
TA073	Pennsylvania State University	2009	Rine, Emily F.	Development in dialogic teaching skills: A micro-analytic case study of a pre-service ITA
TA074	Pennsylvania State University	2009	Smolcic, Elizabeth A.	Preparing teachers for diverse classrooms: An activity theoretical analysis of teacher learning and development
TA075	Pennsylvania State University	2008	Kim, Eun-Ju	In the midst of ELT curricular reform: An activity theory analysis of teachers' and students' experiences in South Korea
TA076	Pennsylvania State University	2008	Navarre, Amber Hsinyi	Discourse of female marriage-based immigrants in Taiwan
TA077	Pennsylvania State University	2007	Feiz Zarrin Ghalam, Parastou	The expression and conceptualization of motion through space and manner of motion in Persian and English: A comparative analysis
TA078	Pennsylvania	2007	Reinhardt,	Directives usage by ITAS: An applied learner

	State University		Jonathon S.	corpus analysis
TA079	Pennsylvania State University	2006	Katayama, Hanae	A cross-cultural analysis of humor in stand-up comedy in the United States and Japan
TA080	Pennsylvania State University	2006	Xiang, Xuehua	A discourse-pragmatic study of interactional particles in Shishan (Hainan Island, P. R. China)

Appendix 3.4 The PTA Corpus

Code	University	Year	Author	Title
TP001	University of Birmingham	2009	Shayle, Amy Dawn Ann	Assessing the cognitive, behavioural and psychosocial profile of children with Russell Silver Syndrome
TP002	University of Birmingham	2008	Bickerton, W-L.	The cognitive neuropsychology of everyday action: an investigation into its application for rehabilitation
TP003	University of Birmingham	2008	Kourtis, Dimitrios	Neurophysiological correlates of preparation for action measured by electroencephalography
TP004	University of Birmingham	2008	Pope, P. A.	Behavioural and neurophysiological investigations of timing and force control in human movement
TP005	University of Birmingham	2008	Qureshi, Adam Werner	The cognitive bases of mental state reasoning in adults
TP006	University of Birmingham	2008	Rahman, Barzan	An applied behaviour analytic approach to challenging behaviours shown by survivors of traumatic brain injury
TP007	University of Birmingham	2008	Telling, Anna L.	Semantic and phonological context effects in visual search
TP008	University of Birmingham	2007	Attwood, A. S.	Conditioned cognitive and mood effects of caffeine in humans
TP009	University of Birmingham	2007	Backhaus, A.	Computational modelling of visual search experiments with the selective attention for identification model (SAIM)
TP010	University of Birmingham	2007	Cook, A. E.	Capacity demands of word production
TP011	University of Cambridge	2009	Acres, L.	The organisation of the ventral temporal object processing stream
TP012	University of Cambridge	2009	Bartko, S. J.	The role of cholinergic muscarinic receptors in visual cognition
TP013	University of Cambridge	2009	Bosten, J. M.	Contrast and constancy in visual perception
TP014	University of Cambridge	2009	Boulougouris, V.	Neuroanatomical and neurochemical modulation of cognitive flexibility: implications for obsessive-compulsive disorder (OCD)
TP015	University of Cambridge	2009	Hopkins, K.	The role of temporal fine structure information in the perception of complex sounds for normal-hearing and hearing-impaired subjects

TP016	University of Cambridge	2009	Huppert, D.	Libido and the destruction of the psychic reality: a Freudian account of traumatic neurosis in child survivors of Nazi persecution
TP017	University of Cambridge	2009	Jonkman, S.	Neural mechanisms underlying the acquisition of instrumental behaviour in rats
TP018	University of Cambridge	2009	Stevens, S. B.	Caching and pilfering behaviour in the western scrub-jay, Aphelocoma californica
TP019	University of Cambridge	2009	Teufel, C. R.	Mental attribution: its role in socio-cognitive development and adult social cognition
TP020	University of Cambridge	2009	Wall, M. B.	Emotional influences on implicit learning
TP021	University of Essex	2009	Fernandez, D. A.W.	Uncomfortable images
TP022	University of Essex	2009	Kikutani, M.	Categorical perception for unfamiliar identities: issues of face learning, labelling and distinctiveness
TP023	University of Essex	2009	Lecluyse, W.	Enhanced procedures for assessment of hearing impairment
TP024	University of Essex	2009	Standage, H.	Modification of interpretation bias and social anxiety
TP025	University of Essex	2009	Wright, B.	Visual function in patients with multiple sclerosis
TP026	University of Essex	2009	Zougkou, K.	Number processing, calculation and geometrical judgements in children with genetic syndromes: a cognitive neuropsychological analysis of arithmetical skills
TP027	University of Essex	2008	Ferry, R.T.	Auditory processing and the medial olivocochlear efferent system
TP028	University of Essex	2008	Harris, J.	Psychological need satisfaction and the prediction of behaviour
TP029	University of Essex	2008	Ramos, S. da S.	Grammatical gender in language and cognition: a comparison between Portuguese and English speakers
TP030	University of Essex	2007	Henderson, C.J.	“Illness is in the mind”: the schematic nature of illness representations and coping in the common sense model
TP031	University of Exeter	2010	O'Donnell, Aisling Therese	Who is watching you, and why? A social identity analysis of surveillance
TP032	University of Exeter	2009	Hoeger, Ivonne	Men hate it, women love it? A critical examination of shopping as a gendered activity

TP033	University of Exeter	2009	Otto, Annette Michaela Cosima	The economic psychology of adolescent saving
TP034	University of Exeter	2008	Bate, Sarah	The role of emotion in face recognition
TP035	University of Exeter	2008	Hopewell, Lucy Joanne	Influences on the food-storing behaviour of the grey squirrel: An investigation into social cognition
TP036	University of Exeter	2008	Kulich, Clara	Who is to blame for women's lower pay? A contextual approach to the gender pay gap in managerial positions
TP037	University of Exeter	2008	Smith, Laura Grace Elizabeth	The impact of intra-group interaction on identity and action
TP038	University of Exeter	2010	Pearson, Katherine A.	The interpersonal context of rumination: An investigation of interpersonal antecedents and consequences of the ruminative response style
TP039	University of Exeter	2009	Pullen, Penelope Kirsten	Male – male social interactions in breeder and bachelor groups of gorillas (*Gorilla gorilla*): An indication of behavioural flexibility
TP040	University of Exeter	2010	Duke, Christopher C.	Social Identity and the Environment: The Influence of Group Processes on Environmentally Sustainable Behaviour
TP041	Stanford University	2009	Bryan, Christopher J.	Political mindsets: Effects of schema priming on political judgments
TP042	Stanford University	2009	Chen, Frances Si-Ping	Individual differences in sensitivity to social threat
TP043	Stanford University	2009	Cooper, Jeffrey C.	Learning to like: Neural representations of social value
TP044	Stanford University	2009	Ersner-Hershfield, Hal	Thinking about tomorrow: The role of time horizons in emotional experience and intertemporal decision-making
TP045	Stanford University	2009	Jones, Valerie Denise	The pressure to work harder: The effect of numeric underrepresentation on academic motivation
TP046	Stanford University	2009	Jordan, Alexander Huff	Pluralistic ignorance in the perception of others' emotional lives
TP047	Stanford University	2009	Kuhl, Brice Alan	Competitive remembering: Neural systems for overcoming interference in episodic memory
TP048	Stanford University	2009	Lew-Williams, Casey	Real-time processing of gender-marked articles by native and non-native Spanish-speaking children and adults
TP049	Stanford University	2009	Minson, Julia Alexandra	Two to tango: The effect of collaborative experience and disagreement on dyadic decision-making

TP050	Stanford University	2009	Seppala, Emma	Loving-kindness meditation: A tool for increasing social connectedness
TP051	University of California, Berkeley	2009	Flevaris, Anastasia V.	The role of spatial frequency selection in local versus global perception
TP052	University of California, Berkeley	2009	Goodrich, Whitney Sarah-Iverson	Gesture as input in language acquisition: Learning 'who she is' from 'where she is'
TP053	University of California, Berkeley	2009	Klostermann Wallace, Ellen Christine	The role of the posterior parietal cortex in memory retrieval
TP054	University of California, Berkeley	2009	Marian, Diane Elizabeth	The effects of dynamic faces on the perception of emotional expressions
TP055	University of California, Berkeley	2009	Mullin, Benjamin Charles	Sleep and mood profiles of pre-adolescents and adolescents with bipolar disorder
TP056	University of California, Berkeley	2009	Oliveira, Flavio Tanaka Pereira	Selection and monitoring of actions and their consequences
TP057	University of California, Berkeley	2009	Oveis, Christopher Saj	Vagal tone, positive emotion, and pro-sociality
TP058	University of California, Berkeley	2009	Park, Sang Hee	Prediction processes in intergroup interaction
TP059	University of California, Berkeley	2008	Adams-Hunt, Melissa May	Sex and species differences in cognition and emotion: an evolutionary approach
TP060	University of California, Berkeley	2008	Chai, Xiaoqian Jenny	Parallel systems in visual spatial cue processing in humans: Sex differences, neural correlates and development
TP061	University of Illinois at Urbana-Champaign	2009	Becic, Ensar	Aging and the effects of conversation with a passenger of a caller on simulated driving performance
TP062	University of Illinois at Urbana-Champaign	2009	Engels, Anna Sunderland	Additive and interactive effects of comorbidity during emotion processing
TP063	University of Illinois at Urbana-Champaign	2009	Fortuna, Keren	Divergence in siblings' adult attachment security: Potential contributors and consequences
TP064	University of Illinois at Urbana-Champaign	2009	Hess, Jacob Z.	"Prozac saved my life" vs. "Prozac ruined my life": Investigating the adoption, constitution and maintenance of distinct interpretations associated with depression and its medical treatment

TP065	University of Illinois at Urbana-Champaign	2009	Holland, Ashley Suzanne	Adult attachment as a predictor of relationship functioning over time: A comparison of attachment style questionnaires and the adult attachment interview
TP066	University of Illinois at Urbana-Champaign	2009	Hsieh, Brendon Ben-Kan	Playing it by eye: Stimulus based effects on attention patterns in shopping
TP067	University of Illinois at Urbana-Champaign	2009	Kandhadai, Padmapriya A.	Meaning apprehension in the cerebral hemispheres
TP068	University of Illinois at Urbana-Champaign	2009	Kesebir, Pelin	Perceiving the world in sacred terms: Its buffering function against death anxiety
TP069	University of Illinois at Urbana-Champaign	2009	Konopka, Agnieszka E.	Planning ahead: How recent experience with structures and words changes the scope of linguistic planning
TP070	University of Illinois at Urbana-Champaign	2009	Laszlo, Sarah	Filters, neighbors, and triangles: A behaviorally and electrophysiologically informed perspective on visual word recognition
TP071	University of Michigan	2010	Stephens, John Paul	Towards a psychology of coordination: Exploring feeling and focus in the individual and group in music-making
TP072	University of Michigan	2010	Taylor, Wendy Michelle	Traveling the road to healing: An examination of the relationship between psychotherapeutic technique and cognitive, emotional and physiological outcomes in women exposed to violence
TP073	University of Michigan	2010	Tsuru, Garyn K.	Evaluation of three types of mental health treatment outcome for Asian American clients
TP074	University of Michigan	2009	Atkins, Alexandra S.	Distortions of short-term memory: False memory, semantic interference, and familiarity
TP075	University of Michigan	2009	Balan, Sundari	Being Asians, good "moms," and great workers: Investigating the psychological contours of Asian Indian immigrant women's "model minority" experience
TP076	University of Michigan	2009	Brickman, Daniel W.	The implications of essentialist beliefs for prejudice
TP077	University of Michigan	2009	Buttermore, Nicole R.	The evolved function of social anxiety: Detecting high stakes social interactions
TP078	University of Michigan	2009	Chang, Hyein	Children's attentional and behavioral persistence and the development of externalizing behavior problems: A process

				oriented perspective spanning early childhood through the school-age years
TP079	University of Michigan	2009	Ford, Kahlil R.	Making meaning of the messages: Transmission and reception of racial socialization among African American dyads
TP080	University of Michigan	2009	Fuller-Iglesias, Heather R.	Social relations and well-being in Mexico: The effect of emigration

Appendix 4.1 The MALDIF analysis of an abstract from the PRA corpus

APPS016-1	Remembering to execute deferred goals (prospective memory) is a ubiquitous memory challenge, and one that is often not successfully accomplished.	Introducing the topic
APPS016-2	Could sleeping after goal encoding promote later execution?	Announcing the research
APPS016-3	We evaluated this possibility by instructing participants to execute a prospective memory goal after a short delay (20 min), a 12-hr wake delay, or a 12-hr sleep delay.	Announcing the research
APPS016-4	Goal execution declined after the 12-hr wake delay relative to the short delay.	Presenting and evaluating the main findings
APPS016-5	In contrast, goal execution was relatively preserved after the 12-hr sleep delay relative to the short delay.	Presenting and evaluating the main findings
APPS016-6	The sleep-enhanced goal execution was not accompanied by a decline in performance of an ongoing task in which the prospective memory goal was embedded, which suggests that the effect was not a consequence of attentional resources being reallocated from the ongoing task to the prospective memory goal.	Presenting and evaluating the main findings
APPS016-7	Our results suggest that consolidation processes active during sleep increase the probability that a goal will be spontaneously retrieved and executed.	Presenting and evaluating the main findings

Appendix 6.1 ITT pattern 1 in Applied Linguistics

Determiner (30) [the (12) a/an (9) some (3) this (2) most (1) other (1) such (1) these (1)]	(pre-modifier) (total: 49)	(total: 75) research studies researchers learners analysis approach account(s) concerns need results	(post-modifier) (total: 36)	(total: 1) however	(total: 50) have/has are can could would have to may have should	(total: 17) often thus also consistently currently historically however largely long recently typically	(total: 124) show suggest claim differ focus indicate take argue prompt propose	noun phrase (57) that clause (35) prepositional phrase (16) to-inf clause (9) adverb phrase (3) -ing participle clause (1) whether clause (1) other (2)
Zero determiner (45)								
Pronoun (15) [they (4) - this (3) - I (2) - we (2) - each (1) - nobody (1) - others (1) - some (1)]								
Other subject (34)								

Appendix 6.2 ITT pattern 1 in Psychology

Determiner (13) [the (7) most (2) a (1) many (1) much (1) this (1)]	(pre-modifier) (total: 41)	(total: 72) research people theory/theories model(s) children evidence findings individuals researchers advances	(post-modifier) (total: 25)	(total: 30) have/has can do not should will	(total: 16) often typically also commonly both commonly either exclusively however increasingly mentally	(total: 104) suggest show have seem assume focus provide demonstrate indicate use	noun phrase (47) that clause (31) prepositional phrase (11) to-inf clause (7) -ing participle clause (3) adverb phrase (2) whether clause (1) other (2)
Zero determiner (59)							
Pronoun (8) [we (5) - they (2) - this (1)]							
Other subject (24)							

Appendix 6.3 SNR pattern 1 in Applied Linguistics

Determiner (12) [few (6) no (2) these (2) the (1) this (1)]	(pre-modifier) (total: 6)	(total: 17) study/studies research article attempts literature	(post-modifier) (total: 4)	(total: 19) have/has might	(total: 6) both hitherto largely not simultaneously specifically	(total: 23) investigate explore examine argue attempt compare deal derive fail help	noun phrase (13) to-inf clause (3) prepositional phrase (2) adjective phrase (1) how clause (1) that clause (1) what clause (1) whether clause (1)
Zero determiner (5)							
Pronoun (3) [they (1) - this (1) - very few (1)]							
Other subject (3)							

Appendix 6.4 SNR pattern 1 in Psychology

Determiner (5) [a (2) no (2) the (1)]	(pre-modifier) (total: 10)	(total: 13) research study/studies efforts literature material question researchers	(post-modifier) (total: 2)	(total: 1) however	(total: 11) have/has did	(total: 8) not however explicitly frequently typically	(total: 24) remain examine know have consider covary explore involve preclude provide	noun phrase (7) adjective phrase (4) adverb phrase (3) how clause (3) to-inf clause (3) prepositional phrase (1) that clause (1) whether clause (1) why clause (1)
Zero determiner (8)								
Pronoun (4) [we (3) - it (1)]								
Other subject (7)								

Appendix 6.5 ATR pattern 1 in Applied Linguistics

<table>
<tr><td>Determiner (259)
[this (175)
the (81)
a/an (2)
my (1)]</td><td rowspan="2">(pre-modifier)
(total: 53)</td><td rowspan="2">(total: 271)
study
paper
article
dissertation
thesis
experiment(s)
research
analysis/analyses
chapter
part</td><td rowspan="2">(post-modifier)
(total: 22)</td><td rowspan="4">(total: 10)
will
can</td><td rowspan="4">(total: 17)
also
therefore
acoustically
closely
discursively
first</td><td rowspan="4">(total: 340)
examine
investigate
explore
present
report
focus
analyse
address
compare
aim</td><td rowspan="4">noun phrase (241)
prepositional phrase (44)
to-inf clause (19)
how clause (18)
whether clause (12)
that clause (5)
what clause (1)</td></tr>
<tr><td>Zero determiner
(12)</td></tr>
<tr><td colspan="4">Pronoun (66)
[we (23) - I (13) - it (28) - this (2)]</td></tr>
<tr><td colspan="4">Other subject (3)</td></tr>
</table>

Appendix 6.6 ATR pattern 1 in Psychology

<table>
<tr><td>Determiner (120)
[the (61)
this (45)
a/an (11)
all (1)
my (1)
these (1)]</td><td rowspan="2">(pre-modifier)
(total: 66)</td><td rowspan="2">(total: 187)
study/studies
experiment(s)
thesis
authors
chapter(s)
research
article
dissertation
investigation(s)
theme</td><td rowspan="2">(post-modifier)
(total: 56)</td><td rowspan="4">(total: 2)
would</td><td rowspan="4">(total: 10)
also
first
further
then
repeatedly</td><td rowspan="4">(total: 309)
examine
investigate
test
explore
use
report
propose
compare
address
assess</td><td rowspan="4">(total: 3)
however
here
in 3
experiments</td><td rowspan="4">noun phrase (212)
that clause (26)
whether clause (23)
how clause (18)
prepositional phrase (17)
to-inf clause (11)
if clause (1)
which clause (1)</td></tr>
<tr><td>Zero determiner
(67)</td></tr>
<tr><td colspan="3">Pronoun (120)
[we (93) - I (26) - it (1)]</td></tr>
<tr><td colspan="3">Other subject (2)</td></tr>
</table>

Appendix 6.7 DTM pattern 1 in Applied Linguistics

<table>
<tr><td>Determiner (64)
[the (52)
each (4)
a (3)
this (2)
all (1)
both (1)
these (1)]</td><td rowspan="2">(pre-modifier)
(total: 46)</td><td rowspan="2">(total: 108)
participants
learner(s)
group(s)
study
data
students
design
methodology
speakers
analysis</td><td rowspan="2">(post-modifier)
(total: 27)</td><td rowspan="4">(total: 4)
also
deeply
only</td><td rowspan="4">(total: 140)
complete
participate
include
come from
involve
use
examine
read
analyse
compare</td><td rowspan="4">noun phrase (101)
prepositional phrase (29)
-ing participle clause (4)
to-inf clause (2)
whether clause (2)
adverb phrase (1)
how clause (1)</td></tr>
<tr><td>Zero determiner
(44)</td></tr>
<tr><td colspan="4">Pronoun (21)
[we (9) - I (5) - they (5) - it (1) - these (1)]</td></tr>
<tr><td colspan="4">Other subject (11)</td></tr>
</table>

Appendix 6.8 DTM pattern 1 in Psychology

<table>
<tr><td>Determiner (12)
[the (8)
a/an (3)
this (1)]</td><td rowspan="2">(pre-modifier)
(total: 16)</td><td rowspan="2">(total: 53)
participants
study/studies
experiments
adolescents
authors
mothers
students
task
adults
children</td><td rowspan="2">(post-modifier)
(total: 10)</td><td rowspan="4">(total: 2)
also</td><td rowspan="4">(total: 67)
use
complete
participate
rate
conduct
have
include
involve
learn
study</td><td rowspan="4">noun phrase (56)
prepositional phrase (5)
-ing participle clause (2)
how clause (1)
which clause (1)
zero (2)</td></tr>
<tr><td>Zero determiner
(41)</td></tr>
<tr><td colspan="4">Pronoun (12)
[we (7) - I (4) - they (1)]</td></tr>
<tr><td colspan="4">Other subject (2)</td></tr>
</table>

Appendix 6.9 PEMF pattern 1 in Applied Linguistics

<table>
<tr>
<td>Determiner (285)
[the (201)
this (27)
these (25)
a/an (11)
our (9)
both (4)
all (3)
each (1)
few (1)
my (1)
some (1)
such (1)]</td>
<td rowspan="2">(pre-modifier)
(total: 105)</td>
<td rowspan="2">(total: 419)
results
finding(s)
analysis/analyses
study/studies
learner(s)
data
group(s)
students
paper
task(s)</td>
<td rowspan="2">(post-modifier)
(total: 101)</td>
<td rowspan="4">(total: 2)
in turn
however</td>
<td rowspan="4">(total: 30)
did
do/does
may
have/has
can
could
had
may have
will</td>
<td rowspan="4">not (15)</td>
<td rowspan="4">(total: 65)
also
further
significantly
however
successfully
therefore
thus
clearly
closely
encouragingly</td>
<td rowspan="4">(total: 523)
show
suggest
indicate
reveal
provide
demonstrate
find
have
seem
support</td>
<td rowspan="4">(total: 1)
first</td>
<td rowspan="4">noun phrase (226)
that clause (206)
prepositional phrase (41)
to-inf clause (22)
how clause (8)
adverb phrase (7)
adjective phrase (6)
-ing participle clause (2)
conjunction+clause (1)
what clause (1)
zero (3)</td>
</tr>
<tr>
<td>Zero determiner (134)</td>
</tr>
<tr>
<td colspan="4">Pronoun/There (50)
[we (14) - this (11) - they (10) - it (8) - I (5) - he (1) - there (1)]</td>
</tr>
<tr>
<td colspan="4">Other subject (54)</td>
</tr>
</table>

Appendix 6.10 PEMF pattern 1 in Psychology

<table>
<tr>
<td>Determiner (256)
[the (123)
these (65)
this (26)
a/an (16)
our (14)
both (4)
my (4)
all (2)
such (1)
those (1)]</td>
<td rowspan="2">(pre-modifier) (total: 98)</td>
<td rowspan="2">(total: 483)
results
study/studies
finding(s)
experiment(s)
participants
analysis/analyses
children
data
thesis
investigation(s)</td>
<td rowspan="2">(post-modifier) (total: 170)</td>
<td rowspan="4">(total: 17)
did
does
may
might</td>
<td rowspan="4">not (12)</td>
<td rowspan="4">(total: 39)
also
further
significantly
prospectively
subsequently
therefore
additionally
effectively
generally
however</td>
<td rowspan="4">(total: 682)
show
suggest
demonstrate
indicate
find
reveal
provide
predict
support
replicate</td>
<td rowspan="4">(total: 3)
here
in the present research
rather</td>
<td rowspan="4">noun phrase (320)
that clause (304)
prepositional phrase (22)
to-inf clause (9)
adverb phrase (8)
how clause (7)
adjective phrase (4)
-ing participle clause (3)
when clause (2)
whether clause (1)
other (1)
zero (1)</td>
</tr>
<tr>
<td>Zero determiner (227)</td>
</tr>
<tr>
<td colspan="4">Pronoun (113)
[we (58) - they (21) - I (14) - this (14) - it (6)]</td>
</tr>
<tr>
<td colspan="4">Other subject (86)</td>
</tr>
</table>

Appendix 6.11 RPT pattern 1 in Applied Linguistics

<table>
<tr><td>Determiner (18)
[the (12)
this (4)
other (1)
these (1)]</td><td>(total: 18)
paper
study
article
findings
author
issues
project
thesis</td><td>(post-modifier)
(total: 1)</td><td rowspan="2">(total: 3)
also
first
therefore also</td><td rowspan="2">(total: 21)
conclude
consider
discuss
have
present
end
explore
finish
illustrate
include</td><td rowspan="2">noun phrase (16)
prepositional phrase (5)</td></tr>
<tr><td colspan="3">Pronoun (3)
[I (1) - it (1) - we (1)]</td></tr>
</table>

Appendix 6.12 RPT pattern 1 in Psychology

<table>
<tr><td>Determiner (6)
[these (3)
the (2)
this (1)]</td><td rowspan="2">(pre-modifier)
(total: 1)</td><td rowspan="2">(total: 19)
chapter(s)
findings
authors
discussion
research
results</td><td rowspan="2">(post-modifier)
(total: 12)</td><td rowspan="3">(total: 2)
could
should</td><td rowspan="3">(total: 2)
first
then</td><td rowspan="3">(total: 30)
discuss
present
provide
have
focus</td><td rowspan="3">noun phrase (24)
prepositional phrase (3)
how clause (2)
to-inf clause (1)</td></tr>
<tr><td>Zero determiner (13)</td></tr>
<tr><td colspan="4">Pronoun (11)
[we (9) - I (2)]</td></tr>
</table>

Appendix 6.13 ITT pattern 2 in Applied Linguistics

Determiner (11) [the (4) a (2) this (2) much (1) such (1) such a (1)]	(pre-modifier) (total: 4)	(total: 14) speakers benefits call claim construct difficulties distinction instruction notion operationalisation	(post-modifier) (total: 6)	(total: 16) have/has can may must	(total: 4) long then typically usually	is (16) been (11) are (5) be (5) was (1)	(total: 9) often widely also commonly frequently now widely usually	(total: 38) found claimed realised aimed asked assumed based carried out compromised defined	(total: 1) in recent years	prepositional phrase (23) that clause (5) adverb phrase (3) to-inf clause (3) how clause (1) when clause (1) zero (2)
Zero determiner (3)										
Pronoun (8) [it (7) - they (1)]										
Other subject (16)										

Appendix 6.14 ITT pattern 2 in Psychology

Determiner (8) [the (4) a (2) this (2)]	(pre-modifier) (total: 8)	(total: 16) behaviour(s) phenomenon children effects adults correspondence difference females negotiators paradigm	(post-modifier) (total: 5)	(total: 19) have/has can should	(total: 4) also often previously	is (20) been (15) are (10) be (4) was (1)	(total: 13) often typically also sometimes generally hypothetically largely likely mainly systematically widely	(total: 50) shown observed associated known thought advised assumed attracted attributed based	prepositional phrase (29) to-inf clause (10) that clause (3) adverb phrase (2) noun phrase (2) when clause (2) zero (2)
Zero determiner (8)									
Pronoun (3) [it (3)]									
Other subject (31)									

Appendix 6.15 SNR pattern 2 in Applied Linguistics

Determiner (5) [the (3) few (1) no (1)]	(pre-modifier) (total: 2)	(total: 7) attempts conclusions nature relationship sources and effects studies work	(post-modifier) (total: 4)	(total: 1) however	(total: 11) have/has	(total: 4) not yet ever to date	been (11) is (2) are (1)	(total: 6) clearly extensively little mostly relatively still	(total: 14) known advocated based debated done established made shown studied tested	prepositional phrase (10) adjective phrase (1) to-inf clause (1) zero (2)
Zero determiner (2)										
Pronoun (3) [almost nothing (1) - little (1) - relatively little (1)]										
Other subject (4)										

Appendix 6.16 SNR pattern 2 in Psychology

Determiner (3) [the (3)]	(pre-modifier) (total: 7)	(total: 8) attention evidence nature origins predictions progress theory	(post-modifier) (total: 3)	(total: 8) have/has can had	(total: 2) also previously not	been (7) is (7) are (2) be (1)	(total: 3) almost wholly less well not well	(total: 17) known given attributed criticised debated made mixed neglected researched tested	prepositional phrase (12) adverb phrase (1) zero (4)
Zero determiner (5)									
Pronoun (5) [little (5)]									
Other subject (4)									

Appendix 6.17 ATR pattern 2 in Applied Linguistics

Determiner (16) [the (11) a (5)]	(pre-modifier) (total: 19)	(total: 33) study/studies attitudes effects experiments method(s) questions responses assumption attention comparison	(post-modifier) (total: 16)	(total: 1) will	were (22) is (17) are (12) was (12) be (1)	(total: 14) also explicitly first functionally further subsequently then	(total: 64) compared analysed used investigated examined explored tested addressed employed expected	prepositional phrase (24) to-inf clause (15) that clause (4) adverb phrase (1) -ing participle clause (1) zero (19)
Zero determiner (17)								
Pronoun (6) [it (4) - this (1) - these (1)]								
Other subject (25)								

Appendix 6.18 ATR pattern 2 in Psychology

Determiner (39) [the (21) a/an (9) this (4) these (2) both (1) our (1) their (1)]	(pre-modifier) (total: 32)	(total: 56) study/studies experiment(s) effect(s) model role(s) analyses importance performance questions relationship(s)	(post-modifier) (total: 26)	(total: 2) also can conveniently	was (42) were (28) is (12) are (9) be (1)	(total: 11) also then further better experimentally more closely	(total: 92) investigated examined used assessed explored conducted hypothesised presented predicted evaluated	prepositional phrase (29) to-inf clause (22) -ing participle clause (7) that clause (2) adverb phrase (2) other (3) zero (27)
Zero determiner (17)								
Pronoun (2) [it (2)]								
Other subject (34)								

Appendix 6.19 DTM pattern 2 in Applied Linguistics

Determiner (76) [the (37) a/an (20) these (4) all (3) both (3) their (3) this (3) each (1) our (1) such (1)]	(pre-modifier) (total: 89)	(total: 145) student(s) data analysis/analyses task(s) corpus/corpora group(s) participants questionnaire(s) design measure(s)	(post-modifier) (total: 41)	were (99) was (48) are (18) is (18)	(total: 13) then also randomly predominantly then randomly visually	(total: 183) used analysed administered based compared measured assigned collected tested conducted	prepositional phrase (114) to-inf clause (29) -ing participle clause (6) noun phrase (4) adverb phrase (3) -ed participle clause (3) adjective phrase (1) other (1) zero (22)
Zero determiner (69)							
Pronoun (3) [this (2) - it (1)]							
Other subject (35)							

Appendix 6.20 DTM pattern 2 in Psychology

Determiner (13) [the (6) a (3) all (1) each (1) no (1) this (1)]	(pre-modifier) (total: 30)	(total: 56) participant(s) children analysis data behaviour responses studies abilities adolescents assessments	(post-modifier) (total: 22)	were (50) was (31) is (1)	(total: 4) first operationally randomly	(total: 82) assessed used asked collected conducted presented administered correlated defined investigated	prepositional phrase (55) to-inf clause (9) -ing participle clause (5) noun phrase (3) adverb phrase (1) other (2) zero (7)
Zero determiner (43)							
Other subject (26)							

Appendix 6.21 PEMF pattern 2 in Applied Linguistics

Determiner (33) [the (14) these (9) a/an (4) no (3) this (3)]	(pre-modifier) (total: 31)	(total: 61) difference(s) result(s) effect(s) learners patterns relationship(s) types aspects hypothesis instances	(post-modifier) (total: 23)	(total: 11) can could have may might should	(total: 1) then	were (41) was (35) is (30) are (24) be (10) been (1)	(total: 22) also not generally more efficiently preferentially strongly then therefore	(total: 141) found argued identified discussed explained used affected attributed proposed seen	prepositional phrase (68) to-inf clause (30) that clause (24) adjective phrase (2) adverb phrase (1) other (1) zero (15)
Zero determiner (28)									
Pronoun (27) [it (24) - others (1) - they (1) - this (1)]									
Other subject (53)									

Appendix 6.22 PEMF pattern 2 in Psychology

Determiner (43) [the (22) these (7) no (5) this (5) a/an (4)]	(pre-modifier) (total: 36)	(total: 68) effect(s) difference(s) results evidence factors finding(s) pattern(s) relationship association data	(post-modifier) (total: 30)	(total: 6) can could cannot will	(total: 2) often therefore	was (96) were (44) is (21) are (14) be (6)	(total: 31) not also significantly again also positively at least in part best both chiefly commonly	(total: 181) found associated observed mediated shown used argued considered linked affected	prepositional phrase (106) to-inf clause (23) that clause (17) adverb phrase (8) when clause (6) -ing participle clause (3) zero (18)
Zero determiner (25)									
Pronoun (19) [it (16) - this (2) - these (1)]									
Other subject (94)									

Appendix 6.23 RPT pattern 2 in Applied Linguistics

Determiner (20) [the (14) these (4) some (2)]	(pre-modifier) (total: 13)	(total: 36) implications findings results suggestions explanations avenues data and analyses evidence factors	(post-modifier) (total: 19)	are (35) is (1) will be (1)	(total: 5) also finally thus	(total: 37) discussed made considered proposed offered presented presented and discussed provided recapitulated suggested	prepositional phrase (19) to-inf clause (1) zero (17)
Zero determiner (16)							
Other subject (1)							

Appendix 6.24 RPT pattern 2 in Psychology

Determiner (19) [the (14) these (5)]	(pre-modifier) (total: 6)	(total: 38) implications results findings aims contributions	(post-modifier) (total: 27)	are (38) is (3) was (1) will be (1)	(total: 2) also succinctly	(total: 43) discussed broken down considered described	prepositional phrase (17) zero (26)
Zero determiner (19)							
Other subject (5)							

Appendix 6.25 ITT pattern 3 in Applied Linguistics

Determiner (13) [a/an (4) the (4) both (1) many (1) not all (1) such (1) this (1)]	(pre-modifier) (total: 10)	(total: 17) question aspect claim(s) students challenge interpreters issues literature need practice	(post-modifier) (total: 9)	(total: 1) however	(total: 11) have/has may has not might	(total: 2) recently traditionally	(total: 55) is (32) are (10) been (7) be (4) was (2)	(total: 3) not now	noun phrase (28) adjective phrase (21) prepositional phrase (4) adverb phrase (1) that clause (1)
Zero determiner (4)									
Pronoun/There (5) [it (2) - this (1) - there (2)]									
Other subject (33)									

Appendix 6.26 ITT pattern 3 in Psychology

Determiner (6) [the (5) a (1)]	(pre-modifier) (total: 13)	(total: 17) effect(s) way(s) behaviours challenges dimension explanation finding important notion people	(post-modifier) (total: 11)	(total: 2) could has	(total: 52) is (35) are (15) be (1) been (1)	(total: 1) also	noun phrase (26) adjective phrase (17) that clause (5) to-inf clause (3) prepositional phrase (1)
Zero determiner (11)							
Pronoun/There (7) [it (4) - there (3)]							
Other subject (28)							

Appendix 6.27 SNR pattern 3 in Applied Linguistics

<table>
<tr><td>Determiner (3)
[the (3)]</td><td rowspan="2">(pre-modifier)
(total: 1)</td><td rowspan="2">(total: 4)
evidence
extent
role
study</td><td rowspan="2">(post-modifier)
(total: 3)</td><td rowspan="3">(total: 6)
have/has</td><td rowspan="3">(total: 2)
not
to date</td><td rowspan="3">(total: 9)
been (6)
is (3)</td><td rowspan="3">noun phrase (6)
adjective phrase (3)</td></tr>
<tr><td>Zero determiner (1)</td></tr>
<tr><td colspan="4">Pronoun/There (5)
[it (1) - there (4)]</td></tr>
</table>

Appendix 6.28 SNR pattern 3 in Psychology

<table>
<tr><td>Determiner (1)
[the (1)]</td><td rowspan="2">(pre-modifier)
(total: 1)</td><td rowspan="2">(total: 3)
evidence
extent
knowledge</td><td rowspan="2">(post-modifier)
(total: 3)</td><td rowspan="3">(total: 1)
has</td><td rowspan="3">(total: 6)
is (5)
been (1)</td><td rowspan="3">adjective phrase (3)
noun phrase (3)</td></tr>
<tr><td>Zero determiner (2)</td></tr>
<tr><td colspan="4">Pronoun/There (3)
[it (2) - there (1)]</td></tr>
</table>

Appendix 6.29 ATR pattern 3 in Applied Linguistics

Determiner (51) [the (40) this (10) its (1)]	(pre-modifier) (total: 15)	(total: 54) aim purpose study focus/foci goal(s) dissertation point thesis aspects assumption	(post-modifier) (total: 30)	(total: 60) is (47) was (6) are (5) were (2)	(total: 4) perhaps principally therefore thus	to-inf clause (27) noun phrase (20) prepositional phrase (7) adjective phrase (4) that clause (2)
Zero determiner (3)						
Pronoun (4) [it (2) - this (2)]						
Other subject (2)						

Appendix 6.30 ATR pattern 3 in Psychology

Determiner (28) [the (22) an (2) this (2) my (1) our (1)]	(pre-modifier) (total: 17)	(total: 29) goal(s) aim(s) focus issue thesis intention objective paper principles purpose	(post-modifier) (total: 16)	(total: 33) was (15) is (11) are (7)	(total: 5) first therefore perhaps	to-inf clause (18) adjective phrase (4) noun phrase (3) that clause (3) prepositional phrase (2) how clause (1) where clause (1) whether clause (1)
Zero determiner (1)						
Other subject (4)						

Appendix 6.31 DTM pattern 3 in Applied Linguistics

<table>
<tr><td>Determiner (19)
[the (18)
all (1)]</td><td rowspan="2">(pre-modifier)
(total: 9)</td><td rowspan="2">(total: 26)
participants
analysis
items
ages
frequency
groups
learners
level
measures
methodology</td><td rowspan="2">(post-modifier)
(total: 12)</td><td rowspan="4">(total: 1)
may</td><td rowspan="4">(total: 37)
were (19)
was (8)
are (6)
is (3)
be (1)</td><td rowspan="4">(total: 2)
not</td><td rowspan="4">noun phrase (28)
adjective phrase (6)
other (3)</td></tr>
<tr><td>Zero determiner (7)</td></tr>
<tr><td colspan="4">There (4)</td></tr>
<tr><td colspan="4">Other subject (7)</td></tr>
</table>

Appendix 6.32 DTM pattern 3 in Psychology

<table>
<tr><td>Determiner (3)
[the (2)
these (1)]</td><td rowspan="2">(pre-modifier)
(total: 1)</td><td rowspan="2">(total: 5)
participants
distractors
measures
purpose</td><td rowspan="2">(post-modifier)
(total: 1)</td><td rowspan="3">(total: 6)
were (4)
are (1)
was (1)</td><td rowspan="3">noun phrase (3)
adjective phrase (2)
to-inf clause (1)</td></tr>
<tr><td>Zero determiner (2)</td></tr>
<tr><td colspan="4">Pronoun (1)
[they (1)]</td></tr>
</table>

Appendix 6.33 PEMF pattern 3 in Applied Linguistics

<table>
<tr><td>Determiner (20)
[the (13)
these (2)
this (2)
a (1)
all (1)
such (1)]</td><td rowspan="2">(pre-modifier)
(total: 15)</td><td rowspan="3">(total: 30)
finding(s)
effect(s)
learners
results
conclusion(s)
patterns
children
difference
disadvantage
instances</td><td rowspan="2">(post-modifier)
(total: 8)</td><td rowspan="4">(total: 6)
may
has
would</td><td rowspan="4">(total: 1)
also</td><td rowspan="4">(total: 96)
was (27)
were (25)
are (23)
is (15)
be (5)
been (1)</td><td rowspan="4">(total: 5)
also
all
both
indeed</td><td rowspan="4">adjective phrase (55)
noun phrase (28)
prepositional phrase (5)
that clause (5)
adverb phrase (1)
zero (2)</td></tr>
<tr><td>Zero determiner (10)</td></tr>
<tr><td colspan="3">Pronoun/There (17)
[it (3) - they (2) - this (2) - there (10)]</td></tr>
<tr><td colspan="3">Other subject (49)</td></tr>
</table>

Appendix 6.34 PEMF pattern 3 in Psychology

<table>
<tr><td>Determiner (27)
[the (14)
these (6)
this (6)
our (1)]</td><td rowspan="2">(pre-modifier)
(total: 7)</td><td rowspan="3">(total: 48)
effect(s)
findings
participants
results
change(s)
children
rate(s)
subjects
support
account</td><td rowspan="2">(post-modifier)
(total: 21)</td><td rowspan="4">(total: 1)
may</td><td rowspan="4">(total: 1)
however</td><td rowspan="4">(total: 130)
was (55)
were (52)
is (12)
are (10)
be (1)</td><td rowspan="4">(total: 3)
also
thus</td><td rowspan="4">adjective phrase (105)
noun phrase (18)
prepositional phrase (3)
conjunction+clause (2)
that clause (1)
other (1)</td></tr>
<tr><td>Zero determiner (21)</td></tr>
<tr><td colspan="3">Pronoun/There (15)
[this (3) - it (1) - there (11)]</td></tr>
<tr><td colspan="3">Other subject (67)</td></tr>
</table>

Appendix 6.35 ITT pattern 1 in Research Articles

Determiner (28) [the (14) a/an (8) this (2) many (1) most (1) some (1) such (1)]	(pre-modifier) (total: 58)	(total: 96) research people studies researchers theory/theories children model(s) analysis approach evidence	(post-modifier) (total: 36)	(total: 1) however	(total: 46) have/has can are should could do not may have will would	(total: 26) often thus typically also both commonly currently either exclusively historically	(total: 143) suggest show have indicate seem assume focus claim take argue	noun phrase (61) that clause (42) prepositional phrase (18) to-inf clause (11) adverb phrase (3) -ing participle clause (3) whether clause (2) other (3)
Zero determiner (68)								
Pronoun (14) [we (6) - they (4) - I (2) - this (2)]								
Other subject (33)								

Appendix 6.36 ITT pattern 1 in Theses

Determiner (15) [the (5) a (2) most (2) some (2) much (1) other (1) these (1) this (1)]	(pre-modifier) (total: 32)	(total: 51) research researchers studies concerns evidence findings learners account advances assessments	(post-modifier) (total: 25)	(total: 34) have/has can could have to would	(total: 7) often also commonly consistently however increasingly typically	(total: 85) suggest show focus claim demonstrate differ provide argue cause indicate	noun phrase (43) that clause (24) prepositional phrase (9) to-inf clause (5) adverb phrase (2) -ing participle clause (1) other (1)
Zero determiner (36)							
Pronoun (9) [they (2) - this (2) - each (1) - nobody (1) - others (1) - some (1) - we (1)]							
Other subject (25)							

Appendix 6.37 SNR pattern 1 in Research Articles

Determiner (13) [few (4) a (2) no (2) the (2) these (2) this (1)]	(pre-modifier) (total: 9)	(total: 18) study/studies literature research article attempts efforts question	(post-modifier) (total: 4)	(total: 16) have/has did might	(total: 9) however not both frequently hitherto largely specifically	(total: 28) remain examine investigate argue attempt compare consider covary derive explore	noun phrase (13) to-inf clause (5) adjective phrase (4) prepositional phrase (2) that clause (2) how clause (1) why clause (1)
Zero determiner (5)							
Pronoun (2) [it (1) - they (1)]							
Other subject (8)							

Appendix 6.38 SNR pattern 1 in Theses

Determiner (4) [few (2) no (2)]	(pre-modifier) (total: 7)	(total: 12) study/studies research material researchers	(post-modifier) (total: 2)	(total: 1) however	(total: 14) have/has	(total: 5) not explicitly simultaneously typically	(total: 19) examine explore investigate know deal have involve leave remain reveal	noun phrase (7) adverb phrase (3) how clause (3) whether clause (2) adjective phrase (1) prepositional phrase (1) to-inf clause (1) what clause (1)
Zero determiner (8)								
Pronoun (5) [we (3) - this (1) - very few (1)]								
Other subject (2)								

Appendix 6.39 ATR pattern 1 in Research Articles

Determiner (217) [this (133) the (79) a/an (4) my (1)]	(pre-modifier) (total: 62)	(total: 244) study/studies paper article experiment(s) authors research analysis/analyses approach goals hypothesis	(post-modifier) (total: 24)	(total: 3) would can	(total: 14) also first then acoustically discursively further repeatedly thus	(total: 363) examine investigate test explore report present compare focus propose use	(total: 2) however in 3 experiments	noun phrase (253) prepositional phrase (35) that clause (25) whether clause (23) how clause (15) to-inf clause (11) which clause (1)
Zero determiner (27)								
Pronoun (117) [we (97) - it (13) - I (7)]								
Other subject (2)								

Appendix 6.40 ATR pattern 1 in Theses

Determiner (162) [this (87) the (63) a/an (9) all (1) my (1) these (1)]	(pre-modifier) (total: 57)	(total: 214) study/studies thesis dissertation experiment(s) chapter(s) research investigation(s) theme analysis/analyses part	(post-modifier) (total: 54)	(total: 9) will	(total: 13) also therefore closely first further specifically systematically then	(total: 286) examine investigate explore focus address report present use aim identify	(total: 1) here	noun phrase (200) prepositional phrase (26) how clause (21) to-inf clause (19) whether clause (12) that clause (6) if clause (1) what clause (1)
Zero determiner (52)								
Pronoun (69) [I (32) - we (19) - it (16) - this (2)]								
Other subject (3)								

Appendix 6.41 DTM pattern 1 in Research Articles

<table>
<tr><td>Determiner (41)
[the (31)
a/an (4)
each (2)
this (2)
all (1)
both (1)]</td><td rowspan="2">(pre-modifier)
(total: 42)</td><td rowspan="2">(total: 99)
participants
group(s)
learner(s)
study/studies
students
data
speaker(s)
task
teacher(s)
adolescents</td><td rowspan="2">(post-modifier)
(total: 16)</td><td rowspan="4">(total: 5)
also
only</td><td rowspan="4">(total: 127)
complete
participate
include
involve
come from
read
use
compare
learn
perform</td><td rowspan="4">noun phrase (96)
prepositional phrase (19)
-ing participle clause (5)
to-inf clause (2)
adverb phrase (1)
whether clause (1)
which clause (1)
zero (2)</td></tr>
<tr><td>Zero determiner
(58)</td></tr>
<tr><td colspan="4">Pronoun (21)
[we (13) - they (5) - I (1) - it (1) - these (1)]</td></tr>
<tr><td colspan="4">Other subject (7)</td></tr>
</table>

Appendix 6.42 DTM pattern 1 in Theses

<table>
<tr><td>Determiner (35)
[the (29)
a (2)
each (2)
these (1)
this (1)]</td><td rowspan="2">(pre-modifier)
(total: 20)</td><td rowspan="2">(total: 62)
participants
study/studies
data
students
learners
experiments
methodology
analysis
design
project</td><td rowspan="2">(post-modifier)
(total: 21)</td><td rowspan="4">(total: 1)
deeply</td><td rowspan="4">(total: 80)
complete
use
participate
include
take
combine
come from
conduct
contain
examine</td><td rowspan="4">noun phrase (61)
prepositional phrase (15)
how clause (2)
-ing participle clause (1)
whether clause (1)</td></tr>
<tr><td>Zero determiner
(27)</td></tr>
<tr><td colspan="3">Pronoun (12)
[I (8) - we (3) - they (1)]</td></tr>
<tr><td colspan="3">Other subject (6)</td></tr>
</table>

Appendix 6.43 PEMF pattern 1 in Research Articles

<table>
<tr>
<td>Determiner (319)
[the (183)
these (63)
this (23)
our (20)
a/an (16)
all (4)
both (4)
such (2)
each (1)
few (1)
my (1)
some (1)]</td>
<td rowspan="2">(pre-modifier) (total: 116)</td>
<td rowspan="2">(total: 538)
results
finding(s)
study/studies
experiment(s)
analysis/analyses
participants
learner(s)
group(s)
data
paper</td>
<td rowspan="2">(post-modifier) (total: 162)</td>
<td rowspan="4">(total: 2)
in turn
however</td>
<td rowspan="4">(total: 31)
did
do/does
may
can
could
had
have
might
will</td>
<td rowspan="4">not (17)</td>
<td rowspan="4">(total: 66)
also
further
significantly
however
therefore
thus
additionally
closely
effectively
generally</td>
<td rowspan="4">(total: 727)
show
suggest
indicate
demonstrate
reveal
provide
find
support
predict
have</td>
<td rowspan="4">(total: 3)
first
here
rather</td>
<td rowspan="4">noun phrase (331)
that clause (303)
prepositional phrase (37)
to-inf clause (15)
adverb phrase (13)
how clause (9)
adjective phrase (6)
-ing participle clause (4)
when clause (2)
conjunction+clause (1)
whether clause (1)
other (1)
zero (4)</td>
</tr>
<tr>
<td>Zero determiner (219)</td>
</tr>
<tr>
<td colspan="4">Pronoun/There (97)
[we (56) - they (16) - this (13) - I (6) - it (5) - there (1)]</td>
</tr>
<tr>
<td colspan="4">Other subject (92)</td>
</tr>
</table>

Appendix 6.44 PEMF pattern 1 in Theses

<table>
<tr><td>Determiner
(222)
[the (141)
this (30)
these (27)
a/an (11)
both (4)
my (4)
our (3)
all (1)
those (1)]</td><td rowspan="2">(pre-
modifier)
(total: 87)</td><td rowspan="2">(total: 364)
results
finding(s)
study/studies
experiment(s)
analysis/analyses
participants
data
learners
investigation(s)
thesis</td><td rowspan="2">(post-
modifier)
(total: 109)</td><td rowspan="4">(total: 16)
did
has
may
can
do
may have</td><td rowspan="4">not
(10)</td><td rowspan="4">(total: 38)
also
further
prospectively
subsequently
successfully
therefore
clearly
encouragingly
generally
however</td><td rowspan="4">(total: 478)
show
suggest
reveal
demonstrate
indicate
find
provide
support
predict
seem</td><td rowspan="4">(total: 1)
in the present
research</td><td rowspan="4">noun phrase (215)
that clause (207)
prepositional phrase (26)
to-inf clause (16)
how clause (6)
adjective phrase (4)
adverb phrase (2)
-ing participle clause (1)
what clause (1)</td></tr>
<tr><td>Zero
determiner
(142)</td></tr>
<tr><td colspan="4">Pronoun (66)
[we (16) - they (15) - I (13) - this (12) - it (9) - he (1)]</td></tr>
<tr><td colspan="4">Other subject (48)</td></tr>
</table>

Appendix 6.45 RPT pattern 1 in Research Articles

Determiner (16) [the (9) this (4) these (3)]	(total: 17) paper findings article authors discussion research study	(total: 2) could should	(total: 3) also first therefore also	(total: 26) discuss conclude consider have	noun phrase (17) prepositional phrase (7) how clause (2)
Zero determiner (1)					
Pronoun (9) [we (8) - it (1)]					

Appendix 6.46 RPT pattern 1 in Theses

Determiner (8) [the (5) other (1) these (1) this (1)]	(pre-modifier) (total: 1)	(total: 20) chapter(s) study author issues project results thesis	(post-modifier) (total: 13)	(total: 2) first then	(total: 25) present provide have review attempt conclude consider describe discuss focus	noun phrase (23) prepositional phrase (1) to-inf clause (1)
Zero determiner (12)						
Pronoun (5) [I (3) - we (2)]						

Appendix 6.47 ITT pattern 2 in Research Articles

Determiner (10) [the (5) a (3) this (2)]	(pre-modifier) (total: 8)	(total: 17) behaviour children call construct correspondence distinction effects females negotiators notion	(post-modifier) (total: 4)	(total: 22) have/has can may must	(total: 5) also often previously then typically	is (19) been (16) are (10) be (6)	(total: 12) often typically widely also also sometimes generally hypothetically now widely systematically	(total: 51) observed claimed defined found seen shown viewed advised asked assumed	(total: 1) in recent years	prepositional phrase (28) to-inf clause (10) that clause (6) adverb phrase (2) when clause (2) how clause (1) noun phrase (1) zero (1)
Zero determiner (7)										
Pronoun (8) [it (7) - they (1)]										
Other subject (26)										

Appendix 6.48 ITT pattern 2 in Theses

Determiner (9) [the (3) this (2) a (1) much (1) such (1) such a (1)]	(pre-modifier) (total: 4)	(total: 13) phenomenon adults behaviours benefits claim difference difficulties effects instruction research	(post-modifier) (total: 7)	(total: 13) have/has can should	(total: 3) also long usually	is (17) been (10) are (5) be (3) was (2)	(total: 10) often commonly frequently largely likely mainly usually widely	(total: 37) associated based found shown aimed assumed carried out caused classified comprised	prepositional phrase (24) adverb phrase (3) to-inf clause (3) that clause (2) noun phrase (1) when clause (1) zero (3)
Zero determiner (4)									
Pronoun (3) [it (3)]									
Other subject (21)									

Appendix 6.49 SNR pattern 2 in Research Articles

Determiner (4) [the (4)]	(pre-modifier) (total: 5)	(total: 8) conclusions evidence origins predictions progress relationship	(post-modifier) (total: 5)	(total: 10) have/has can had	(total: 4) also not yet previously not to date	been (9) is (5) are (2) be (1)	(total: 6) clearly little mostly not well relatively still	(total: 17) known tested attributed based established made mixed studied	prepositional phrase (12) adverb phrase (1) zero (4)
Zero determiner (4)									
Pronoun (5) [little (3) - almost nothing (1) - relatively little (1)]									
Other subject (4)									

Appendix 6.50 SNR pattern 2 in Theses

Determiner (4) [the (2) few (1) no (1)]	(pre-modifier) (total: 4)	(total: 7) attention nature attempts theory work	(post-modifier) (total: 2)	(total: 1) however	(total: 9) have/has	(total: 2) ever not yet	been (9) is (4) are (1)	(total: 3) almost wholly extensively less well	(total: 14) known debated given advocated criticised done made neglected researched shown	prepositional phrase (10) adjective phrase (1) to-inf clause (1) zero (2)
Zero determiner (3)										
Pronoun (3) [little (3)]										
Other subject (4)										

Appendix 6.51 ATR pattern 2 in Research Articles

Determiner (11) [the (9) a (1) these (1)]	(pre-modifier) (total: 14)	(total: 22) effect(s) study/studies experiments findings role(s) attitudes coding differences hypotheses impact	(post-modifier) (total: 11)	were (21) was (12) is (9) are (3)	(total: 8) also better experimentally further more closely	(total: 45) examined assessed compared investigated conducted hypothesised proposed used addressed analysed	prepositional phrase (13) to-inf clause (8) that clause (3) -ing participle clause (2) adverb phrase (1) other (1) zero (17)
Zero determiner (11)							
Pronoun (3) [it (3)]							
Other subject (20)							

Appendix 6.52 ATR pattern 2 in Theses

Determiner (44) [the (23) a/an (13) this (4) both (1) our (1) their (1) these (1)]	(pre-modifier) (total: 37)	(total: 67) study/studies experiment(s) effect(s) questions analyses attitudes comparison(s) importance method(s) model	(post-modifier) (total: 31)	(total: 3) also can conveniently will	was (42) were (29) is (20) are (18) be (2)	(total: 17) also then further explicitly first functionally subsequently	(total: 111) investigated used examined explored compared analysed assessed conducted presented focused	prepositional phrase (40) to-inf clause (29) -ing participle clause (6) that clause (3) adverb phrase (2) other (2) zero (29)
Zero determiner (23)								
Pronoun (5) [it (3) - these (1) - this (1)]								
Other subject (39)								

Appendix 6.53 DTM pattern 2 in Research Articles

Determiner (43) [the (20) a/an (15) all (2) each (2) both (1) our (1) their (1) this (1)]	(pre-modifier) (total: 74)	(total: 113) participant(s) data student(s) children task(s) corpus/corpora group(s) analysis/analyses design measure(s)	(post-modifier) (total: 32)	were (87) was (41) are (8) is (4)	(total: 7) randomly then first operationally then randomly	(total: 140) assessed used administered analysed assigned tested asked collected compared measured	prepositional phrase (99) to-inf clause (18) noun phrase (3) adjective phrase (1) adverb phrase (1) -ed participle clause (1) -ing participle clause (1) zero (16)
Zero determiner (70)							
Pronoun (1) [this (1)]							
Other subject (26)							

Appendix 6.54 DTM pattern 2 in Theses

Determiner (46) [the (23) a/an (8) these (4) this (3) all (2) both (2) their (2) no (1) such (1)]	(pre-modifier) (total: 45)	(total: 88) analysis/analyses participants task(s) corpus data group(s) students influence interviews items	(post-modifier) (total: 31)	were (62) was (38) is (15) are (10)	(total: 10) also then first predominantly randomly visually	(total: 125) used assessed analysed conducted administered applied based collected investigated asked	prepositional phrase (70) to-inf clause (20) -ing participle clause (10) noun phrase (4) adverb phrase (3) -ed participle clause (2) other (1) zero (15)
Zero determiner (42)							
Pronoun (2) [it (1) - this (1)]							
Other subject (35)							

Appendix 6.55 PEMF pattern 2 in Research Articles

Determiner (41) [the (20) these (8) no (6) this (4) a (3)]	(pre-modifier) (total: 38)	(total: 66) difference(s) effect(s) results hypothesis learners pattern(s) relationship(s) finding(s) implications instances	(post-modifier) (total: 29)	(total: 10) can could cannot have may	(total: 2) then therefore	was (72) were (39) are (20) is (20) be (9) been (1)	(total: 29) also not significantly again also positively at least in part best both chiefly commonly	(total: 161) found associated observed shown discussed linked seen used affected explained	prepositional phrase (97) to-inf clause (27) that clause (13) adverb phrase (4) adjective phrase (2) when clause (2) -ing participle clause (1) zero (15)
Zero determiner (25)									
Pronoun (14) [it (13) - others (1)]									
Other subject (81)									

Appendix 6.56 PEMF pattern 2 in Theses

Determiner (35) [the (16) these (8) a/an (5) this (4) no (2)]	(pre-modifier) (total: 29)	(total: 63) difference(s) result(s) effect(s) patterns relationship(s) types data evidence factors findings	(post-modifier) (total: 24)	(total: 7) can could might should will	(total: 1) often	was (59) were (46) is (31) are (18) be (7)	(total: 24) also not again best chiefly only partially selectively then therefore	(total: 161) found argued associated identified used mediated considered demonstrated explained observed	prepositional phrase (77) that clause (28) to-inf clause (26) adverb phrase (5) when clause (4) -ing participle clause (2) other (1) zero (18)
Zero determiner (28)									
Pronoun (32) [it (27) - this (3) - these (1) - they (1)]									
Other subject (66)									

Appendix 6.57 RPT pattern 2 in Research Articles

Determiner (28) [the (19) these (7) some (2)]	(pre-modifier) (total: 13)	(total: 52) implications results findings avenues contributions	(post-modifier) (total: 34)	are (53) is (3)	(total: 5) also finally succinctly thus	(total: 56) discussed considered proposed described made	prepositional phrase (23) to-inf clause (1) zero (32)
Zero determiner (24)							
Other subject (4)							

Appendix 6.58 RPT pattern 2 in Theses

Determiner (11) [the (9) these (2)]	(pre-modifier) (total: 6)	(total: 22) implications results suggestions findings aims	(post-modifier) (total: 12)	are (20) will be (2) is (1) was (1)	(total: 2) also	(total: 24) discussed made considered presented proposed	prepositional phrase (13) zero (11)
Zero determiner (11)							
Other subject (2)							

Appendix 6.59 ITT pattern 3 in Research Articles

<table>
<tr><td>Determiner (9)
[a/an (4)
the (3)
both (1)
such (1)]</td><td rowspan="2">(pre-modifier)
(total: 15)</td><td rowspan="2">(total: 20)
aspect
effect(s)
practice
challenge
claims
dimension
explanation
important
interpreters
issues</td><td rowspan="2">(post-modifier)
(total: 13)</td><td rowspan="4">(total: 7)
has
may
could
might</td><td rowspan="4">(total: 1)
recently</td><td rowspan="4">(total: 53)
is (30)
are (16)
been (4)
be (3)</td><td rowspan="4">(total: 2)
also
now</td><td rowspan="4">noun phrase (30)
adjective phrase (17)
prepositional phrase (3)
that clause (2)
to-inf clause (1)</td></tr>
<tr><td>Zero determiner (11)</td></tr>
<tr><td colspan="4">Pronoun/There (3)
[it (2) - there (1)]</td></tr>
<tr><td colspan="4">Other subject (30)</td></tr>
</table>

Appendix 6.60 ITT pattern 3 in Theses

<table>
<tr><td>Determiner (10)
[the (6)
a (1)
many (1)
not all (1)
this (1)]</td><td rowspan="2">(pre-modifier)
(total: 8)</td><td rowspan="2">(total: 14)
question
students
behaviours
challenges
claim
finding
literature
need
research
studies</td><td rowspan="2">(post-modifier)
(total: 7)</td><td rowspan="4">(total: 1)
however</td><td rowspan="4">(total: 6)
have/has
may
has not</td><td rowspan="4">(total: 1)
traditionally</td><td rowspan="4">(total: 54)
is (37)
are (9)
been (4)
be (2)
was (2)</td><td rowspan="4">(total: 2)
not</td><td rowspan="4">noun phrase (24)
adjective phrase (21)
that clause (4)
prepositional phrase (2)
to-inf clause (2)
adverb phrase (1)</td></tr>
<tr><td>Zero determiner (4)</td></tr>
<tr><td colspan="4">Pronoun/There (9)
[it (4) - this (1) - there (4)]</td></tr>
<tr><td colspan="4">Other subject (31)</td></tr>
</table>

Appendix 6.61 SNR pattern 3 in Research Articles

Determiner (1) [the (1)]	(pre-modifier) (total: 2)	(total: 4) evidence extent knowledge	(post-modifier) (total: 3)	(total: 1) have	(total: 1) to date	(total: 6) is (5) been (1)	adjective phrase (4) noun phrase (2)
Zero determiner (3)							
Pronoun/There (2) [it (1) - there (1)]							

Appendix 6.62 SNR pattern 3 in Theses

Determiner (3) [the (3)]	(total: 3) extent role study	(post-modifier) (total: 3)	(total: 6) has	(total: 1) not	(total: 9) been (6) is (3)	noun phrase (7) adjective phrase (2)
Pronoun/There (6) [it (2) - there (4)]						

Appendix 6.63 ATR pattern 3 in Research Articles

<table>
<tr><td>Determiner (27)
[the (23)
this (3)
our (1)]</td><td rowspan="2">(pre-modifier)
(total: 11)</td><td rowspan="2">(total: 29)
purpose
aim
goal
study
focus
point
hypotheses
paper
principles
question</td><td rowspan="2">(post-modifier)
(total: 14)</td><td rowspan="4">(total: 34)
is (20)
was (9)
are (3)
were (2)</td><td rowspan="4">(total: 2)
perhaps
principally</td><td rowspan="4">to-inf clause (17)
noun phrase (8)
prepositional phrase (4)
adjective phrase (3)
that clause (2)</td></tr>
<tr><td>Zero determiner (2)</td></tr>
<tr><td colspan="4">Pronoun (1)
[this (1)]</td></tr>
<tr><td colspan="4">Other subject (4)</td></tr>
</table>

Appendix 6.64 ATR pattern 3 in Theses

<table>
<tr><td>Determiner (52)
[the (39)
this (9)
an (2)
its (1)
my (1)]</td><td rowspan="2">(pre-modifier)
(total: 21)</td><td rowspan="2">(total: 54)
aim(s)
goal(s)
purpose
focus/foci
study
thesis
dissertation
issue
objective
aspects</td><td rowspan="2">(post-modifier)
(total: 32)</td><td rowspan="4">(total: 59)
is (38)
was (12)
are (9)</td><td rowspan="4">(total: 7)
therefore
first
perhaps
thus</td><td rowspan="4">to-inf clause (28)
noun phrase (15)
adjective phrase (5)
prepositional phrase (5)
that clause (3)
how clause (1)
where clause (1)
whether clause (1)</td></tr>
<tr><td>Zero determiner (2)</td></tr>
<tr><td colspan="4">Pronoun (3)
[it (2) - this (1)]</td></tr>
<tr><td colspan="4">Other subject (2)</td></tr>
</table>

Appendix 6.65 DTM pattern 3 in Research Articles

<table>
<tr><td>Determiner (12)
[the (11)
these (1)]</td><td rowspan="2">(pre-modifier)
(total: 6)</td><td rowspan="2">(total: 16)
participants
items
measures
ages
groups
learners
level
speakers
tasks</td><td rowspan="2">(post-modifier)
(total: 8)</td><td rowspan="4">(total: 21)
were (12)
are (4)
was (3)
is (2)</td><td rowspan="4">(total: 2)
not</td><td rowspan="4">noun phrase (16)
adjective phrase (4)
other (1)</td></tr>
<tr><td>Zero determiner (4)</td></tr>
<tr><td colspan="4">There (1)</td></tr>
<tr><td colspan="4">Other subject (4)</td></tr>
</table>

Appendix 6.66 DTM pattern 3 in Theses

<table>
<tr><td>Determiner (10)
[the (9)
all (1)]</td><td rowspan="2">(pre-modifier)
(total: 4)</td><td rowspan="2">(total: 15)
participants
analysis
distractors
frequency
methodology
purpose
setting
students
subjects</td><td rowspan="2">(post-modifier)
(total: 5)</td><td rowspan="4">(total: 1)
may</td><td rowspan="4">(total: 22)
were (11)
was (6)
are (3)
is (1)
be (1)</td><td rowspan="4">noun phrase (15)
adjective phrase (4)
to-inf clause (1)
other (2)</td></tr>
<tr><td>Zero determiner (5)</td></tr>
<tr><td colspan="4">Pronoun/There (4)
[they (1) - there (3)]</td></tr>
<tr><td colspan="4">Other subject (3)</td></tr>
</table>

Appendix 6.67 PEMF pattern 3 in Research Articles

<table>
<tr><td>Determiner (26)
[the (11)
this (7)
these (5)
all (1)
our (1)
such (1)]</td><td rowspan="2">(pre-modifier)
(total: 9)</td><td rowspan="2">(total: 42)
effect(s)
results
findings
participants
learners
support
children
patterns
rate(s)
account</td><td rowspan="2">(post-modifier)
(total: 14)</td><td rowspan="4">(total: 113)
was (43)
were (41)
are (18)
is (11)</td><td rowspan="4">(total: 2)
all
also</td><td rowspan="4">adjective phrase (79)
noun phrase (21)
prepositional phrase (7)
conjunction+clause (2)
that clause (2)
adverb phrase (1)
other (1)</td></tr>
<tr><td>Zero determiner (16)</td></tr>
<tr><td colspan="4">Pronoun/There (19)
[it (3) - this (3) - they (1) - there (12)]</td></tr>
<tr><td colspan="4">Other subject (52)</td></tr>
</table>

Appendix 6.68 PEMF pattern 3 in Theses

<table>
<tr><td>Determiner (21)
[the (16)
these (3)
a (1)
this (1)]</td><td rowspan="2">(pre-modifier)
(total: 13)</td><td rowspan="2">(total: 36)
finding(s)
conclusion(s)
effect(s)
results
subjects
model
participants
associations
change
children</td><td rowspan="2">(post-modifier)
(total: 15)</td><td rowspan="4">(total: 7)
has
may
would</td><td rowspan="4">(total: 2)
also
however</td><td rowspan="4">(total: 113)
was (39)
were (36)
is (16)
are (15)
be (6)
been (1)</td><td rowspan="4">(total: 6)
also
both
indeed
thus</td><td rowspan="4">adjective phrase (81)
noun phrase (25)
that clause (4)
prepositional phrase (1)
zero (2)</td></tr>
<tr><td>Zero determiner
(15)</td></tr>
<tr><td colspan="4">Pronoun/There (13)
[this (2) - it (1) - they (1) - there (9)]</td></tr>
<tr><td colspan="4">Other subject (64)</td></tr>
</table>

Appendix 6.69 Head nouns (subject position) in ITT Pattern 1 LPs

Applied Linguistics	Psychology	Research Articles	Theses
research (18)	research (22)	research (22)	research (18)
studies (9)	people (8)	people (8)	researchers (3)
researchers (6)	theory/theories (6)	studies (7)	studies (3)
learners (4)	model(s) (5)	researchers (5)	concerns (2)
analysis (3)	children (4)	theory/theories (5)	evidence (2)
approach (3)	evidence (3)	children (4)	findings (2)
account(s) (2)	findings (3)	model(s) (4)	learners (2)
concerns (2)	individuals (2)	analysis (3)	account (1)
need (2)	researchers (2)	approach (3)	advances (1)
results (2)	advances (1)	evidence (2)	assessments (1)
students (2)	assessments (1)	learners (2)	content (1)
understanding (2)	conditions (1)	results (2)	developments (1)
article (1)	content (1)	students (2)	enquiry (1)
differences (1)	developments (1)	accounts (1)	factors (1)
enquiry (1)	explanation (1)	article (1)	hypothesis (1)
evidence (1)	factors (1)	conditions (1)	individuals (1)
focus (1)	features (1)	differences (1)	investigations (1)
hypothesis (1)	females (1)	explanation (1)	issues (1)
interactions (1)	humans (1)	features (1)	members (1)
investigations (1)	hypothesis (1)	females (1)	model (1)
issues (1)	mechanisms (1)	findings (1)	need (1)
nature (1)	members (1)	focus (1)	phenomenon (1)
operationalization (1)	scientists (1)	humans (1)	teaching (1)
phenomenon (1)	studies (1)	hypothesis (1)	theories (1)
relationship (1)	theories and findings (1)	individuals (1)	trends (1)
scholars (1)	work (1)	interactions (1)	understanding (1)
speakers (1)		mechanisms (1)	
survey (1)		nature (1)	
teaching (1)		need (1)	
trends (1)		operationalization (1)	
use (1)		relationship (1)	
views (1)		scholars (1)	
		scientists (1)	
		speakers (1)	
		survey (1)	
		theories and findings (1)	
		understanding (1)	
		use (1)	
		views (1)	
		work (1)	

Appendix 6.70 Head nouns (subject position) in SNR Pattern 1 LPs

Applied Linguistics	Psychology	Research Articles	Theses
study/studies (12)	research (4)	study/studies (10)	study/studies (6)
research (2)	study/studies (4)	literature (2)	research (4)
article (1)	efforts (1)	research (2)	material (1)
attempts (1)	literature (1)	article (1)	researchers (1)
literature (1)	material (1)	attempts (1)	
	question (1)	efforts (1)	
	researchers (1)	question (1)	

Appendix 6.71 Head nouns (subject position) in ATR Pattern 1 LPs

Applied Linguistics	Psychology	Research Articles	Theses
study (137)	study/studies (77)	study/studies (113)	study/studies (101)
paper (35)	experiment(s) (29)	paper (36)	thesis (34)
article (30)	thesis (20)	article (33)	dissertation (22)
dissertation (19)	authors (18)	experiment(s) (19)	experiment(s) (19)
thesis (14)	chapter(s) (11)	authors (18)	chapter(s) (14)
experiment(s) (9)	research (11)	research (10)	research (9)
research (8)	article (4)	analysis/analyses (7)	investigation(s) (3)
analysis/analyses (7)	dissertation (3)	approach (1)	theme (3)
chapter (3)	investigation(s) (3)	goals (1)	analysis/analyses (2)
part (2)	theme (3)	hypothesis (1)	part (2)
approach (1)	analysis/analyses (2)	investigation (1)	project (2)
areas (1)	project (2)	model (1)	areas (1)
investigation (1)	goals (1)	procedure (1)	article (1)
phase (1)	hypothesis (1)	review (1)	phase (1)
procedure (1)	model (1)	stage (1)	
review (1)	paper (1)		
stage (1)			

Appendix 6.72 Head nouns (subject position) in DTM Pattern 1 LPs

Applied Linguistics	Psychology	Research Articles	Theses
participants (20)	participants (24)	participants (31)	participants (13)
learner(s) (12)	study/studies (5)	group(s) (11)	study/studies (10)
group(s) (11)	experiments (3)	learner(s) (8)	data (5)
study (11)	adolescents (2)	study/studies (6)	students (5)
data (8)	authors (2)	students (5)	learners (4)
students (8)	mothers (2)	data (4)	experiments (3)
design (3)	students (2)	speaker(s) (4)	methodology (3)
methodology (3)	task (2)	task (4)	analysis (2)
speakers (3)	adults (1)	teacher(s) (3)	design (2)
analysis (2)	children (1)	adolescents (2)	project (2)
experiment(s) (2)	data (1)	authors (2)	test (2)
project (2)	dyads (1)	experiment(s) (2)	text (2)
task (2)	measures (1)	mothers (2)	adults (1)
teacher (2)	observers (1)	subjects (2)	children (1)
test (2)	speaker (1)	corpus (1)	database (1)
text (2)	subjects (1)	design (1)	measures (1)
corpus (1)	teachers (1)	distractors (1)	meetings (1)
database (1)	therapists (1)	dyads (1)	questionnaire (1)
distractors (1)	toddlers (1)	instruction (1)	research (1)
Instruction (1)		investigation (1)	therapists (1)
investigation (1)		items (1)	treatment (1)
items (1)		methods (1)	
meetings (1)		observers (1)	
methods (1)		procedures (1)	
procedures (1)		sessions (1)	
questionnaire (1)		stakeholders (1)	
research (1)		toddlers (1)	
sessions (1)			
stakeholders (1)			
subjects (1)			
treatment (1)			

Appendix 6.73 Head nouns (subject position) in PEMF Pattern 1 LPs

Applied Linguistics	Psychology	Research Articles	Theses
results (133)	results (118)	results (147)	results (104)
finding(s) (66)	study/studies (86)	finding(s) (87)	finding(s) (64)
analysis/analyses (35)	finding(s) (85)	study/studies (61)	study/studies (57)
study/studies (32)	experiment(s) (55)	experiment(s) (35)	experiment(s) (20)
learner(s) (29)	participants (34)	analysis/analyses (33)	analysis/analyses (15)
data (18)	analysis/analyses (13)	participants (25)	participants (12)
group(s) (14)	children (6)	learner(s) (19)	data (10)
students (9)	data (6)	group(s) (15)	learners (10)
paper (6)	thesis (6)	data (14)	investigation(s) (8)
task(s) (5)	investigation(s) (5)	paper (6)	thesis (6)
difference(s) (4)	group(s) (4)	model(s) (5)	research (4)
frequency/frequencies (4)	model(s) (4)	students (5)	students (4)
investigation (3)	people (4)	children (4)	chapter(s) (3)
model(s) (3)	chapter(s) (3)	difference(s) (4)	difference(s) (3)
participants (3)	difference(s) (3)	effect(s) (4)	groups (3)
ratings (3)	infants (3)	frequency/frequencies (4)	children (2)
research (3)	research (3)	pattern(s) (4)	comparisons (2)
speakers (3)	association(s) (2)	infants (3)	model(s) (2)
use (3)	authors (2)	people (3)	ratings (2)
comparisons (2)	effect(s) (2)	ratings (3)	review (2)
effect (2)	evidence (2)	task(s) (3)	task (2)
examination (2)	individuals (2)	use (3)	theory/theories (2)
implications (2)	modeling (2)	article (2)	adults (1)
outcome(s) (2)	pattern (2)	association(s) (2)	changes (1)
patterns (2)	ratings (2)	authors (2)	clients (1)
theory/theories (2)	review (2)	evidence (2)	dissociation (1)
writers (2)	work (2)	factor(s) (2)	evidence (1)
article (1)	account (1)	implications (2)	examination (1)
changes (1)	adults (1)	individuals (2)	exploration (1)
dimensions (1)	article (1)	levels (2)	focus (1)
dissociation (1)	bias (1)	modeling (2)	framework (1)
evidence (1)	caregivers (1)	research (2)	girls (1)
exploration (1)	clients (1)	speakers (2)	interpretation (1)
factor (1)	comparison (1)	writers (2)	interrogation (1)
focus (1)	conclusion (1)	account (1)	interviews (1)
framework (1)	correlations (1)	bias (1)	men (1)
hypothesis (1)	dissociation (1)	caregivers (1)	method (1)
inquiry (1)	factors (1)	comparison (1)	outcomes (1)
interrogation (1)	girls (1)	conclusion (1)	people (1)
interviews (1)	increase (1)	correlations (1)	profiles (1)
levels (1)	interpretation (1)	dimensions (1)	program (1)
observations (1)	levels (1)	dissociation (1)	sites (1)
practices (1)	men (1)	examination (1)	speakers (1)
researcher (1)	method (1)	hypothesis (1)	subjects (1)

researchers and teachers (1) respondents (1) siblings (1) sites (1) survey (1) teacher/researcher (1) teachers (1) types (1) variables (1) variation (1)	profiles (1) program (1) relationship (1) subjects (1) targets (1) tendencies (1) toddlers (1) view (1)	increase (1) inquiry (1) observations (1) outcome (1) practices (1) relationship (1) researcher (1) researchers and teachers (1) respondents (1) siblings (1) targets (1) teacher/researcher (1) teachers (1) tendencies (1) toddlers (1) view (1) work (1)	survey (1) types (1) variables (1) variation (1) work (1)

Appendix 6.74 Head nouns (subject position) in RPT Pattern 1 LPs

Applied Linguistics	Psychology	Research Articles	Theses
paper (7)	chapter(s) (13)	paper (7)	chapter(s) (13)
study (3)	findings (2)	findings (4)	study (2)
article (2)	authors (1)	article (2)	author (1)
findings (2)	discussion (1)	authors (1)	issues (1)
author (1)	research (1)	discussion (1)	project (1)
issues (1)	results (1)	research (1)	results (1)
project (1)		study (1)	thesis (1)
thesis (1)			

Appendix 6.75 Head nouns (subject position) in ITT Pattern 2 LPs

Applied Linguistics	Psychology	Research Articles	Theses
speakers (2)	behaviour(s) (3)	behaviour (2)	phenomenon (2)
benefits (1)	phenomenon (3)	children (2)	adults (1)
call (1)	children (2)	call (1)	behaviours (1)
claim (1)	effects (2)	construct (1)	benefits (1)
construct (1)	adults (1)	correspondence (1)	claim (1)
difficulties (1)	correspondence (1)	distinction (1)	difference (1)
distinction (1)	difference (1)	effects (1)	difficulties (1)
instruction (1)	females (1)	females (1)	effects (1)
notion (1)	negotiators (1)	negotiators (1)	instruction (1)
operationalisation (1)	paradigm (1)	notion (1)	research (1)
relationship (1)		operationalisation (1)	speakers (1)
research (1)		paradigm (1)	view (1)
view (1)		phenomenon (1)	
		relationship (1)	
		speakers (1)	

Appendix 6.76 Head nouns (subject position) in SNR Pattern 2 LPs

Applied Linguistics	Psychology	Research Articles	Theses
attempts (1)	attention (2)	conclusions (1)	attention (2)
conclusions (1)	evidence (1)	evidence (1)	nature (2)
nature (1)	nature (1)	origins (1)	attempts (1)
relationship (1)	origins (1)	predictions (1)	theory (1)
sources and effects (1)	predictions (1)	progress (1)	work (1)
studies (1)	progress (1)	relationship (1)	
work (1)	theory (1)	sources and effects (1)	
		studies (1)	

Appendix 6.77 Head nouns (subject position) in ATR Pattern 2 LPs

Applied Linguistics	Psychology	Research Articles	Theses
study/studies (3)	study/studies (6)	effect(s) (3)	study/studies (6)
attitudes (2)	experiment(s) (5)	study/studies (3)	experiment(s) (5)
effects (2)	effect(s) (4)	experiments (2)	effect(s) (3)
experiments (2)	model (3)	findings (2)	questions (3)
method(s) (2)	role(s) (3)	role(s) (2)	analyses (2)
questions (2)	analyses (2)	attitudes (1)	attitudes (2)
responses (2)	importance (2)	coding (1)	comparison(s) (2)
assumption (1)	performance (2)	differences (1)	importance (2)
attention (1)	questions (2)	hypotheses (1)	method(s) (2)
comparison (1)	relationship(s) (2)	impact (1)	model (2)
data (1)	aspects (1)	model (1)	performance (2)
design (1)	associations (1)	modeling (1)	results (2)
differences (1)	attitudes (1)	questions (1)	role(s) (2)
factors (1)	benefits (1)	relationships (1)	topic(s) (2)
findings (1)	coding (1)	responses (1)	aspects (1)
framework (1)	comparisons (1)		associations (1)
hypotheses (1)	emphasis (1)		assumption (1)
influence (1)	evidence (1)		attention (1)
issues (1)	findings (1)		benefits (1)
points (1)	function (1)		data (1)
questionnaire (1)	impact (1)		design (1)
results (1)	improvement (1)		emphasis (1)
role (1)	methodologies (1)		evidence (1)
subjects (1)	modeling (1)		factors (1)
topics (1)	paradigm (1)		framework (1)
	part (1)		function (1)
	pattern (1)		improvement (1)
	research (1)		influence (1)
	results (1)		issues (1)
	review (1)		methodologies (1)
	scale (1)		paradigm (1)
	survey (1)		part (1)
	techniques (1)		pattern (1)
	topic (1)		points (1)
	work (1)		questionnaire (1)
			relationship (1)
			research (1)
			responses (1)
			review (1)
			scale (1)
			subjects (1)
			survey (1)
			techniques (1)
			work (1)

Appendix 6.78 Head nouns (subject position) in DTM Pattern 2 LPs

Applied Linguistics	Psychology	Research Articles	Theses
student(s) (12)	participant(s) (10)	participant(s) (11)	analysis/analyses (10)
data (11)	children (4)	data (10)	participants (7)
analysis/analyses (10)	analysis (3)	student(s) (10)	task(s) (6)
task(s) (10)	data (3)	children (6)	corpus (5)
corpus/corpora (9)	behaviour (2)	task(s) (5)	data (4)
group(s) (8)	responses (2)	corpus/corpora (4)	group(s) (4)
participants (8)	studies (2)	group(s) (4)	students (3)
questionnaire(s) (5)	abilities (1)	analysis/analyses (3)	influence (2)
design (3)	adolescents (1)	design (3)	interviews (2)
measure(s) (3)	assessments (1)	measure(s) (3)	items (2)
results (3)	biases (1)	questionnaire(s) (3)	questionnaire (2)
test(s) (3)	competence (1)	responses (3)	results (2)
children (2)	couples (1)	version(s) (3)	study / studies (2)
conversations (2)	degree (1)	conversations (2)	approach (1)
criteria (2)	design (1)	model (2)	assignments (1)
development (2)	differences (1)	performance(s) (2)	attention (1)
interviews (2)	effects (1)	results (2)	behaviour (1)
items (2)	effort (1)	study/studies (2)	biases (1)
learners (2)	influence (1)	test(s) (2)	classes (1)
model (2)	interpretations (1)	abilities (1)	clauses (1)
pattern(s) (2)	measures (1)	adolescents (1)	competence (1)
performance(s) (2)	memory (1)	assessments (1)	criteria (1)
study (2)	meta-analysis (1)	behaviour (1)	degree (1)
variables (2)	model (1)	commentaries (1)	design (1)
version(s) (2)	movements (1)	competence (1)	development (1)
approach (1)	observations (1)	comprehension (1)	discourse (1)
assignments (1)	paradigm (1)	couples (1)	effects (1)
attention (1)	patients (1)	course (1)	efficacy (1)
classes (1)	performance (1)	criteria (1)	effort (1)
clauses (1)	phenomena (1)	development (1)	Instruction (1)
commentaries (1)	reports (1)	differences (1)	instruments (1)
competence (1)	results (1)	effects (1)	interaction (1)
comprehension (1)	self-report (1)	efficiency (1)	learners (1)
course (1)	students (1)	interpretations (1)	measurements (1)
discourse (1)	tasks (1)	learner-participants (1)	measures (1)
effects (1)	use (1)	learners (1)	memory (1)
efficacy (1)	versions (1)	lines (1)	meta-analysis (1)
efficiency (1)		movements (1)	methods (1)
influence (1)		negotiations (1)	model (1)
Instruction (1)		observations (1)	patients (1)
instruments (1)		paradigm (1)	patterns (1)
interaction (1)		pattern (1)	perceptions (1)
learner-participants (1)		phenomena (1)	performance (1)
lines (1)		reports (1)	phenomena (1)
measurements (1)		research (1)	scores (1)
methods (1)		sections (1)	sets (1)

negotiations (1) perceptions (1) phenomena (1) research (1) responses (1) scores (1) sections (1) sets (1) speakers (1) survey (1) techniques (1) texts (1) transcriptions (1)		self-report (1) speakers (1) techniques (1) texts (1) transcriptions (1) variables (1)	survey (1) tests (1) use (1) variables (1)

Appendix 6.79 Head nouns (subject position) in PEMF Pattern 2 LPs

Applied Linguistics	Psychology	Research Articles	Theses
difference(s) (9)	effect(s) (12)	difference(s) (11)	difference(s) (7)
result(s) (6)	difference(s) (9)	effect(s) (10)	result(s) (7)
effect(s) (4)	results (5)	results (4)	effect(s) (6)
learners (3)	evidence (3)	hypothesis (3)	patterns (3)
patterns (3)	factors (3)	learners (3)	relationship(s) (3)
relationship(s) (3)	finding(s) (3)	pattern(s) (3)	types (3)
types (3)	pattern(s) (3)	relationship(s) (3)	data (2)
aspects (2)	relationship (3)	finding(s) (2)	evidence (2)
hypothesis (2)	association (2)	implications (2)	factors (2)
instances (2)	data (2)	instances (2)	findings (2)
model (2)	hypothesis (2)	model (2)	model (2)
research (2)	model (2)	use (2)	profiles (2)
asymmetry (1)	use (2)	advantage (1)	aspects (1)
changes (1)	advantage (1)	analysis (1)	association (1)
contrasts (1)	analysis (1)	aspects (1)	changes (1)
correlation (1)	children (1)	association (1)	children (1)
design (1)	conclusions (1)	asymmetry (1)	conclusions (1)
difficulties (1)	degree (1)	contrasts (1)	degree (1)
dimensions (1)	groups (1)	correlation (1)	framework (1)
findings (1)	impact (1)	design (1)	groups (1)
framework (1)	implications (1)	difficulties (1)	hypothesis (1)
implications (1)	improvement (1)	dimensions (1)	improvement (1)
influence (1)	incidence (1)	evidence (1)	incidence (1)
practices (1)	levels (1)	factors (1)	males (1)
profiles (1)	males (1)	impact (1)	readers (1)
ranges (1)	profiles (1)	influence (1)	research (1)
readers (1)	reversal (1)	levels (1)	reversal (1)
speakers (1)	role (1)	practices (1)	role (1)
stages (1)	same (1)	ranges (1)	same (1)
studies (1)	traces (1)	research (1)	stages (1)
taxonomy (1)		speakers (1)	studies (1)
tendency (1)			taxonomy (1)
			tendency (1)
			traces (1)

Appendix 6.80 Head nouns (subject position) in RPT Pattern 2 LPs

Applied Linguistics	Psychology	Research Articles	Theses
implications (16)	implications (17)	implications (25)	implications (8)
findings (5)	results (6)	results (8)	results (3)
results (5)	findings (3)	findings (6)	suggestions (3)
suggestions (4)	aims (1)	avenues (1)	findings (2)
explanations (2)	contributions (1)	contributions (1)	aims (1)
avenues (1)	directions (1)	data and analyses (1)	directions (1)
data and analyses (1)	implications and contributions (1)	evidence (1)	explanations (1)
evidence (1)	importance (1)	explanations (1)	reasons (1)
factors (1)	limitations and implications (1)	factors (1)	relationship (1)
	mechanisms (1)	implications and contributions (1)	role (1)
	nature (1)	importance (1)	
	reasons (1)	limitations and implications (1)	
	relationship (1)	mechanisms (1)	
	role (1)	nature (1)	
	ways (1)	suggestions (1)	
		ways (1)	

Appendix 6.81 Head nouns (subject position) in ITT Pattern 3 LPs

Applied Linguistics	Psychology	Research Articles	Theses
question (3)	effect(s) (2)	aspect (2)	question (2)
aspect (2)	way(s) (2)	effect(s) (2)	students (2)
claim(s) (2)	behaviours (1)	practice (2)	behaviours (1)
students (2)	challenges (1)	challenge (1)	challenges (1)
challenge (1)	dimension (1)	claims (1)	claim (1)
interpreters (1)	explanation (1)	dimension (1)	finding (1)
issues (1)	finding (1)	explanation (1)	literature (1)
literature (1)	important (1)	important (1)	need (1)
need (1)	notion (1)	interpreters (1)	research (1)
practice (1)	people (1)	issues (1)	studies (1)
studies (1)	practice (1)	notion (1)	theme (1)
use (1)	predictions (1)	people (1)	way (1)
	research (1)	predictions (1)	
	theme (1)	question (1)	
	theories (1)	theories (1)	
		use (1)	
		ways (1)	

Appendix 6.82 Head nouns (subject position) in SNR Pattern 3 LPs

Applied Linguistics	Psychology	Research Articles	Theses
evidence (1) extent (1) role (1) study (1)	evidence (1) extent (1) knowledge (1)	evidence (2) extent (1) knowledge (1)	extent (1) role (1) study (1)

Appendix 6.83 Head nouns (subject position) in ATR Pattern 3 LPs

Applied Linguistics	Psychology	Research Articles	Theses
aim (13)	goal(s) (8)	purpose (7)	aim(s) (14)
purpose (11)	aim(s) (7)	aim (6)	goal(s) (8)
study (6)	focus (2)	goal (4)	purpose (5)
focus/foci (4)	issue (2)	study (3)	focus/foci (4)
goal(s) (4)	thesis (2)	focus (2)	study (4)
dissertation (3)	intention (1)	point (2)	thesis (4)
point (2)	objective (1)	hypotheses (1)	dissertation (3)
thesis (2)	paper (1)	paper (1)	issue (2)
aspects (1)	principles (1)	principles (1)	objective (2)
assumption (1)	purpose (1)	question (1)	aspects (1)
basis (1)	research (1)	research (1)	assumption (1)
hypotheses (1)	study (1)		basis (1)
method (1)	theme (1)		intention (1)
objective (1)			method (1)
paper (1)			paper (1)
practice (1)			practice (1)
question (1)			theme (1)

Appendix 6.84 Head nouns (subject position) in DTM Pattern 3 LPs

Applied Linguistics	Psychology	Research Articles	Theses
participants (10)	participants (2)	participants (6)	participants (6)
analysis (2)	distractors (1)	items (2)	analysis (2)
items (2)	measures (1)	measures (2)	distractors (1)
ages (1)	purpose (1)	ages (1)	frequency (1)
frequency (1)		groups (1)	methodology (1)
groups (1)		learners (1)	purpose (1)
learners (1)		level (1)	setting (1)
level (1)		speakers (1)	students (1)
measures (1)		tasks (1)	subjects (1)
methodology (1)			
setting (1)			
speakers (1)			
students (1)			
subjects (1)			
tasks (1)			

Appendix 6.85 Head nouns (subject position) in PEMF Pattern 3 LPs

Applied Linguistics	Psychology	Research Articles	Theses
finding(s) (5)	effect(s) (5)	effect(s) (6)	finding(s) (6)
effect(s) (4)	findings (5)	results (5)	conclusion(s) (3)
learners (3)	participants (5)	findings (4)	effect(s) (3)
results (3)	results (5)	participants (4)	results (3)
conclusion(s) (2)	change(s) (2)	learners (3)	subjects (3)
patterns (2)	children (2)	support (3)	model (2)
children (1)	rate(s) (2)	children (2)	participants (2)
difference (1)	subjects (2)	patterns (2)	associations (1)
disadvantage (1)	support (2)	rate(s) (2)	change (1)
Instances (1)	account (1)	account (1)	children (1)
model (1)	associations (1)	changes (1)	difference (1)
participants (1)	conclusions (1)	difference (1)	evidence (1)
speakers (1)	difference (1)	disadvantage (1)	experiments (1)
study (1)	disparities (1)	disparities (1)	extent (1)
subjects (1)	evidence (1)	increases (1)	groups (1)
subsets (1)	experiments (1)	infants (1)	ratings (1)
support (1)	extent (1)	influence (1)	relationships (1)
	groups (1)	instances (1)	study (1)
	increases (1)	speakers (1)	subsets (1)
	infants (1)	use (1)	theme (1)
	influence (1)		variation (1)
	model (1)		
	ratings (1)		
	relationships (1)		
	theme (1)		
	use (1)		
	variation (1)		

Appendix 6.86 Verbs in ITT Pattern 1 LPs

Applied Linguistics	Psychology	Research Articles	Theses
show (11)	suggest (16)	suggest (15)	suggest (9)
suggest (8)	show (8)	show (13)	show (6)
claim (6)	have (6)	have (7)	focus (4)
differ (4)	seem (5)	indicate (5)	claim (3)
focus (4)	assume (4)	seem (5)	demonstrate (3)
indicate (4)	focus (4)	assume (4)	differ (3)
take (4)	provide (4)	focus (4)	provide (3)
argue (3)	demonstrate (3)	claim (3)	argue (2)
prompt (3)	indicate (3)	take (3)	cause (2)
propose (3)	use (3)	argue (2)	indicate (2)
receive (3)	cause (2)	come (2)	involve (2)
attempt (2)	know (2)	demonstrate (2)	prompt (2)
benefit (2)	reflect (2)	pose (2)	propose (2)
come (2)	rely (2)	propose (2)	receive (2)
demonstrate (2)	tend (2)	reflect (2)	use (2)
find (2)	add (1)	rely (2)	appear (1)
have (2)	appear (1)	tend (2)	ask (1)
investigate (2)	argue (1)	use (2)	attempt (1)
involve (2)	ask (1)	act (1)	benefit (1)
pose (2)	copy (1)	add (1)	confirm (1)
report (2)	define (1)	allow (1)	continue (1)
require (2)	disagree (1)	appear (1)	create (1)
act (1)	document (1)	attempt (1)	develop (1)
allow (1)	evaluate (1)	become (1)	document (1)
appear (1)	express (1)	believe (1)	doubt (1)
become (1)	face (1)	benefit (1)	establish (1)
believe (1)	facilitate (1)	bring (1)	express (1)
bring (1)	favour (1)	cause (1)	face (1)
cause (1)	feed (1)	consider (1)	favour (1)
confirm (1)	form (1)	copy (1)	find (1)
consider (1)	gain (1)	define (1)	give (1)
continue (1)	highlight (1)	differ (1)	have (1)
create (1)	hypothesise (1)	direct (1)	highlight (1)
develop (1)	include (1)	disagree (1)	hinder (1)
direct (1)	influence (1)	distinguish (1)	include (1)
distinguish (1)	inspire (1)	evaluate (1)	inspire (1)
doubt (1)	link (1)	face (1)	intensify (1)
establish (1)	observe and pitch in to (1)	facilitate (1)	introduce (1)
face (1)	occur (1)	feature (1)	investigate (1)
feature (1)	perceive (1)	feed (1)	know (1)
give (1)	posit (1)	find (1)	mean (1)
heighten (1)	produce (1)	form (1)	occur (1)
highlight (1)	progress (1)	gain (1)	produce (1)
hinder (1)	propose (1)	heighten (1)	report (1)
include (1)	read (1)	highlight (1)	require (1)

index (1) inform (1) intensify (1) introduce (1) mean (1) note (1) obscure (1) occur (1) offer (1) operate (1) place (1) predict (1) produce (1) prove (1) refer (1) result (1) see (1) seek (1) seem (1) state (1) take on (1) turn (1) uncover (1) use (1) vary (1) welcome (1)	reveal (1) settle (1) shape (1) signal (1) support (1) transport (1) try (1) value (1)	hypothesise (1) include (1) index (1) influence (1) inform (1) investigate (1) know (1) link (1) note (1) obscure (1) observe and pitch in to (1) occur (1) offer (1) operate (1) perceive (1) place (1) posit (1) predict (1) produce (1) progress (1) prompt (1) prove (1) provide (1) read (1) receive (1) refer (1) report (1) require (1) result (1) reveal (1) see (1) seek (1) settle (1) signal (1) transport (1) try (1) uncover (1) value (1) vary (1)	seem (1) shape (1) state (1) support (1) take (1) take on (1) turn (1) welcome (1)

Appendix 6.87 Verbs in SNR Pattern 1 LPs

Applied Linguistics	Psychology	Research Articles	Theses
investigate (6)	remain (5)	remain (5)	examine (3)
explore (3)	examine (4)	examine (3)	explore (3)
examine (2)	know (3)	investigate (3)	investigate (3)
argue (1)	have (2)	argue (1)	know (3)
attempt (1)	consider (1)	attempt (1)	deal (1)
compare (1)	covary (1)	compare (1)	have (1)
deal (1)	explore (1)	consider (1)	involve (1)
derive (1)	involve (1)	covary (1)	leave (1)
fail (1)	preclude (1)	derive (1)	remain (1)
help (1)	provide (1)	explore (1)	reveal (1)
ignore (1)	raise (1)	fail (1)	study (1)
indicate (1)	reveal (1)	have (1)	
leave (1)	study (1)	help (1)	
receive (1)	suggest (1)	ignore (1)	
remain (1)		indicate (1)	
		preclude (1)	
		provide (1)	
		raise (1)	
		receive (1)	
		suggest (1)	

Appendix 6.88 Verbs in ATR Pattern 1 LPs

Applied Linguistics	Psychology	Research Articles	Theses
examine (59)	examine (65)	examine (69)	examine (55)
investigate (55)	investigate (37)	investigate (52)	investigate (40)
explore (25)	test (28)	test (24)	explore (31)
present (18)	explore (26)	explore (20)	focus (12)
report (18)	use (12)	report (19)	address (11)
focus (16)	report (10)	present (17)	report (9)
analyse (10)	propose (9)	compare (11)	present (8)
address (9)	compare (8)	focus (10)	use (8)
compare (8)	address (7)	propose (8)	aim (6)
aim (7)	assess (7)	use (8)	identify (6)
identify (6)	present (7)	assess (7)	seek (6)
seek (6)	focus (6)	analyse (6)	test (6)
describe (5)	seek (6)	seek (6)	analyse (5)
discuss (4)	argue (5)	address (5)	compare (5)
include (4)	manipulate (5)	argue (5)	consider (4)
set out (4)	evaluate (4)	describe (4)	include (4)
use (4)	show (4)	evaluate (4)	argue (3)
argue (3)	document (3)	measure (4)	assess (3)
assess (3)	hypothesise (3)	show (4)	attempt (3)
attempt (3)	predict (3)	aim (3)	describe (3)
build (3)	aim (2)	build (3)	look (3)
consider (3)	ask (2)	hypothesise (3)	propose (3)
ask (2)	attempt (2)	manipulate (3)	set out (3)
concern (2)	conduct (2)	predict (3)	ask (2)
consist (2)	consider (2)	ask (2)	discuss (2)
contribute (2)	describe (2)	attempt (2)	document (2)
develop (2)	expect (2)	challenge (2)	evaluate (2)
draw (2)	extend (2)	conduct (2)	involve (2)
evaluate (2)	identify (2)	consist (2)	manipulate (2)
involve (2)	integrate (2)	discuss (2)	relate (2)
look (2)	measure (2)	document (2)	show (2)
measure (2)	relate (2)	draw (2)	take (2)
offer (2)	suggest (2)	expect (2)	allow (1)
propose (2)	take (2)	extend (2)	apply (1)
show (2)	adapt (1)	identify (2)	assume (1)
test (2)	analyse (1)	integrate (2)	attribute (1)
allow (1)	challenge (1)	offer (2)	complete (1)
apply (1)	clarify (1)	posit (2)	concern (1)
assume (1)	close (1)	set out (2)	conclude (1)
attribute (1)	conclude (1)	suggest (2)	contribute (1)
challenge (1)	construct (1)	adapt (1)	delineate and present (1)
compare and contrast (1)	delineate and present (1)	clarify (1)	develop (1)
complete (1)	develop and extend (1)	close (1)	develop and extend (1)
contrast (1)	draw (1)	compare and contrast	draw (1)

		(1)	
deal (1)	employ (1)	concern (1)	employ (1)
describe and analyze (1)	explain (1)	consider (1)	experiment (1)
distinguish (1)	guide (1)	construct (1)	extend (1)
document (1)	have (1)	contrast (1)	help (1)
examine and compare (1)	help (1)	contribute (1)	hypothesize (1)
experiment (1)	identify and examine (1)	deal (1)	identify and examine (1)
extend (1)	imply (1)	describe and analyze (1)	incorporate (1)
foreground (1)	introduce (1)	develop (1)	introduce (1)
form (1)	look (1)	distinguish (1)	make (1)
give (1)	make (1)	examine and compare (1)	outline (1)
highlight (1)	measure and manipulate (1)	explain (1)	pose (1)
hypothesize (1)	posit (1)	foreground (1)	propose and develop (1)
incorporate (1)	provide (1)	form (1)	report and discuss (1)
lead (1)	set out (1)	give (1)	start (1)
outline (1)	study (1)	guide (1)	study (1)
place (1)	turn (1)	have (1)	suggest (1)
pose (1)		highlight (1)	theorize (1)
posit (1)		imply (1)	turn (1)
propose and demonstrate (1)		lead (1)	uncover and illustrate (1)
propose and develop (1)		measure and manipulate (1)	
quantify (1)		place (1)	
re-examine (1)		propose and demonstrate (1)	
report and discuss (1)		provide (1)	
respond (1)		quantify (1)	
revisit (1)		re-examine (1)	
see (1)		respond (1)	
start (1)		revisit (1)	
suggest (1)		see (1)	
theorize (1)		utilize (1)	
uncover and illustrate (1)			
utilize (1)			

Appendix 6.89 Verbs in DTM Pattern 1 LPs

Applied Linguistics	Psychology	Research Articles	Theses
complete (15)	use (7)	complete (12)	complete (7)
participate (11)	complete (4)	participate (9)	use (7)
include (9)	participate (4)	include (7)	participate (6)
come from (6)	rate (4)	involve (7)	include (4)
involve (5)	conduct (3)	come from (5)	take (3)
use (5)	have (2)	read (5)	combine (2)
examine (4)	include (2)	use (5)	come from (2)
read (4)	involve (2)	compare (4)	conduct (2)
analyze (3)	learn (2)	learn (4)	contain (2)
compare (3)	study (2)	perform (4)	examine (2)
consist (3)	take (2)	engage (3)	have (2)
employ (3)	view (2)	rate (3)	investigate (2)
engage (3)	ask (1)	receive (3)	rate (2)
investigate (3)	attend (1)	study (3)	test (2)
perform (3)	come from (1)	analyze (2)	utilize (2)
receive (3)	compare (1)	conduct (2)	view (2)
take (3)	confirm or challenge (1)	consist (2)	analyze (1)
test (3)	contrast (1)	employ (2)	ask (1)
carry out (2)	design (1)	examine (2)	balance (1)
combine (2)	determine (1)	listen (2)	benefit (1)
contain (2)	discuss (1)	request (2)	carry out (1)
differ (2)	draw (1)	take (2)	centre (1)
evaluate (2)	enter (1)	track (2)	comprise (1)
learn (2)	experience (1)	allow (1)	confirm or challenge (1)
listen (2)	generate (1)	assess (1)	consist (1)
present (2)	indicate (1)	attend (1)	differ (1)
provide (2)	interact (1)	carry out (1)	discuss (1)
track (2)	introduce (1)	contrast (1)	employ (1)
allow (1)	judge (1)	decide (1)	enter (1)
assess (1)	make (1)	design (1)	evaluate (1)
balance (1)	manipulate (1)	determine (1)	feature (1)
benefit (1)	measure (1)	differ (1)	follow (1)
centre (1)	perform (1)	draw (1)	generate (1)
comprise (1)	produce (1)	evaluate (1)	introduce (1)
conduct (1)	read (1)	expand (1)	last (1)
decide (1)	report (1)	experience (1)	look (1)
expand (1)	request (1)	focus (1)	manipulate (1)
feature (1)	respond (1)	guess (1)	present (1)
focus (1)	sample (1)	help (1)	produce (1)
follow (1)	squeeze (1)	indicate (1)	provide (1)
guess (1)	utilise (1)	interact (1)	range (1)
help (1)	wear (1)	investigate (1)	rely (1)
last (1)	write (1)	judge (1)	report (1)
look (1)		make (1)	respond (1)
process (1)		measure (1)	sample (1)
produce (1)		present (1)	sponsor (1)

range (1) rate (1) rely (1) report (1) represent (1) request (1) self-rate (1) sponsor (1) study (1) synthesize (1) utilize (1) view (1) work (1)		process (1) produce (1) provide (1) report (1) represent (1) self-rate (1) squeeze (1) test (1) view (1) wear (1) work (1) write (1)	synthesize (1)

Appendix 6.90 Verbs in PEMF Pattern 1 LPs

Applied Linguistics	Psychology	Research Articles	Theses
show (84)	show (105)	show (110)	show (79)
suggest (64)	suggest (81)	suggest (82)	suggest (63)
indicate (46)	demonstrate (67)	indicate (58)	reveal (39)
reveal (42)	indicate (39)	demonstrate (44)	demonstrate (35)
provide (16)	find (38)	reveal (38)	indicate (27)
demonstrate (12)	reveal (35)	provide (28)	find (23)
find (12)	provide (34)	find (27)	provide (22)
have (12)	predict (31)	support (25)	support (13)
seem (11)	support (29)	predict (22)	predict (11)
support (9)	replicate (11)	have (13)	seem (8)
conclude (8)	report (11)	conclude (12)	appear (7)
illustrate (8)	conclude (9)	highlight (9)	report (7)
appear (7)	highlight (9)	identify (8)	have (6)
differ (7)	increase (8)	differ (7)	highlight (6)
identify (7)	have (7)	increase (7)	conclude (5)
point (7)	confirm (5)	replicate (7)	confirm (5)
highlight (6)	imply (5)	argue (6)	differ (4)
outperform (6)	respond (5)	produce (6)	illustrate (4)
argue (5)	underscore (5)	report (6)	offer (4)
confirm (4)	argue (4)	illustrate (5)	point (4)
lead (4)	contribute (4)	outperform (5)	replicate (4)
benefit (3)	differ (4)	point (5)	argue (3)
contain (3)	extend (4)	seem (5)	contribute (3)
contribute (3)	occur (4)	confirm (4)	present (3)
exist (3)	present (4)	contribute (4)	underestimate (3)
lend (3)	establish (3)	emerge (4)	contain (2)
produce (3)	exhibit (3)	imply (4)	describe (2)
receive (3)	identify (3)	lead (4)	establish (2)
vary (3)	offer (3)	occur (4)	exhibit (2)
allow (2)	produce (3)	respond (4)	exist (2)
call for (2)	tend (3)	tend (4)	extend (2)
conform (2)	underestimate (3)	underscore (4)	fail (2)
decrease (2)	appear (2)	become (3)	identify (2)
elicit (2)	become (2)	decrease (3)	imply (2)
emerge (2)	depend (2)	discuss (3)	initiate (2)
enable (2)	discuss (2)	exhibit (3)	lead (2)
exhibit (2)	display (2)	extend (3)	lend (2)
experience (2)	document (2)	present (3)	make (2)
facilitate (2)	emerge (2)	allow (2)	passivize (2)
make (2)	endorse (2)	appear (2)	prove (2)
need (2)	fail (2)	believe (2)	receive (2)
offer (2)	improve (2)	benefit (2)	score (2)
passivize (2)	lead (2)	disappear (2)	uncover (2)
predict (2)	mediate (2)	display (2)	underscore (2)
present (2)	point (2)	document (2)	yield (2)
process (2)	prefer (2)	elicit (2)	add (1)

reflect (2)
report (2)
score (2)
serve (2)
tend (2)
uncover (2)
yield (2)
add (1)
affect (1)
apply (1)
appropriate (1)
attain (1)
become (1)
believe (1)
bring (1)
bring about (1)
call (1)
cast (1)
cause (1)
challenge (1)
consist (1)
constitute (1)
contend (1)
contest (1)
converge (1)
correlate (1)
correspond (1)
corroborate (1)
depict (1)
describe (1)
determine (1)
disagree (1)
disappear (1)
discuss (1)
draw (1)
employ (1)
evaluate (1)
expect (1)
extend (1)
feel (1)
fit in (1)
fluctuate (1)
follow (1)
fulfill (1)
go through (1)
help (1)
illuminate (1)
imply (1)
improve (1)

propose (2)
rule out (2)
seem (2)
yield (2)
absorb (1)
account for (1)
amplify (1)
ask (1)
attempt (1)
believe (1)
boost (1)
broaden (1)
clarify (1)
complete (1)
complicate (1)
condemn (1)
construct and recall (1)
construe (1)
corroborate (1)
decrease (1)
describe (1)
develop (1)
disappear (1)
distinguish (1)
elucidate (1)
emphasise (1)
espouse (1)
estimate (1)
explain (1)
express (1)
function (1)
go against (1)
help (1)
humanize (1)
illustrate (1)
induce (1)
infer (1)
influence (1)
initiate (1)
interpret (1)
join (1)
link (1)
make (1)
moderate (1)
motivate (1)
observe (1)
outline (1)
perceive (1)
perform (1)

endorse (2)
help (2)
improve (2)
influence (2)
interpret (2)
mediate (2)
observe (2)
perform (2)
prefer (2)
process (2)
propose (2)
reflect (2)
remain (2)
rule out (2)
use (2)
vary (2)
yield (2)
absorb (1)
account for (1)
affect (1)
amplify (1)
apply (1)
appropriate (1)
ask (1)
attempt (1)
boost (1)
bring about (1)
broaden (1)
call for (1)
cast (1)
clarify (1)
condemn (1)
conform (1)
construct and recall (1)
construe (1)
contain (1)
contend (1)
contest (1)
converge (1)
correlate (1)
correspond (1)
corroborate (1)
depend (1)
depict (1)
determine (1)
draw (1)
enable (1)
espouse (1)
establish (1)

attain (1)
benefit (1)
bring (1)
call (1)
call for (1)
cause (1)
challenge (1)
complete (1)
complicate (1)
conform (1)
consist (1)
constitute (1)
corroborate (1)
depend (1)
develop (1)
disagree (1)
distinguish (1)
elucidate (1)
emphasise (1)
employ (1)
enable (1)
expect (1)
experience (1)
facilitate (1)
fit in (1)
fluctuate (1)
go against (1)
improve (1)
increase (1)
induce (1)
integrate (1)
link (1)
need (1)
open (1)
outline (1)
outperform (1)
over-use (1)
replicate and extend (1)
respond (1)
separate (1)
serve (1)
shed (1)
spread (1)
stand (1)
take (1)
tend (1)
think (1)
undermine (1)
vary (1)

influence (1)
inhabit (1)
initiate (1)
inspire (1)
integrate (1)
interpret (1)
maintain (1)
master (1)
observe (1)
open (1)
operate (1)
over-use (1)
overapply (1)
parallel (1)
participate (1)
pattern (1)
perform (1)
promote (1)
prove (1)
qualify (1)
raise (1)
reconfirm (1)
reduce (1)
remain (1)
run (1)
shed (1)
start (1)
surface (1)
take (1)
turn out (1)
underscore (1)
use (1)

place (1)
predict and observe (1)
prove (1)
react (1)
reconcile (1)
refer (1)
remain (1)
replicate and extend (1)
see (1)
self-distance (1)
separate (1)
shed (1)
spread (1)
stand (1)
strengthen (1)
think (1)
throw or kick (1)
triangulate (1)
undermine (1)
upgrade (1)
use (1)
verify (1)

estimate (1)
evaluate (1)
exist (1)
experience (1)
explain (1)
express (1)
facilitate (1)
feel (1)
follow (1)
fulfill (1)
function (1)
go through (1)
humanize (1)
illuminate (1)
infer (1)
inhabit (1)
inspire (1)
join (1)
lend (1)
maintain (1)
make (1)
master (1)
moderate (1)
motivate (1)
need (1)
offer (1)
operate (1)
overapply (1)
parallel (1)
participate (1)
pattern (1)
perceive (1)
place (1)
predict and observe (1)
promote (1)
qualify (1)
raise (1)
react (1)
receive (1)
reconcile (1)
reconfirm (1)
reduce (1)
refer (1)
run (1)
see (1)
self-distance (1)
serve (1)
shed (1)
start (1)
strengthen (1)

		surface (1) throw or kick (1) triangulate (1) turn out (1) upgrade (1) verify (1)	

Appendix 6.91 Verbs in RPT Pattern 1 LPs

Applied Linguistics	Psychology	Research Articles	Theses
conclude (3)	discuss (7)	discuss (8)	present (7)
consider (2)	present (5)	conclude (2)	provide (4)
discuss (2)	provide (4)	consider (2)	have (3)
have (2)	have (3)	have (2)	review (2)
present (2)	focus (2)	be (1)	attempt (1)
end (1)	review (2)	clarify (1)	conclude (1)
explore (1)	attempt (1)	contrast (1)	consider (1)
finish (1)	be (1)	end (1)	describe (1)
illustrate (1)	clarify (1)	explore (1)	discuss (1)
include (1)	consider (1)	finish (1)	focus (1)
lead (1)	contrast (1)	focus (1)	include (1)
propose (1)	describe (1)	illustrate (1)	summarise (1)
suggest (1)	summarise (1)	lead (1)	synthesize (1)
summarise (1)		propose (1)	
synthesize (1)		suggest (1)	
		summarise (1)	

Appendix 6.92 Verbs in ITT Pattern 2 LPs

Applied Linguistics	Psychology	Research Articles	Theses
find (3)	show (4)	observe (3)	associate (2)
claim (2)	observe (3)	claim (2)	base (2)
realise (2)	associate (2)	define (2)	find (2)
aim (1)	know (2)	find (2)	show (2)
ask (1)	think (2)	see (2)	aim (1)
assume (1)	advise (1)	show (2)	assume (1)
base (1)	assume (1)	view (2)	carry out (1)
carry out (1)	attract (1)	advise (1)	cause (1)
compromise (1)	attribute (1)	ask (1)	classify (1)
define (1)	base (1)	assume (1)	comprise (1)
dominate (1)	believe (1)	attract (1)	decide (1)
draw (1)	call (1)	attribute (1)	develop (1)
exacerbate (1)	cause (1)	believe (1)	direct (1)
extend (1)	classify (1)	call (1)	exacerbate (1)
investigate (1)	comprise (1)	compromise (1)	explore (1)
link (1)	decide (1)	define and judge (1)	govern (1)
make (1)	define (1)	demonstrate (1)	investigate (1)
note (1)	define and judge (1)	dominate (1)	know (1)
observe (1)	demonstrate (1)	draw (1)	learn (1)
operationalise (1)	develop (1)	extend (1)	observe (1)
perform (1)	direct (1)	facilitate (1)	pay (1)
praise (1)	explore (1)	influence (1)	perform (1)
recognise (1)	facilitate (1)	instantiate (1)	praise (1)
refer (1)	find (1)	interpret (1)	realise (1)
report (1)	govern (1)	know (1)	refer (1)
represent (1)	influence (1)	link (1)	resolve (1)
resolve (1)	instantiate (1)	make (1)	say (1)
say (1)	interpret (1)	note (1)	study (1)
see (1)	learn (1)	operationalise (1)	suggest (1)
suggest (1)	pay (1)	perceive and remember (1)	teach (1)
support (1)	perceive and remember (1)	postulate (1)	term (1)
teach (1)	postulate (1)	realise (1)	think (1)
term (1)	regard (1)	recognise (1)	undertake (1)
view (1)	see (1)	regard (1)	
	specialise (1)	report (1)	
	study (1)	represent (1)	
	surround (1)	specialise (1)	
	understand (1)	support (1)	
	undertake (1)	surround (1)	
	use (1)	think (1)	
	view (1)	understand (1)	
	violate (1)	use (1)	
		violate (1)	

Appendix 6.93 Verbs in SNR Pattern 2 LPs

Applied Linguistics	Psychology	Research Articles	Theses
know (2)	know (5)	know (4)	know (3)
advocate (1)	give (2)	test (2)	debate (2)
base (1)	attribute (1)	attribute (1)	give (2)
debate (1)	criticise (1)	base (1)	advocate (1)
do (1)	debate (1)	establish (1)	criticise (1)
establish (1)	make (1)	make (1)	do (1)
make (1)	mix (1)	mix (1)	make (1)
show (1)	neglect (1)	study (1)	neglect (1)
study (1)	research (1)	underexplore (1)	research (1)
test (1)	test (1)	underrepresent (1)	show (1)
underexplore (1)	underspecify and underexplore (1)	underspecify and underexplore (1)	
underrepresent (1)	understand (1)	understand (1)	
write (1)		write (1)	

Appendix 6.94 Verbs in ATR Pattern 2 LPs

Applied Linguistics	Psychology	Research Articles	Theses
compare (8)	investigate (12)	examine (5)	investigate (12)
analyse (5)	examine (11)	assess (4)	use (12)
use (5)	use (9)	compare (4)	examine (9)
investigate (4)	assess (7)	investigate (4)	explore (8)
examine (3)	explore (6)	conduct (2)	compare (5)
explore (3)	conduct (5)	hypothesise (2)	analyse (4)
test (3)	hypothesise (5)	propose (2)	assess (4)
address (2)	present (5)	use (2)	conduct (4)
employ (2)	predict (3)	address (1)	present (4)
expect (2)	evaluate (2)	analyse (1)	focus (3)
argue (1)	focus (2)	apply (1)	hypothesise (3)
assess (1)	manipulate (2)	carry out (1)	predict (3)
carry out (1)	address (1)	characterise (1)	test (3)
choose (1)	apply (1)	contrast (1)	address (2)
comprise (1)	carry out (1)	describe (1)	employ (2)
conduct (1)	characterise (1)	employ (1)	argue (1)
consider (1)	compare (1)	evaluate (1)	carry out (1)
contrast (1)	complement (1)	expect (1)	choose (1)
describe (1)	complete (1)	explore (1)	complement (1)
design (1)	contrast (1)	guide (1)	complete (1)
develop and evaluate (1)	describe (1)	identify and examine (1)	comprise (1)
elaborate (1)	develop (1)	link (1)	consider (1)
focus (1)	divide (1)	manipulate (1)	contrast (1)
formulate (1)	employ (1)	measure (1)	describe (1)
guide (1)	link (1)	obtain (1)	design (1)
identify (1)	measure (1)	predict (1)	develop (1)
identify and examine (1)	monitor (1)	present (1)	develop and evaluate (1)
illustrate (1)	obtain (1)	view (1)	divide (1)
intend (1)	place (1)		elaborate (1)
interpret (1)	propose (1)		evaluate (1)
make (1)	quantify (1)		expect (1)
pay (1)	record (1)		formulate (1)
predict (1)	repeat (1)		identify (1)
propose (1)	report (1)		illustrate (1)
suggest (1)	undertake (1)		intend (1)
treat (1)			interpret (1)
view (1)			make (1)
			manipulate (1)
			monitor (1)
			pay (1)
			place (1)
			quantify (1)
			record (1)
			repeat (1)
			report (1)
			suggest (1)

			treat (1) undertake (1)

Appendix 6.95 Verbs in DTM Pattern 2 LPs

Applied Linguistics	Psychology	Research Articles	Theses
use (15)	assess (18)	assess (12)	use (14)
analyse (12)	use (6)	use (7)	assess (8)
administer (9)	ask (4)	administer (6)	analyse (7)
base (7)	collect (3)	analyse (6)	conduct (6)
compare (7)	conduct (3)	assign (6)	administer (5)
measure (7)	present (3)	test (6)	apply (4)
assign (6)	administer (2)	ask (5)	base (4)
collect (6)	correlate (2)	collect (5)	collect (4)
test (6)	define (2)	compare (5)	investigate (4)
conduct (5)	investigate (2)	measure (5)	ask (3)
apply (4)	make (2)	base (3)	carry out (3)
ask (4)	manipulate (2)	code (3)	measure (3)
carry out (4)	observe (2)	create (3)	compare (2)
employ (4)	test (2)	employ (3)	determine (2)
create (3)	analyse (1)	interview (3)	develop (2)
give (3)	assign (1)	present (3)	give (2)
identify (3)	carry out (1)	carry out (2)	handwrite (2)
interview (3)	code (1)	complete (2)	identify (2)
assess (2)	complete (1)	conduct (2)	perform (2)
audio-record (2)	create (1)	expose (2)	present (2)
code (2)	degrade (1)	follow (2)	test (2)
comprise (2)	determine (1)	generate (2)	achieve (1)
design (2)	draw (1)	manipulate (2)	analyse and code (1)
develop (2)	establish (1)	observe (2)	assign (1)
expose (2)	follow (1)	record (2)	audio-record (1)
form (2)	instruct (1)	score (2)	comprise (1)
generate (2)	interpret (1)	add (1)	correlate (1)
handwrite (2)	measure (1)	audio-record (1)	create (1)
investigate (2)	perform (1)	build (1)	define (1)
perform (2)	precede (1)	calculate (1)	design (1)
present (2)	pretest (1)	compare and analyse (1)	design, construct, and analyse (1)
score (2)	prime (1)	compile (1)	develop and implement (1)
select (2)	provide (1)	comprise (1)	discuss (1)
achieve (1)	quantify (1)	consider (1)	employ (1)
add (1)	rate (1)	correlate (1)	explore (1)
analyse and code (1)	record (1)	define (1)	extract (1)
build (1)	record and analyse (1)	degrade (1)	form (1)
calculate (1)	reduce (1)	design (1)	highlight (1)
compare and analyse (1)	screen (1)	divide (1)	identify and transcribe (1)
compile (1)	show (1)	draw (1)	include (1)
complete (1)	simulate (1)	elicit (1)	interpret (1)
consider (1)	study (1)	establish (1)	invest (1)
design, construct, and	vary (1)	form (1)	make (1)

analyse (1) determine (1) develop and implement (1) discuss (1) divide (1) elicit (1) explore (1) extract (1) follow (1) gather (1) highlight (1) identify and transcribe (1) include (1) invest (1) keep (1) manipulate (1) match (1) microanalyse (1) modify (1) observe and video-record (1) pay (1) pilot, revise, and then administer (1) place (1) predicate (1) rear (1) record (1) record and statistically compare (1) recruit (1) report (1) select and download (1) show (1) support (1) take (1) teach (1) transcribe, analyse, and implicationally scale (1) undertake (1)		gather (1) give (1) identify (1) instruct (1) keep (1) make (1) modify (1) perform (1) place (1) pretest (1) provide (1) quantify (1) rate (1) rear (1) record and analyse (1) report (1) screen (1) select (1) show (1) simulate (1) transcribe, analyse, and implicationally scale (1) undertake (1)	manipulate (1) match (1) microanalyse (1) observe and video-record (1) pay (1) pilot, revise, and then administer (1) precede (1) predicate (1) prime (1) record and statistically compare (1) recruit (1) reduce (1) select (1) select and download (1) show (1) study (1) support (1) take (1) teach (1) vary (1)

Appendix 6.96 Verbs in PEMF Pattern 2 LPs

Applied Linguistics	Psychology	Research Articles	Theses
find (41)	find (32)	find (35)	find (38)
argue (6)	associate (24)	associate (17)	argue (8)
identify (6)	observe (12)	observe (9)	associate (7)
discuss (5)	mediate (8)	show (5)	identify (6)
explain (5)	show (6)	discuss (4)	use (6)
use (5)	use (5)	link (4)	mediate (5)
affect (3)	argue (4)	see (4)	consider (4)
attribute (3)	consider (4)	use (4)	demonstrate (4)
propose (3)	link (4)	affect (3)	explain (4)
see (3)	affect (3)	explain (3)	observe (4)
show (3)	conclude (3)	influence (3)	present (4)
suggest (3)	correlate (3)	mediate (3)	show (4)
characterise (2)	demonstrate (3)	obtain (3)	affect (3)
interpret (2)	influence (3)	argue (2)	characterise (3)
judge (2)	obtain (3)	attribute (2)	attribute (2)
need (2)	predict (3)	conclude (2)	conclude (2)
note (2)	present (3)	correlate (2)	discuss (2)
obtain (2)	eliminate (2)	enhance (2)	eliminate (2)
present (2)	enhance (2)	follow (2)	interpret (2)
reveal (2)	explain (2)	indicate (2)	obtain (2)
achieve (1)	follow (2)	interpret (2)	propose (2)
assess (1)	indicate (2)	judge (2)	recommend (2)
believe (1)	interpret (2)	modulate (2)	reveal (2)
bear out (1)	see (2)	predict (2)	suggest (2)
borrow (1)	accompany (1)	propose (2)	achieve (1)
conclude (1)	activate (1)	suggest (2)	activate (1)
constrain (1)	apply (1)	accompany (1)	base (1)
demonstrate (1)	attenuate (1)	apply (1)	believe (1)
describe (1)	attribute (1)	assess (1)	correlate (1)
determine (1)	base (1)	attenuate (1)	determine (1)
devise (1)	characterise (1)	bear out (1)	devise (1)
discover (1)	confirm (1)	borrow (1)	differentiate (1)
draw (1)	differentiate (1)	confirm (1)	discover (1)
employ (1)	discount (1)	constrain (1)	dislike (1)
expand (1)	discuss (1)	describe (1)	draw (1)
explicate (1)	dislike (1)	discount (1)	expand (1)
ground (1)	distribute (1)	distribute (1)	facilitate (1)
hope (1)	draw (1)	draw (1)	ground (1)
identify and describe (1)	exploit (1)	employ (1)	indicate (1)
indicate (1)	express (1)	explicate (1)	influence (1)
influence (1)	extend (1)	exploit (1)	judge (1)
link (1)	facilitate (1)	express (1)	lift (1)
maintain (1)	identify (1)	extend (1)	like (1)
manifest (1)	judge (1)	hope (1)	limit (1)
mirror (1)	lift (1)	identify (1)	link (1)
modulate (1)	like (1)	identify and describe (1)	manifest (1)

observe (1)	limit (1)	maintain (1)	manipulate (1)
prefer (1)	manipulate (1)	mark (1)	mirror (1)
produce (1)	mark (1)	mediate and moderate (1)	motivate (1)
realise (1)	mediate and moderate (1)	mitigate (1)	need (1)
recommend (1)	mitigate (1)	need (1)	note (1)
reflect (1)	modulate (1)	note (1)	predict (1)
report (1)	motivate (1)	outline (1)	prefer (1)
satisfy (1)	outline (1)	present (1)	produce (1)
shape (1)	preserve (1)	preserve (1)	pull (1)
support (1)	propose (1)	reduce (1)	rate (1)
take (1)	pull (1)	remove (1)	realise (1)
unveil (1)	rate (1)	replicate (1)	record (1)
verify (1)	recommend (1)	report (1)	reflect (1)
	record (1)	reverse (1)	see (1)
	reduce (1)	satisfy (1)	shape (1)
	remove (1)	spare (1)	support (1)
	replicate (1)	support (1)	take (1)
	reverse (1)	verify (1)	undermine (1)
	spare (1)		unveil (1)
	suggest (1)		
	support (1)		
	undermine (1)		

Appendix 6.97 Verbs in RPT Pattern 2 LPs

Applied Linguistics	Psychology	Research Articles	Theses
discuss (23)	discuss (37)	discuss (45)	discuss (15)
make (4)	break down (1)	consider (2)	make (3)
consider (2)	consider (1)	propose (2)	break down (1)
propose (2)	describe (1)	describe (1)	consider (1)
offer (1)	integrate and discuss (1)	make (1)	integrate and discuss (1)
present (1)	propose (1)	offer (1)	present (1)
present and discuss (1)	review (1)	present and discuss (1)	propose (1)
provide (1)		provide (1)	review (1)
recapitulate (1)		recapitulate (1)	
suggest (1)		suggest (1)	

Appendix 6.98 Pattern 1 verb complements in applied linguistics

	adj. phr.	adv. phr.	conj.+cl.	ed part. cl.	how cl.	if cl.	ing part.cl.	noun phr.	prep.phr.	that cl.	to-inf cl.	what cl.	when cl.	where cl.	whether cl.	which cl.	why cl.	other	zero	Total
ITT	0.0	2.4	0.0	0.0	0.0	0.0	0.8	46.0	12.9	28.2	7.3	0.0	0.0	0.0	0.8	0.0	0.0	1.6	0.0	100.0
SNR	4.3	0.0	0.0	0.0	4.3	0.0	0.0	56.5	8.7	4.3	13.0	4.3	0.0	0.0	4.3	0.0	0.0	0.0	0.0	100.0
ATR	0.0	0.0	0.0	0.0	5.3	0.0	0.0	70.9	12.9	1.5	5.6	0.3	0.0	0.0	3.5	0.0	0.0	0.0	0.0	100.0
DTM	0.0	0.7	0.0	0.0	0.7	0.0	2.9	72.1	20.7	0.0	1.4	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	100.0
PEMF	1.1	1.3	0.2	0.0	1.5	0.0	0.4	43.2	7.8	39.4	4.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.6	100.0
RPT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	76.2	23.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Avrg.	0.9	0.7	0.0	0.0	2.0	0.0	0.7	60.8	14.5	12.2	5.3	0.8	0.0	0.0	1.7	0.0	0.0	0.3	0.1	100.0

Appendix 6.99 Pattern 1 verb complements in psychology

	adj. phr.	adv. phr.	conj.+cl.	ed part. cl.	how cl.	if cl.	ing part.cl.	noun phr.	prep.phr.	that cl.	to-inf cl.	what cl.	when cl.	where cl.	whether cl.	which cl.	why cl.	other	zero	Total
ITT	0.0	1.9	0.0	0.0	0.0	0.0	2.9	45.2	10.6	29.8	6.7	0.0	0.0	0.0	1.0	0.0	0.0	1.9	0.0	100.0
SNR	16.7	12.5	0.0	0.0	12.5	0.0	0.0	29.2	4.2	4.2	12.5	0.0	0.0	0.0	4.2	0.0	4.2	0.0	0.0	100.0
ATR	0.0	0.0	0.0	0.0	5.8	0.3	0.0	68.6	5.5	8.4	3.6	0.0	0.0	0.0	7.4	0.3	0.0	0.0	0.0	100.0
DTM	0.0	0.0	0.0	0.0	1.5	0.0	3.0	83.6	7.5	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	3.0	100.0
PEMF	0.6	1.2	0.0	0.0	1.0	0.0	0.4	46.9	3.2	44.6	1.3	0.0	0.3	0.0	0.1	0.0	0.0	0.1	0.1	100.0
RPT	0.0	0.0	0.0	0.0	6.7	0.0	0.0	80.0	10.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Avrg.	2.9	2.6	0.0	0.0	4.6	0.1	1.1	58.9	6.8	14.5	4.6	0.0	0.0	0.0	2.1	0.3	0.7	0.3	0.5	100.0

Appendix 6.100 Pattern 2 verb complements in applied linguistics

	adj. phr.	adv. phr.	conj.+cl.	ed part. cl.	how cl.	if cl.	ing part.cl.	noun phr.	prep.phr.	that cl.	to-inf cl.	what cl.	when cl.	where cl.	whether cl.	which cl.	why cl.	other	zero	Total
ITT	0.0	7.9	0.0	0.0	2.6	0.0	0.0	0.0	60.5	13.2	7.9	0.0	2.6	0.0	0.0	0.0	0.0	0.0	5.3	100.0
SNR	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	71.4	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3	100.0
ATR	0.0	1.6	0.0	0.0	0.0	0.0	1.6	0.0	37.5	6.3	23.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.7	100.0
DTM	0.5	1.6	0.0	1.6	0.0	0.0	3.3	2.2	62.3	0.0	15.8	0.0	0.0	0.0	0.0	0.0	0.0	0.5	12.0	100.0
PEMF	1.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	48.2	17.0	21.3	0.0	0.0	0.0	0.0	0.0	0.0	0.7	10.6	100.0
RPT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.4	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.9	100.0
Avrg.	1.5	2.0	0.0	0.3	0.4	0.0	0.8	0.4	55.2	6.1	13.1	0.0	0.4	0.0	0.0	0.0	0.0	0.2	19.6	100.0

Appendix 6.101 Pattern 2 verb complements in psychology

	adj. phr.	adv. phr.	conj.+cl.	ed part. cl.	how cl.	if cl.	ing part.cl.	noun phr.	prep.phr.	that cl.	to-inf cl.	what cl.	when cl.	where cl.	whether cl.	which cl.	why cl.	other	zero	Total
ITT	0.0	4.0	0.0	0.0	0.0	0.0	0.0	4.0	58.0	6.0	20.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	4.0	100.0
SNR	0.0	5.9	0.0	0.0	0.0	0.0	0.0	0.0	70.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.5	100.0
ATR	0.0	2.2	0.0	0.0	0.0	0.0	7.6	0.0	31.5	2.2	23.9	0.0	0.0	0.0	0.0	0.0	0.0	3.3	29.3	100.0
DTM	0.0	1.2	0.0	0.0	0.0	0.0	6.1	3.7	67.1	0.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	8.5	100.0
PEMF	0.0	4.4	0.0	0.0	0.0	0.0	1.7	0.0	58.6	9.4	12.7	0.0	3.3	0.0	0.0	0.0	0.0	0.0	9.9	100.0
RPT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.5	100.0
Avrg.	0.0	2.9	0.0	0.0	0.0	0.0	2.6	1.3	54.2	2.9	11.3	0.0	1.2	0.0	0.0	0.0	0.0	0.9	22.6	100.0

Appendix 6.102 Pattern 3 verb complements in applied linguistics

	adj. phr.	adv. phr.	conj.+cl.	ed part. cl.	how cl.	if cl.	ing part.cl.	noun phr.	prep.phr.	that cl.	to-inf cl.	what cl.	when cl.	where cl.	whether cl.	which cl.	why cl.	other	zero	Total
ITT	38.2	1.8	0.0	0.0	0.0	0.0	0.0	50.9	7.3	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
SNR	33.3	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
ATR	6.7	0.0	0.0	0.0	0.0	0.0	0.0	33.3	11.7	3.3	45.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
DTM	16.2	0.0	0.0	0.0	0.0	0.0	0.0	75.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1	0.0	100.0
PEMF	57.3	1.0	0.0	0.0	0.0	0.0	0.0	29.2	5.2	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	100.0
RPT																				
Avrg.	30.3	0.6	0.0	0.0	0.0	0.0	0.0	51.2	4.8	2.1	9.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.4	100.0

Appendix 6.103 Pattern 3 verb complements in psychology

	adj. phr.	adv. phr.	conj.+cl.	ed part. cl.	how cl.	if cl.	ing part.cl.	noun phr.	prep.phr.	that cl.	to-inf cl.	what cl.	when cl.	where cl.	whether cl.	which cl.	why cl.	other	zero	Total
ITT	32.7	0.0	0.0	0.0	0.0	0.0	0.0	50.0	1.9	9.6	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
SNR	50.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
ATR	12.1	0.0	0.0	0.0	3.0	0.0	0.0	9.1	6.1	9.1	54.5	0.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	100.0
DTM	33.3	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
PEMF	80.8	0.0	1.5	0.0	0.0	0.0	0.0	13.8	2.3	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	100.0
RPT																				
Avrg.	41.8	0.0	0.3	0.0	0.6	0.0	0.0	34.6	2.1	3.9	15.4	0.0	0.0	0.6	0.6	0.0	0.0	0.2	0.0	100.0

Appendix 6.104 Pattern 1 verb complements in research article abstracts

	adj. phr.	adv. phr.	conj.+cl.	ed part. cl.	how cl.	if cl.	ing part.cl.	noun phr.	prep.phr.	that cl.	to-inf cl.	what cl.	when cl.	where cl.	whether cl.	which cl.	why cl.	other	zero	Total
ITT	0.0	2.1	0.0	0.0	0.0	0.0	2.1	42.7	12.6	29.4	7.7	0.0	0.0	0.0	1.4	0.0	0.0	2.1	0.0	100.0
SNR	14.3	0.0	0.0	0.0	3.6	0.0	0.0	46.4	7.1	7.1	17.9	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	100.0
ATR	0.0	0.0	0.0	0.0	4.1	0.0	0.0	69.7	9.6	6.9	3.0	0.0	0.0	0.0	6.3	0.3	0.0	0.0	0.0	100.0
DTM	0.0	0.8	0.0	0.0	0.0	0.0	3.9	75.6	15.0	0.0	1.6	0.0	0.0	0.0	0.8	0.8	0.0	0.0	1.6	100.0
PEMF	0.8	1.8	0.1	0.0	1.2	0.0	0.6	45.5	5.1	41.7	2.1	0.0	0.3	0.0	0.1	0.0	0.0	0.1	0.6	100.0
RPT	0.0	0.0	0.0	0.0	7.7	0.0	0.0	65.4	26.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Avrg.	2.5	0.8	0.0	0.0	2.8	0.0	1.1	57.5	12.7	14.2	5.4	0.0	0.0	0.0	1.4	0.2	0.6	0.4	0.4	100.0

Appendix 6.105 Pattern 1 verb complements in thesis abstracts

	adj. phr.	adv. phr.	conj.+cl.	ed part. cl.	how cl.	if cl.	ing part.cl.	noun phr.	prep.phr.	that cl.	to-inf cl.	what cl.	when cl.	where cl.	whether cl.	which cl.	why cl.	other	zero	Total
ITT	0.0	2.4	0.0	0.0	0.0	0.0	1.2	50.6	10.6	28.2	5.9	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	100.0
SNR	5.3	15.8	0.0	0.0	15.8	0.0	0.0	36.8	5.3	0.0	5.3	5.3	0.0	0.0	10.5	0.0	0.0	0.0	0.0	100.0
ATR	0.0	0.0	0.0	0.0	7.3	0.3	0.0	69.9	9.1	2.1	6.6	0.3	0.0	0.0	4.2	0.0	0.0	0.0	0.0	100.0
DTM	0.0	0.0	0.0	0.0	2.5	0.0	1.3	76.3	18.8	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	100.0
PEMF	0.8	0.4	0.0	0.0	1.3	0.0	0.2	45.0	5.4	43.3	3.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
RPT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	92.0	4.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Avrg.	1.0	3.1	0.0	0.0	4.5	0.1	0.4	61.8	8.9	12.3	4.2	1.0	0.0	0.0	2.7	0.0	0.0	0.2	0.0	100.0

Appendix 6.106 Pattern 2 verb complements in research article abstracts

	adj. phr.	adv. phr.	conj.+cl.	ed part. cl.	how cl.	if cl.	ing part.cl.	noun phr.	prep.phr.	that cl.	to-inf cl.	what cl.	when cl.	where cl.	whether cl.	which cl.	why cl.	other	zero	Total
ITT	0.0	3.9	0.0	0.0	2.0	0.0	0.0	2.0	54.9	11.8	19.6	0.0	3.9	0.0	0.0	0.0	0.0	0.0	2.0	100.0
SNR	0.0	5.9	0.0	0.0	0.0	0.0	0.0	0.0	70.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.5	100.0
ATR	0.0	2.2	0.0	0.0	0.0	0.0	4.4	0.0	28.9	6.7	17.8	0.0	0.0	0.0	0.0	0.0	0.0	2.2	37.8	100.0
DTM	0.7	0.7	0.0	0.7	0.0	0.0	0.7	2.1	70.7	0.0	12.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.4	100.0
PEMF	1.2	2.5	0.0	0.0	0.0	0.0	0.6	0.0	60.2	8.1	16.8	0.0	1.2	0.0	0.0	0.0	0.0	0.0	9.3	100.0
RPT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.1	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	57.1	100.0
Avrg.	0.3	2.5	0.0	0.1	0.3	0.0	1.0	0.7	54.4	4.4	11.5	0.0	0.9	0.0	0.0	0.0	0.0	0.4	23.5	100.0

Appendix 6.107 Pattern 2 verb complements in thesis abstracts

	adj. phr.	adv. phr.	conj.+cl.	ed part. cl.	how cl.	if cl.	ing part.cl.	noun phr.	prep.phr.	that cl.	to-inf cl.	what cl.	when cl.	where cl.	whether cl.	which cl.	why cl.	other	zero	Total
ITT	0.0	8.1	0.0	0.0	0.0	0.0	0.0	2.7	64.9	5.4	8.1	0.0	2.7	0.0	0.0	0.0	0.0	0.0	8.1	100.0
SNR	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	71.4	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3	100.0
ATR	0.0	1.8	0.0	0.0	0.0	0.0	5.4	0.0	36.0	2.7	26.1	0.0	0.0	0.0	0.0	0.0	0.0	1.8	26.1	100.0
DTM	0.0	2.4	0.0	1.6	0.0	0.0	8.0	3.2	56.0	0.0	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	12.0	100.0
PEMF	0.0	3.1	0.0	0.0	0.0	0.0	1.2	0.0	47.8	17.4	16.1	0.0	2.5	0.0	0.0	0.0	0.0	0.6	11.2	100.0
RPT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	54.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.8	100.0
Avrg.	1.2	2.6	0.0	0.3	0.0	0.0	2.4	1.0	55.1	4.2	12.3	0.0	0.9	0.0	0.0	0.0	0.0	0.5	19.6	100.0

Appendix 6.108 Pattern 3 verb complements in research article abstracts

	adj. phr.	adv. phr.	conj.+cl.	ed part. cl.	how cl.	if cl.	ing part.cl.	noun phr.	prep.phr.	that cl.	to-inf cl.	what cl.	when cl.	where cl.	whether cl.	which cl.	why cl.	other	zero	Total
ITT	32.1	0.0	0.0	0.0	0.0	0.0	0.0	56.6	5.7	3.8	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
SNR	66.7	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
ATR	8.8	0.0	0.0	0.0	0.0	0.0	0.0	23.5	11.8	5.9	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
DTM	19.0	0.0	0.0	0.0	0.0	0.0	0.0	76.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	100.0
PEMF	69.9	0.9	1.8	0.0	0.0	0.0	0.0	18.6	6.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	100.0
RPT																				
Avrg.	39.3	0.2	0.4	0.0	0.0	0.0	0.0	41.6	4.7	2.3	10.4	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	100.0

Appendix 6.109 Pattern 3 verb complements in thesis abstracts

	adj. phr.	adv. phr.	conj.+cl.	ed part. cl.	how cl.	if cl.	ing part.cl.	noun phr.	prep.phr.	that cl.	to-inf cl.	what cl.	when cl.	where cl.	whether cl.	which cl.	why cl.	other	zero	Total
ITT	38.9	1.9	0.0	0.0	0.0	0.0	0.0	44.4	3.7	7.4	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
SNR	22.2	0.0	0.0	0.0	0.0	0.0	0.0	77.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
ATR	8.5	0.0	0.0	0.0	1.7	0.0	0.0	25.4	8.5	5.1	47.5	0.0	0.0	1.7	1.7	0.0	0.0	0.0	0.0	100.0
DTM	18.2	0.0	0.0	0.0	0.0	0.0	0.0	68.2	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	9.1	0.0	100.0
PEMF	71.7	0.0	0.0	0.0	0.0	0.0	0.0	22.1	0.9	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	100.0
RPT																				
Avrg.	31.9	0.4	0.0	0.0	0.3	0.0	0.0	47.6	2.6	3.2	11.1	0.0	0.0	0.3	0.3	0.0	0.0	1.8	0.4	100.0

REFERENCES

Ädel, A. and 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.

Ahmadi, H. S. (2009) 'A comparison of genre: biological science research article abstracts by Iranian and native English-speaking scholars.' *The Asian ESP Journal*, 5 (2): 107-120.

Ahmadi, H. S., Ghonsooly, B. and Hosseini Fatemi, A. (2013) 'An analysis of lexical bundles in research article abstracts by Iranian and native English-speaking authors of applied linguistics articles.' *The Asian ESP Journal*, 9 (1): 5-27.

Akbas, E. (2012) 'Exploring metadiscourse in master's dissertation abstracts: Cultural and linguistic variations across postgraduate writers.' *International Journal of Applied Linguistics and English Literature*, 1 (1): 12-26.

Alharbi, L. M. and Swales, J. M. (2011) 'Arabic and English abstracts in bilingual language science journals: Same or different?' *Languages in Contrast*, 11 (1): 70-86.

Amirian, Z., Kassaian, Z. and Tavakoli, M. (2008) 'Genre analysis: An investigation of the discussion sections of applied linguistics research articles.' *The Asian ESP Journal,* 4 (1): 39-63.

Amnuai, W. and Wannaruk, A. (2013a) 'A move-based analysis of the conclusion sections of research article published in international and Thai journals.' *3L: The Southeast Asian Journal of English Language Studies*, 19 (2): 53-63.

Amnuai, W. and Wannaruk, A. (2013b) 'Investigating move structure of English applied linguistics research article discussions published in international and Thai journals.' *English Language Teaching*, 6 (2): 1-13.

Ansarifar, A., Shahriari, H. and Pishghadam, R. (2018) 'Phrasal complexity in academic writing: A comparison of abstracts written by graduate students and expert writers in applied linguistics.' *Journal of English for Academic Purposes*, 31: 58-71.

Anthony, L. (2006) *AntConc: a freeware concordance program for Windows, Macintosh OS X, and Linux*. http://www.antlab.sci.waseda.ac.jp/software.html. (last accessed 5th April 2008).

Arizavi, S., Shokouhi, H. and Mousavi, S. A. (2013) 'A cross-disciplinary analysis of rhetorical structure of dissertation abstracts.' *Iranian EFL journal*, 9 (5): 381-400.

Arnaud, P. J. L. (1984) 'The lexical richness of L2 written productions and the validity of vocabulary tests,' In Culhane, T., Klein-Braley, C. and Stevenson, D.K. (eds.) *Practice and problems in language testing: Papers from the International Symposium on Language Testing*. Colchester: University of Essex, 14–28.

Atai, M. R. and Samani, A. S. (2012) 'Exploring genre variations in research article introductions within a single subdiscipline: EOP versus EAP.' *The Asian ESP Journal*, 8 (1): 5-23.

Badrani, S. and Ebrahimi, S. F. (2017) 'Functional analysis of subject and verb in theses abstracts on applied linguistics.' *International Journal of Foreign Language Teaching and Research*, 5 (19): 25-36.

Baker, P. (2006) *Using corpora in discourse analysis*. London: Continuum.

Baker, P. (ed.) (2009) *Contemporary Corpus Linguistics*. London: Continuum.

Bhatia, V. K. (1993) *Analysing Genre: Language use in professional settings.* London: Longman.

Biber, D. and Barbieri, F. (2007) 'Lexical bundles in university spoken and written registers.' *English for Specific Purposes,* 26: 263–86.

Biber, D. and Conrad, S. (1999) 'Lexical bundles in conversation and academic prose,' in Hasselgard, H. and Oksefjell, S. (eds.), *Out of corpora: Studies in honor of Stig Johansson*. Amsterdam: Rodopi, pp. 181–189.

Biber, D., Conrad, S. and Cortes, V. (2003) 'Lexical bundles in speech and writing: An initial taxonomy,' in Wilson, A., Rayson, P. and McEnery, T. (eds.) *Corpus Linguistics by the Lune: A Festschrift for Geoffrey Leech*. Frankfurt/Main: Peter Lang, pp. 71–92.

Biber, D., Conrad, S. and Cortes, V. (2004) 'If you look at: Lexical bundles in university teaching and textbooks.' *Applied Linguistics,* 25: 371–405.

Bowker, L. & Pearson, J. (2002) *Working with specialized language: A practical guide to using corpora.* London: Routledge.

Breeze, R. (2009) 'Issues of persuasion in academic law abstracts.' *Revista Alicantina de Estudios Ingleses*, 22: 11-26.

Breeze, R. (2013) 'Lexical bundles across four legal genres.' *International Journal of Corpus Linguistics*, 18 (2): 229-253.

Bunton, D. (2005) 'The structure of PhD conclusion chapters.' *Journal of English for Academic Purposes*, 4 (3): 207-224.

Campbell, J. L., Quincy, C., Osserman, J., and Pedersen, O. K. (2013) 'Coding in-depth semistructured interviews: Problems of unitization and intercoder reliability and agreement.' *Sociological Methods & Research*, 42 (3): 294-320.

Can, S., Karabacak, E. and Qin, J. (2016) 'Structure of moves in research article abstracts in applied linguistics.' *Publications*, 4 (3): 23.

Chahal, D. (2014) 'Research article introductions in cultural studies: A genre analysis exploration of rhetorical structure.' *Journal of Teaching English for Specific and Academic Purposes*, 2 (1): 1-20.

Charles, M. (2006) 'Phraseological patterns in reporting clauses used in citation: A corpus-based study of theses in two disciplines.' *English for Specific Purposes,* 25: 310–31.

Charles, M. (2011) 'Adverbials of result: Phraseology and functions in the Problem–Solution pattern.' *Journal of English for Academic Purposes*, 10 (1): 47-60.

Chen, T. Y. and Kuo, C. H. (2012) 'A genre-based analysis of the information structure of master's theses in applied linguistics.' *The Asian ESP Journal*, 8 (1): 24-52.

Chen, Y. and Baker, P. (2010) 'Lexical bundles in L1 and L2 academic writing.' *Language Learning & Technology*,14 (2): 30-49.

Conklin, K. and N. Schmitt (2008) 'Formulaic sequences: Are they processed more quickly than nonformulaic language by native and nonnative speakers?' *Applied Linguistics,* 29: 72–89.

Connor, U. and Upton, T. (eds.) (2004) *Discourse in the professions: Perspectives from corpus linguistics*. Amsterdam: John Benjamins.

Cortes, V. (2004) 'Lexical bundles in published and student disciplinary writing: examples from history and biology.' *English for Specific Purposes*, 23: 397-423.

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.

Crookes, G. (1986) 'Towards a validated analysis of scientific text structure.' *Applied linguistics*, 7 (1), 57-70.

Cross, C. and Oppenheim, C. (2006) 'A genre analysis of scientific abstracts.' *Journal of Documentation,* 62: 428-46.

Cunningham, K. J. (2017) 'A phraseological exploration of recent mathematics research articles through key phrase frames.' *Journal of English for Academic Purposes*, 25: 71-83.

DeCarrico, J. and Nattinger, J. R. (1988) 'Lexical phrases for the comprehension of academic lectures.' *English for Specific Purposes,* 7: 91–102.

Del Saz-Rubio, M. M. (2011) 'A pragmatic approach to the macro-structure and metadiscoursal features of research article introductions in the field of agricultural sciences.' *English for Specific Purposes*, 30 (4): 258-271.

Doró, K. (2013) 'The rhetoric structure of research article abstracts in English studies journals.' *Prague Journal of English Studies*, 2 (1): 119-139.

Durrant, P. (2009) 'Investigating the viability of a collocation list for students of English for academic purposes.' *English for Specific Purposes,* 28: 157–69.

Durrant, P. (2017) 'Lexical bundles and disciplinary variation in university students' writing: Mapping the territories.' *Applied Linguistics*, 38 (2): 165-193.

Durrant, P. and Mathews-Aydınlı, J. (2011) 'A function-first approach to identifying formulaic language in academic writing.' *English for Specific Purposes*, 30: 58-72.

Esfandiari, R. and Barbary, F. (2017) 'A contrastive corpus-driven study of lexical bundles between English writers and Persian writers in psychology research articles.' *Journal of English for Academic Purposes*, 29: 21-42.

Fazilatfar, A. M. and Naseri, Z. S. (2014) 'Rhetorical moves in applied linguistics articles and their corresponding Iranian writer identity.' *Procedia-Social and Behavioral Sciences*, 98: 489-498.

Fliess, J. L. (1971) 'Measuring nominal scale agreement among many raters.' *Psycho-logical Bulletin*, 76 (5): 378-82.

Fryer, D. L. (2012) 'Analysis of the generic discourse features of the English-language medical research article: A systemic-functional approach.' *Functions of language*, 19 (1): 5-37.

Garfield, E. (2005) 'The Agony and the Ecstasy: The history and the meaning of the journal impact factor.' *International Congress on Peer Review in Biomedical Publication.* Chicago, 16th September.

Gledhill, C. (2000) 'The discourse function of collocation in research article introductions.' *English for Specific Purposes,* 19: 115-35.

Goldberg, A. E. (2003) 'Constructions: A new theoretical approach to language.' *Trends in cognitive sciences*, 7 (5): 219-224.

Golebiowski, Z. (2009) 'Prominent messages in Education and Applied Linguistic abstracts: How do authors appeal to their prospective readers?.' *Journal of Pragmatics*, 41(4): 753-769.

Grabowski, Ł. (2015a) 'Keywords and lexical bundles within English pharmaceutical discourse: A corpus-driven description.' *English for Specific Purposes*, 38: 23-33.

Grabowski, Ł. (2015b) 'Phrase frames in English pharmaceutical discourse: A corpus-driven study of intradisciplinary register variation.' *Research in Language*, 13: 266-291.

Gray, B. and Biber, D. (2013) 'Lexical frames in academic prose and conversation.' *International Journal of Corpus Linguistics*, 18 (1): 109-135.

Groom, N. (2005) 'Pattern and meaning across genres and disciplines: An exploratory study.' *Journal of English for Academic Purposes,* 4: 257–77.

Groom, N. (2010) 'Closed-class keywords and corpus-driven discourse analysis,' in Bondi, M. and Scott, M. (eds.) *Keyness in texts* (Vol. 41). Philadelphia: John Benjamins Publishing, pp. 59-78.

Harris, J., Pryor, J. and Adams, S. (1997) *The challenge of intercoder agreement in qualitative inquiry*. Unpublished manuscript, University of Texas at Austin.

Hasselgard, H. and Oksefjell, S. (eds.) (1999) *Out of corpora: Studies in honor of Stig Johansson*. Amsterdam: Rodopi.

Heslot, J. (1982) 'Tense and other indexical markers in the typology of scientific texts in English,' in Hoedt, J. et al. (eds.) *Pragmatics and LSP*. Copenhagen: Copenhagen School of Economics, pp. 83-103.

Hirano, E. (2009) 'Research article introductions in English for specific purposes: a comparison between Brazilian Portuguese and English.' *English for Specific Purposes* 28 (4): 240-250.

Hoedt, J. et al. (eds.) (1982) *Pragmatics and LSP*. Copenhagen: Copenhagen School of Economics.

Hoey, M. (1991) *Patterns of Lexis in Text.* Oxford: Oxford University Press.

Holmes, R. (1997) 'Genre analysis, and the social sciences: An investigation of the structure of research article discussion sections in three disciplines.' *English for Specific Purposes*, 16 (4): 321-337.

Hubbard, S. C. and McVeigh, M. E. (2011) 'Casting a wide net: The journal impact factor numerator.' *Learned Publishing*, 24: 133-137.

Hunston, S. (2002) *Corpora in Applied Linguistics.* Cambridge: Cambridge University Press.

Hunston, S. and Francis, G. (2000) *Pattern Grammar: A Corpus-Driven Approach to the Lexical Grammar of English.* Philadelphia: John Benjamins Publishing Company.

Hyland, K. (1998) 'Persuasion and context: the pragmatics of academic metadiscourse.' *Jour*nal of Pragmatics, 30: 437–455.

Hyland, K. (2000) *Disciplinary Discourses: Social Interactions in Academic Writing.* London: Longman.

Hyland, K. (2004) 'Graduates' gratitude: the generic structure of dissertation acknowledgements.' *English for Specific Purposes*, 23: 303-324.

Hyland, K. (2008a) 'Academic clusters: text patterning in published and postgraduate writing.' *International Journal of Applied Linguistics,* 18: 41-62.

Hyland, K. (2008b) 'As can be seen: Lexical bundles and disciplinary variation.' *English for Specific Purposes,* 27: 4–21.

Hyland, K. and Jiang, F. K. (2016) '"We must conclude that…": A diachronic study of academic engagement.' *Journal of English for Academic Purposes*, 24: 29-42.

Hyland, K. and Jiang, F. K. (2018) '"In this paper we suggest": Changing patterns of disciplinary metadiscourse.' *English for Specific Purposes*, 51: 18-30.

Hyland, K. and Tse, P. (2005a) 'Evaluative that constructions: Signalling stance in research abstracts.' *Functions of Language,* 12: 39–63.

Hyland, K. and Tse, P. (2005b) 'Hooking the reader: A corpus study of evaluative that in abstracts.' *English for Specific Purposes,* 24: 123–39.

İleri, N. (2004) *Lexical phrases in the introductions of English research articles*. MA dissertation, Uludağ University.

Jian, H. (2010) 'The schematic structure of literature review in research articles of applied linguistics.' *Chinese Journal of Applied Linguistics (Foreign Language Teaching & Research Press)*, 33 (5): 15-27.

Jiang, F. K. (2017) 'Stance and voice in academic writing: The "noun + *that*" construction and disciplinary variation.' *International Journal of Corpus Linguistics*, 22 (1): 85-106.

Jiang, F. K. and Ma, X. (2018). ''As we can see': Reader engagement in PhD candidature confirmation reports.' *Journal of English for Academic Purposes*, 35: 1-15.

Jones, S. and Sinclair, J. M. (1974) 'English lexical collocations. A study in computational linguistics.' *Cahiers de Lexicologie,* 24: 15–61.

Journal Citation Reports (2009) Thomson Reuters.

Kanoksilapatham, B. (2005) 'Rhetorical structure of biochemistry research articles.' *English for Specific Purposes*, 24: 269-292.

Kanoksilapatham, B. (2011) 'Civil engineering research article introductions: Textual structure and linguistic characterization.' *The Asian ESP Journal*, 7 (2): 55-84.

Kanoksilapatham, B. (2013) 'Generic characterisation of civil engineering research article abstracts.' *3L: Southeast Asian Journal of English Language Studies*, 19 (3): 1-10.

Kanoksilapatham, B. (2015) 'Distinguishing textual features characterizing structural variation in research articles across three engineering sub-discipline corpora.' *English for Specific Purposes*, 37: 74-86.

Kaplan, R. B., Cantor, S., Hagstrom, C., Kamhi-Stein, L., Shiotani, Y. and Zimmerman, C. (1994) 'On abstract writing.' *Text,* 14: 401–26.

Kawase, T. (2015) 'Metadiscourse in the introductions of PhD theses and research articles.' *Journal of English for Academic Purposes*, 20: 114-124.

Kawase, T. (2018) 'Rhetorical structure of the introductions of applied linguistics PhD theses.' *Journal of English for Academic Purposes*, 31: 18-27.

Khedri, M., Heng, C. S. and Ebrahimi, S. F. (2013) 'An exploration of interactive metadiscourse markers in academic research article abstracts in two disciplines.' *Discourse Studies*, 15 (3): 319-331.

Kim, E. (2014) 'An analysis of move patterns in abstracts of social sciences research articles.' *Journal of Korean Library and Information Science Society*, 45 (2): 283-309.

Koprowski, M. (2005) 'Investigating the usefulness of lexical phrases in contemporary coursebooks.' *ELT Journal,* 59: 322-32.

Kwan, B. (2006) 'The schematic structure of literature reviews in doctoral theses of applied linguistics.' *English for Specific Purposes*, 25 (1): 30-55.

Kwan, B. S. C. (2017) 'A cross-paradigm macro-structure analysis of research articles in information systems.' *English for Specific Purposes*, 45: 14-30.

Larsson, T. (2016) 'The introductory it pattern: Variability explored in learner and expert writing.' *Journal of English for Academic Purposes*, 22: 64-79.

Larsson, T. (2017a) 'A functional classification of the introductory *it* pattern: investigating academic writing by non-native-speaker and native-speaker students.' *English for Specific* Purposes, 48: 57-70.

Larsson, T. (2017b) 'The importance of, it is important that or importantly?: The use of morphologically related stance markers in learner and expert writing.' *International Journal of Corpus Linguistics*, 22 (1): 57-84.

Le, T. N. P. and Harrington, M. (2015) 'Phraseology used to comment on results in the discussion section of applied linguistics quantitative research articles.' *English for Specific Purposes*, 39: 45-61.

Li, J. and Schmitt, N. (2009) 'The acquisition of lexical phrases in academic writing: A longitudinal case study.' *Journal of Second Language Writing,* 18: 85–102.

Lim, J. M. H. (2006) 'Method sections of management research articles: A pedagogically motivated qualitative study.' *English for Specific Purposes*, 25 (3): 282-309.

Lim, J. M. H. (2011) ''Paving the way for research findings': Writers' rhetorical choices in education and applied linguistics.' *Discourse Studies*, 13 (6): 725-749.

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.

Liu, Q. and Deng, L. (2017) 'A genre-based study of shell-noun use in the N-*be-that* construction in popular and professional science articles.' *English for Specific Purposes*, 48: 32-43.

Loi, C. K. (2010) 'Research article introductions in Chinese and English: A comparative genre-based study.' *Journal of English for Academic Purposes*, 9 (4): 267-279.

Lombard, M., Snyder-Duch, J. and Bracken, C. C. (2002) 'Content analysis in mass communication: assessment and reporting of intercoder reliability.' *Human Communication Research*, 28 (4): 587-604.

López-Arroyo, B. and Méndez-Cendón, B. (2007) 'Describing phraseological devices in medical abstracts: an English/Spanish contrastive analysis.' *Meta: Journal des traducteurs/Meta: Translators' Journal*, 52 (3): 503-516.

Lorés, R. (2004) 'On RA abstracts: from rhetorical structure to thematic organisation.' *English for Specific Purposes,* 23: 280–302.

Lu, X., Yoon, J. and Kisselev, O. (2018) 'A phrase-frame list for social science research article introductions.' *Journal of English for Academic Purposes*, 36: 76-85.

Martin, P. M. (2003) 'A genre analysis of English and Spanish research paper abstracts in experimental social sciences.' *English for Specific Purposes,* 22: 25–43.

Martín, P., Rey-Rocha, J., Burgess, S. and Moreno, A. I. (2014) 'Publishing research in English-language journals: Attitudes, strategies and difficulties of multilingual scholars of medicine.' *Journal of English for Academic Purposes,* 16: 57-67.

McHugh, M. L. (2012) 'Interrater reliability: the kappa statistic.' *Biochemia Medica*, 22 (3): 276-282.

Moon, R. (1997) 'Vocabulary connections: Multiword items in English,' in Schmitt, N. and McCarthy, M. (eds.) *Vocabulary: Description, Acquisition, and Pedagogy*. Cambridge: Cambridge University Press, pp. 40–63.

Moon, R. (1998) *Fixed Expressions and Idioms in English: A Corpus-based Approach.* Oxford: Oxford University Press.

Morley, J. (2017) *The academic phrasebank: An academic writing resource for students and researchers.* Manchester: The University of Manchester.

Nattinger, J. R. and DeCarrico, J. (1992) *Lexical Phrases and Language Teaching.* Oxford: Oxford University Press.

Nesi, H. and Basturkmen, H. (2006) 'Lexical bundles and discourse signalling in academic lectures.' *International Journal of Corpus Linguistics,* 11: 283–304.

O'Donnell, M. B., Römer, U. and 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.

Oakey, D. (2002) 'Formulaic language in English academic writing: A corpus-based study of the formal and functional variation of a lexical phrase in different academic disciplines,' in Reppen, R., Fitzmaurice, S. M. and Biber, D. (eds.) *Using Corpora to Explore Linguistic Variation*. Philadelphia: John Benjamins Publishing Company, pp. 111-129.

Oakey, D. J. (2009) 'Fixed collocational patterns in isolexical and isotextual versions of a corpus,' in Baker P. (ed.) *Contemporary Corpus Linguistics* (pp140-158). London: Continuum.

Omidian, T., Shahriari, H. and Siyanova-Chanturia, A. (2018) 'A cross-disciplinary investigation of multi-word expressions in the moves of research article abstracts.' *Journal of English for Academic Purposes*, 36: 1-14.

Ono, M. (2017). 'Move-step structures of literature PhD theses in the Japanese and UK higher education.' *Journal of Writing Research*, 8 (3): 469-491.

Orasan, C. (2001) 'Patterns in scientific abstracts,' Paper presented at the Proceedings of Corpus Linguistics 2001 Conference, Lancaster University, Lancaster, UK.

Ozturk, I. (2007) 'The textual organisation of research article introductions in applied linguistics: variability within a single discipline.' *English for Specific Purposes*, 26 (1): 25-38.

Pan, F., Reppen, R. and 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.

Peacock, M. (2011a) 'A comparative study of introductory it in research articles across eight disciplines.' *International journal of corpus linguistics*, 16 (1): 72-100.

Peacock, M. (2011b) 'The structure of the methods section in research articles across eight disciplines.' *The Asian ESP Journal*, 7 (2): 99-124.

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.

Peters, S. (2011) 'Asserting or deflecting expertise? Exploring the rhetorical practices of master's theses in the philosophy of education.' *English for Specific Purposes*, 30 (3): 176-185.

Pho, P. D. (2008) 'Research article abstracts in applied linguistics and educational technology: A study of linguistic realizations of rhetorical structure and authorial stance.' *Discourse Studies,* 10: 231-50.

Piqué-Noguera, C. (2012) 'Writing business research article abstracts: a genre approach.' *Ibérica*, 24: 211-232.

Ren, H. and Li, Y. (2011) 'A comparison study on the rhetorical moves of abstracts in published research articles and master's foreign-language theses.' *English Language Teaching* , 4 (1): 162-166.

Reppen, R., Fitzmaurice, S. M., and Biber, D. (eds.) (2002) *Using Corpora to Explore Linguistic Variation.* Amsterdam: John Benjamins.

Römer, U. (2008) 'Identification impossible? A corpus approach to realisations of evaluative meaning in academic writing.' *Functions of Language,* 15: 115–30.

Römer, U. (2010) 'Establishing the phraseological profile of a text type: The construction of meaning in academic book reviews.' *English Text Construction*, 3: 95-119.

Ruiying, Y. and Allison, D. (2003) 'Research articles in applied linguistics: moving from results to conclusions.' *English for Specific Purposes,* 22 (4): 365-385.

Saeeaw, S. and Tangkiengsirisin, S. (2014) 'Rhetorical variation across research article abstracts in environmental science and applied linguistics.' *English Language Teaching*, 7 (8): 81-93.

Salager-Meyer, F. (1992) 'A text-type and move analysis study of verb tense and modality distribution in medical English abstracts.' *English for Specific Purposes*, 11: 93-113.

Samraj, B. (2002) 'Introductions in research articles: variations across disciplines.' *English for Specific Purposes*, 21, 1–17.

Samraj, B. (2005) 'An exploration of genre set: Research article abstracts and introductions in two disciplines.' *English for Specific Purposes,* 24: 141–56.

Santos, M. B. D. (1996) 'The textual organization of research paper abstracts in applied linguistics.' *Text,* 16: 481-500.

Schmitt, N. (2000) *Vocabulary in Language Teaching.* Cambridge: Cambridge University Press.

Schmitt, N. and Carter, R. (2000) 'Lexical phrases in language learning.' *The Language Teacher,* 24: 6-10.

Schmitt, N. and McCarthy, M. (eds.) (1997) *Vocabulary: Description, Acquisition, and Pedagogy*. Cambridge: Cambridge University Press.

Shei, C. (2008) 'Discovering the hidden treasure on the internet: Using Google to uncover the veil of phraseology.' *Computer Assisted Language Learning,* 21: 67-85.

Sheldon, E. (2011) 'Rhetorical differences in RA introductions written by English L1 and L2 and Castilian Spanish L1 writers.' *Journal of English for Academic Purposes*, 10 (4): 238-251.

Simpson, R. (2004) 'Stylistic features of spoken academic discourse: the role of formulaic expressions,' in Connor, U. and Upton, T. (eds.) *Discourse in the Professions: Perspectives from Corpus Linguistics*. Amsterdam: John Benjamins, pp. 37–64.

Sinclair, J. M. (1991) *Corpus, Concordance, Collocation.* Oxford: Oxford University Press.

Sinclair, J. M. (2004) *Trust the Text: Language, Corpus and Discourse.* London: Routledge.

Soler-Monreal, C. (2015) 'Announcing one's work in PhD theses in computer science: A comparison of Move 3 in literature reviews written in English L1, English L2 and Spanish L1.' *English for Specific Purposes*, 40: 27-41.

Stoller, F. L. and Robinson, M. S. (2013) 'Chemistry journal articles: An interdisciplinary approach to move analysis with pedagogical aims.' *English for Specific Purposes*, 32 (1): 45-57.

Suntara, W. and Usaha, S. (2013) 'Research article abstracts in two related disciplines: rhetorical variation between linguistics and applied linguistics.' *English Language Teaching*, 6 (2): 84-99.

Swales, J. (1990) *Genre Analysis: English in Academic and Research Settings.* Cambridge: Cambridge University Press.

Swales, J. M. and Feak, C. B. (2004) *Academic writing for graduate students*. (2nd ed.). Ann Arbor: University of Michigan Press.

Swales, J. M. and Feak, C. B. (2009) *Abstracts and the writing of abstracts.* Ann Arbor: The University of Michigan Press.

Tankó, G. (2017) 'Literary research article abstracts: An analysis of rhetorical moves and their linguistic realisations.' *Journal of English for Academic Purposes*, 27: 42-55.

Tessuto, G. (2015) 'Generic structure and rhetorical moves in English-language empirical law research articles: Sites of interdisciplinary and interdiscursive cross-over.' *English for Specific Purposes*, 37: 13-26.

Thomson Reuters (no date) http://ipscience-help.thomsonreuters.com/incitesLive/glossaryAZgroup/g4/7768-TRS.html [Accessed 4 June 2017]

Tseng, F. (2011) 'Analyses of move structure and verb tense of research article abstracts in applied linguistics journals.' *International Journal of English Linguistics*, 1 (2): 27-39.

Van Lancker-Sidtis, D. and Rallon, G. (2004) 'Tracking the incidence of formulaic expressions in everyday speech: Methods for classification and verification.' *Language and Communication,* 24: 207–40.

Vincent, B. (2013) 'Investigating academic phraseology through combinations of very frequent words: A methodological exploration.' *Journal of English for Academic Purposes*, 12: 44-56.

Wang, Y. (2018) '*As Hill seems to suggest*: Variability in formulaic sequences with interpersonal functions in L1 novice and expert academic writing.' *Journal of English for Academic Purposes*, 33: 12-23.

Weinert, R. (1995) 'The role of formulaic language in second language acquisition: A review.' *Applied Linguistics,* 16: 180–205.

Wilson, A., Rayson, P. and McEnery, T. (eds.) (2003) *Corpus Linguistics by the Lune: a Festschrift for Geoffrey Leech.* Frankfurt: Peter Lang.

Wray, A. (2000) 'Formulaic sequences in second language teaching: Principle and practice.' *Applied Linguistics,* 21: 463-89.

Wray, A. (2002) *Formulaic Language and the Lexicon.* Cambridge UK: Cambridge University Press.

Wray, A. (2008) *Formulaic Language: Pushing the Boundaries.* Oxford: Oxford University Press.

Wray, A. and Perkins, M. R. (2000) 'The functions of formulaic language: An integrated model.' *Language & Communication,* 20: 1-28.

Wuttisrisiriporn, N. (2017) 'Comparative rhetorical organization of ELT thesis introductions composed by Thai and American students.' *English Language Teaching,* 10 (12): 1-14.

www.random.org [Accessed 3 July 2013]

Yorio, C. A. (1980) 'Conventionalized language forms and the development of communicative competence.' *TESOL Quarterly,* 14: 433-42.

Yu, X. (2009) 'A formal criterion for identifying lexical phrases: Implication from a classroom experiment.' *System,* 37: 689–99.

Zhang, J. (2012) 'A cross-cultural study of generic structure and linguistic patterns in MA thesis acknowledgements.' *The Asian ESP Journal*, 8 (1): 141-165.

Zhang, Y. and Hu, J. (2010) 'A Genre-based study of medical research article introductions: A contrastive analysis between Chinese and English.' *The Asian ESP Journal*, 6 (1): 72-96.