

**A CORPUS-BASED STUDY OF CONNECTORS AND THEMATIC
PROGRESSION IN THE ACADEMIC WRITING OF THAI EFL STUDENTS**

by

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University of Pittsburgh, 2013

The objective of the current study is to compare how Thai EFL writers develop and express their oppositional ideas in arguments and to compare their use of oppositional connectors in arguments to those of published scholars in the field of health science. An investigation of thematic progression pattern was conducted to examine whether a certain connector frequently occurs in a particular type of thematic progression. Classifications of oppositional meaning categories (Izutsu, 2008) and thematic progression patterns (Daneš, 1974) were incorporated as the framework of study. For the purpose of the analysis, two substantial large corpora, the Mahidol University Learner Corpus (MULC, 4.5 million words) and the Scholar Corpus of Health Science (SCHS, 2 million words) were developed by the researcher. Five hundred segments from each corpus (a total of 1,000 segments, approximately 1,000,000 words), containing oppositional connectors and thematic progression, written by 50 Thai EFL graduate students and 50 scholars in health sciences were analyzed as sample texts. Coding schemes for the analysis were validated and achieved absolute agreement between inter-raters. The British National Corpus (BNC) was used as a referent corpus in a pilot trial while the Corpus of Contemporary American English (COCA) was referenced in the actual analysis. One-way, two-way and three-way ANOVAs, and the Universidad Autónoma de Madrid (UAM) corpus tool, which provides chi-square statistics, were used for data analyses.

Findings revealed that both groups of writers preferred to use concessive connectors to express their oppositional ideas and to use derived thematic progression pattern to organize their texts ($ps < .001$). Additionally, no major differences were found in the use of concessive connectors, the accuracy in how these connectors were used showed student writers did not use concessive ideas in the same way as scholars and, at times, students used them inaccurately. Important findings of differences in the use of oppositional connectors and thematic progression patterns are discussed from the perspectives of cognitive linguistics, cultural influences, and EFL academic writing teaching and instruction. The current study also provides evidence-based recommendations for EFL academic writing curriculum and instructional development.

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1.0 INTRODUCTION

1.1 STATEMENT OF THE PROBLEM

It is evident that the English language has become the major language for academic publications. According to some estimates, approximately half of the academic articles in the world are written in English (Swales, 1990: 42). In support of Swales's claim, the MEDLINE database, the database that collects articles in the field of health sciences, reported that 94% of its collection was published in the English language in the year 2010 (US National Library of Medicine, 2011).

Publishing academic articles in scholarly and professionally recognized journals attests to the achievement and scholarly reputation of graduate students and academic departments. Therefore, a number of graduate programs in Thai universities require students to produce academic papers, potentially for publication in internationally recognized journals. Mahidol University, a Thai university that positions itself as a leader in health sciences, encourages its students to publish their papers in world-class journals. As stated earlier, a number of academic journals are now published in English; therefore, students who wish to pursue their degree at Mahidol University are required to demonstrate that they have competency in the English language. To demonstrate English language competency to gain admission to the university, TOEFL's internet-based version (iBT) scores of 47 and 61 (out of 120) are required for master and doctoral degree applicants. In some cases, although some applicants do not meet these score requirements, they may be accepted into a graduate program, with a condition that the

students have to achieve these score requirements before graduation (the faculty of Graduate Studies, Mahidol University, 2010).

Global English proficiency on standardized measure of language ability is not the only requirement for those who are preparing to publish their papers in world-class journals. A number of studies in ESL and EFL writings revealed that writing in a second or foreign language is a complex task (Flower, 1990; Silva, 1990; Angelova, 1999; Jin, 2000; Reynolds, 2005; Thongrin, 2010). Intrapersonal factors (e.g., language competency, writing strategies, and writer characteristics) and contextual factors (e.g., types of writing tasks, in-class or out-of-class writing) also influence the quality of writing. For example, Angelova (1999) discussed several factors that affect foreign language writing, including threshold levels of second and foreign language proficiency, L1 writing competence, metacognitive knowledge about writing tasks, writing strategies, use of cohesive devices, and the writer's personal characteristics.

1.2 ARGUMENTATION IN ACADEMIC WRITING

Argumentation is one of the most important functions in academic writing in English (Hyland, 1990). The system of argumentation in academic texts may be represented by a three-stage sequence (i.e., THESIS, ARGUMENT, and CONCLUSION). Moreover, each stage has a sequence expressed in terms of MOVES, some of which are optional elements in the system. Moves are realized in various ways at the level of form by lexical and grammatical means (Swales, 1990; Hyland, 1990).

According to Hyland (1990: 72), the three-part argument sequence presents the infrastructure of reasons that characterizes the genre. Writers guide the reader explicitly through the sequence using markers to frame and connect the steps in the argument. Transitional markers are also used to indicate a shift to another sequence, thus signifying changes in discussion. For example, the word *however* indicates a topic shift in the discussion as in segment (1.1).

(1.1) *John (1932) found that hypertension was only more prevalent in diabetics who were over 40 years of age, while another study failed to confirm an excess prevalence (Sherrill, 1933). **However**, numerous methodological problems arising in these papers make comparison of the results extremely difficult.*

In addition to the use of transitional markers to indicate a shift to another argument sequence, writers may opt to employ another tools to signify a change in their discussion, for example, the use of opposite words, opposite adjectives, verb phrases, modals, auxiliaries (Hyland, 1994; Jin, 2000), and conjunctive connectors (Halliday, 1976; Field & Oi, 1992; Celce-Murcia and Larsen-Freeman, 1999; Chen, 2006; Gardezi & Nesi, 2009; Patanasorn, 2010), to name a few.

In academic writing in English, writers also need to ensure that a text flows through a sequence of sentences while they are presenting their ideas. They also have to direct the ideas they wish to express through the sentences they weave to express those ideas (Tangkiengsirisin, 2010). To enhance the connectedness of sentences in a text, writers use cohesive devices to join ideas between sentences (Halliday & Hasan, 1976).

Explicitly teaching cohesive devices, such as those used for signifying opposition, and providing clear and accurate feedback to EFL students is necessary to help students achieve cohesion in their writing (Tangkiengsirisin, 2010). According to some previous

studies (e.g., Milton & Tsang, 1993; Granger & Tyson, 1996; Altenberg & Tepper, 1998, Jin, 2000; Chen, 2006; and Patanasorn, 2010), ESL and EFL writers are able to follow a conventional organization of academic English (e.g., the three-stage argument structure presented above). However, the use of oppositional connectors remains problematic for Thai EFL writers. Patanasorn (2010) found that Thai students used fewer oppositional connectors to explicitly express their contrastive ideas in the text and used more modal verbs in their arguments than oppositional connectors. Rather than use oppositional connectors, Thai EFL writers tend to use lexical connectors (e.g., opposite words and modals) and reference (e.g., pronouns and demonstratives) for the purpose of signifying opposition. Although the use of the lexicon and reference do not weaken the argument, the use of oppositional connectors is the better choice from the perspective of clarity and explicitness of the argument. A possible reason that Thai EFL writers may not select oppositional connectors may be found in the cultural belief that confrontation needs to be avoided during argumentation. In this way, Thai EFL writers tend to downplay arguments to avoid heated dispute by using modality (e.g., *may*, *might*, *could*). To use these modal verbs for argumentation is considered as hedging in English, and results in a softening of the argument.

1.3 PURPOSES OF THE STUDY

Based on the use of an extensive corpus of published academic writing, this study will address the following:

1. The identification of the use of oppositional connectors (i.e., CONTRAST, CONCESSION, and CORRECTION) in academic writing of Thai EFL students in health sciences.
2. The comparison of Thai EFL students' use of connectors to those of published scholars in the field.
3. The examination of whether particular oppositional connectors are used in certain types of sentence structures (i.e., THEMATIC PROGRESSION) in the writing of Thai EFL students and published scholars in the field, and
4. If a pattern is found, the comparison of Thai EFL students' use of oppositional connectors in particular types of sentence structures (i.e., THEMATIC PROGRESSION) with those of published scholars in the field.

1.4 OPPOSITIONAL CONNECTORS AND THEMATIC PROGRESSIONS:

A BRIEF INTRODUCTION

The main objective of this study is to compare written academic papers produced by Thai EFL graduate students and scholars in health sciences. The framework of the study comprises two major components of their writing: OPPOSITIONAL CONNECTORS and THEMATIC PROGRESSION PATTERNS. This section will briefly introduce these two components.

Three types of connectors that indicate oppositional relations were investigated in this study. According to Izutsu (2008), oppositional relations may be indicated through CONTRASTIVE (semantic opposition), CONCESSIVE (denial of expectation), and CORRECTIVE (identifying an inaccuracy) connectors. Examples of these connectors are illustrated in segments (1.2), (1.3), and (1.4) for contrast, concession, and correction respectively.

(1.2) *I've read sixty pages. **In contrast**, she's read only twenty.* (contrastive opposition)

(1.3) *We thought it would rain. **Nevertheless**, we went for a walk.* (concessive opposition)

(1.4) *My grandmother died in 1978. **Rather**, it was 1977.* (corrective opposition)

The second component of this study is an examination of thematic progression patterns. The study of thematic progressions is based on the identification of the THEME and RHEME of each clause. In systemic functional linguistics (SFL), the Theme is realized as the point of departure and local context of the clause. In English it comes first in the clause (Fontaine & Kodratoff, 2003). In this study, the Theme is defined for declarative sentences as all that occurs up to and including the first experiential element¹ in the proposition (Thompson, 2004). The experiential elements include participants (realized by nouns and noun phrases), processes (realized by verbs and verb phrases), and circumstances (typically realized by prepositional phrases and adverbs and adverbial phrases). The Rheme is what remains after the first mention of one of these three

¹Based on SFL, from the experiential component, language comprises a set of resources for referring to entities in the world and the way in which those entities act on or relate to each other. Language, according to this perspective, reflects our view of *goings-on* (verbs) involving *things* (noun) which may have *attributes* (adjectives) and which go on against background details of *place, time, manner*, etc. (adverbials) (Thompson, 1996: 86). The first experiential element in the proposition of declarative sentences can be either *participant* (e.g., nominal group or pronoun) or *circumstance* (e.g., adverbial or prepositional phrases).

experiential elements. An example of a sentence, containing Theme and Rheme is illustrated in (1.5).

(1.5) Theme and Rheme in a sentence

<i>The direct reading instrument</i>	<i>was operated</i>	<i>at three different temperature of 20, 25, and 30 C.</i>
Participant	Process	Circumstance
Theme	Rheme	

Thematic progression patterns were first studied by Daneš (1974). He identified three patterns of thematic progression, which have been found to alternate and combine in texts in such a way that these three patterns may account for most of the thematic patterning in academic texts. The three patterns include (1) LINEAR THEMATIC PROGRESSION (LINEAR TP), (2) CONSTANT THEMATIC PROGRESSION (CONSTANT TP), and (3) DERIVED THEMATIC PROGRESSION (DERIVED TP). The linear thematic progression is realized when Theme co-refers with an element of the Rheme of the preceding clause as illustrated in (1.6). The constant thematic progression is realized when theme co-refers with the preceding theme. This theme develops in the way that noun groups conveying similar meaning with the preceding theme (e.g., synonyms) are used. The constant thematic progression type is illustrated in (1.7). The derived thematic progression is realized when the theme is derived from a HYPER THEME (HT). The utterance themes, perhaps better understood as parts or subthemes, are derived from the Hyper Theme, in which the choice of the derived utterance themes is controlled by various special usage of the presentation of subject-matter (Nwougwu & Bloor, 1991). The derived thematic progression is illustrated in (1.8) where the Hyper Theme is New Jersey and the three derived themes all refer to parts of the Hyper Theme (e.g., the southern portion of the

state, the northwest region of the state, and the coastal region of the state). More details regarding thematic progressions are discussed in Chapter 2.

(1.6) Linear Thematic Progression

	<i>We</i>	<i>present</i>	<i>a framework within which these tasks have a natural expression.</i>
	Participant	Process	Participant
	Theme	Rheme	
	<i>This framework</i>	<i>modified</i>	<i>similarities of the tasks and highlights significant differences.</i>
	Participant	Process	Participant
	Theme	Rheme	

(1.7) Constant Thematic Progression

	<i>Mary and I</i>	<i>begin</i>	<i>by discussing briefly cellular phone fraud detection.</i>
	Participant	Process	Circumstance
	Theme	Rheme	
	<i>We</i>	<i>define</i>	<i>the problem formally.</i>
	Participant	Process	Participant
	Theme	Rheme	

(1.8) Derived Thematic Progression

	<i>New Jersey</i>	<i>is</i>	<i>flat along the coast and southern portion.</i>
	Participant	Process	Circumstance
	Theme	Rheme	
	<i>The north-western region</i>	<i>is</i>	<i>mountainous.</i>
	Participant	Process	Circumstance
	Theme	Rheme	
	<i>The coastal climate</i>	<i>is</i>	<i>mild, but ...</i>
	Participant	Process	Circumstance
	Theme	Rheme	

1.5 RATIONALE OF THE STUDY OF OPPOSITIONAL CONNECTORS AND THEMATIC PROGRESSIONS

The main objective of this study is to identify and contrast the use of oppositional connectors and thematic progression patterns in the academic texts between Thai EFL students and scholars in the health sciences. The study aims to provide useful information for designing instruction that will enable students to become competent members of the discourse community that publishes in internationally recognized English-medium journals.

Preliminary findings from a pilot study in the academic year 2010 and 2011 (Chanyoo, 2011), conducted with a small sample size of theses written by Thai EFL graduate students, and published articles written by scholars in the field of health sciences, revealed that scholars and students differed in terms of their preference on the use of oppositional connectors (e.g., *in contrast*, *however*, and *rather*) within thematic progression patterns (i.e., *linear*, *constant*, and *derived themes*). As a consequence of the pilot study, two aspects of written argumentation are proposed for investigation in this study, (1) connectors that signify opposition (i.e., oppositional connectors), and (2) patterns of thematic progression in which these oppositional connectors are used. In this way, the findings of the study can inform future curriculum development efforts for Thai students learning academic English scientific argumentation.

1.6 RATIONALE FOR CORPUS-BASED STUDY

Corpus linguistics is essentially a method for investigating language in use (Thompson & Hunston, 2006). A corpus-based study is the main research methodology of inquiry in this study because it has the potential to provide both qualitative and quantitative information. A corpus-based study is important for inquiry into language use in at least two ways (Halliday, 1992). First, corpus linguistics deals with a very large sample of real text. It thus enables the power of REPRESENTATIVENESS and GENERALIZABILITY. Second, a corpus-based study satisfies the need for AUTHENTICITY when examining language in use. Since corpus linguistics is a methodology that can be aligned to any theoretical approach to language, it is a powerful tool for the researcher to collect, memorialize, modify, store, and access language data from a variety of theoretical perspectives. Additionally, the use of a corpus enables researchers to analyze vast samples of language both quantitatively and qualitatively (Thompson & Hunston, 2006; McEnery, Xiao, & Tono, 2008).

Therefore, findings from a corpus-based study, regardless of approach, carry validity and reliability that greatly benefit curriculum developers, course designers, and researchers engaged in the theory and practice of language teaching. Hartley & Chesworth (2000) suggest that a study on writing should be composed of both quantitative and qualitative perspectives. That is, the qualitative perspective is rich in detail but lacks sufficient quantitative information such as a variety of demographic data and representativeness drawn from a large number of texts. The quantitative perspective, on the other hand, provides details of this kind but may lack internal consistency due to intersubjective variability in interpretation and drawing conclusions about text producers and text-types.

Thus, a mixed method approach is recommended for research on the study of writing, the corpus-based approach being the best choice for the study.

1.7 RESEARCH QUESTIONS

1. What are the oppositional connectors that Thai EFL graduate students use to signify their oppositional ideas?
2. How does the use of connectors to signify oppositional ideas differ between Thai EFL graduate students and published scholars in the field of health sciences?
3. Which oppositional connectors tend to be used in certain types of sentence structures (i.e., thematic progressions) by Thai EFL graduate students and published scholars in the field of health sciences?
4. What differences, if any, are found in the use of oppositional connectors together with certain types of thematic progressions between Thai EFL graduate students and published scholars in the field of health sciences?

1.8 SIGNIFICANCE OF THE STUDY

The study will contribute to our understanding of connectors and the thematic progressions in which they are found, and will inform future curriculum development efforts in the teaching of written argumentative texts in academic English. From the perspective of linguistics, insight on how Thai EFL graduate students in the health sciences use connectors of opposition within specific thematic progression patterns will

be gained. For example, it may be found that Thai EFL students use connectors incorrectly to signal meanings that they do not intend to convey. Findings from the current study will raise awareness in EFL teachers and instructional designers on how Thai EFL students build arguments in writing through the use of oppositional connectors, where they struggle, and where explicit instruction is needed. Therefore, the findings of this study make a contribution to the field of EFL writing instruction in several ways. The study will contribute to our understanding of (1) how Thai EFL writers use or misuse of three categories of oppositional connectors (i.e., CONTRAST, CONCESSION, and CORRECTION), (2) how oppositional connectors are used with certain types of thematic progression, (3) how Thai EFL writers use of these features in argumentative writing compared to published articles in the field, and (4) how EFL academic writing instruction for Thai students might be improved based on a comparative analysis of student writing and the published writing of the discourse community of health-related sciences.

1.9 SCOPE AND LIMITATIONS OF THE STUDY

This study is limited to the field of health science. Primary written data from EFL students, as well as scholars, will only be in the field of health sciences (i.e., medicine, dentistry, pharmaceutical science, nursing science, and public health). Therefore, genre-specificity may influence the style of written academic texts and as a consequence, the results from the study may not be generalizable to all fields of study. However, a contribution to the body of knowledge regarding the application of connectors that signify oppositional relations in argumentation and knowledge of thematic pattern will

still be beneficial for those who are interested in writing, especially argumentation in academic writing.

1.10 ANTICIPATED OUTCOME

Inadequate use of oppositional connectors is expected among EFL students' academic writing. For example, in a pilot study (Chanyoo, 2011), Thai EFL students were found to use contrastive connectors to signal concessive meaning. Moreover, differences in the use of oppositional connectors that co-occur with a particular type of thematic pattern were also found. As a consequence, the current study will raise EFL teachers', instructional designers', and researchers' awareness to provide EFL writers with effective academic writing instruction in the use of oppositional connectors in argumentation.

2.0 LITERATURE REVIEW

This chapter presents background theories and previous studies leading towards a framework of the current study. The chapter first introduces connectors that signify oppositional relations. Following the presentation of oppositional connectors, description of thematic progression patterns will be discussed, followed by selected previous studies relevant to the current study. The chapter will conclude with the framework of the study, developed from theories oppositional connectors, thematic progression patterns, and previous research studies. An organization of the chapter is as follows:

1. Oppositional connectors,
2. Thematic progression patterns,
3. Previous studies on academic writing and the use of oppositional connectors by EFL students, and
4. The framework of the study.

2.1 OPPOSITIONAL CONNECTORS

2.1.1 Conjunctive adverbials: intersentential cohesive devices

Halliday and Hasan's (1976) publication on cohesion in English has stimulated much interest in the study of cohesion and coherence of the texts. One type of commonly-used cohesive devices is logical connectors (e.g., *therefore*, *however*, and *thus*). Celce-Murcia and Larsen-Freeman (1999) defined logical connectors as

“...types of cohesive devices, lexical expressions that may add little or no propositional content by themselves but that serve to specify the relationships among sentences in oral or written discourse, thereby leading the listener or reader to the feeling that sentences “hang together” or make sense...” (pp. 519)

Logical connectors should function as SIGNPOSTS if they are positioned in the sentence and are used appropriately. These signposts allow a listener or a reader to infer connections between two segments of discourse, which usually are adjacent sentences (ibid: 519). In this study, segments always refer to an independent clause that is ranked at a sentence level.

According to Celce-Murcia and Larsen-Freeman, logical connectors traditionally include SUBORDINATING CONJUNCTIONS (e.g., *after, although, as, since*) and CONJUNCTIVE ADVERBIALS (e.g., *however, therefore, instead*). Subordinating conjunctions connect main and subordinating clauses to form a complex sentence. Once a subordinating conjunction is placed at the beginning of a particular clause, that clause is down-ranked to a subordinating clause. The other clause remains ranked as an independent clause, which functions as the main clause of the sentence. For example, segments (2.1a) and (2.1b) are both independent clauses. When they are combined with the use of the subordinating conjunction *although*, segment (2.1b) becomes the subordinating clause for segment (2.1a) as illustrated in segment (2.1c).

- (2.1) (a) *Most geographical studies have employed use (formal) classifications, as shown in Table 8.1.*
(b) *Both the National Land Use Classification (DOE, 1975) and Dickinson and Shaw (1978) have argued for an activity (functional) based classification.*
(c) **Although** *both the National Land Use Classification (DOE, 1975) and Dickinson and Shaw (1978) have argued for an activity (functional) based classification, most geographical studies have employed use (formal) classifications, as shown in Table 8.1.*

On the contrary, the conjunctive adverbials (or CONJUNCTS by some scholars)

conjoin ideas between two independent clauses. That is, the introduction of the conjunctive adverbial does not down-rank the clause to a subordinate clause, but maintains the integrity of the independent clauses. Conjunctive adverbials are used to link the ideas between two independent clauses and they serve primarily a connective function (Rudolph, 1996). In short, when the conjunctive adverbials are placed in any independent clause, a syntactic structure of that clause is not shifted (e.g., up-ranked or down-ranked). Both clauses are still independent clauses. Conjunctive adverbials are used to indicate and express a flow of ideas from the first to the second clause. For example,

- (2.2) (a) *Subsequently he built a house in the country for a wealthy barrister (Hurtwood in Sussex) and another in the Usk Valley (Colomendy), where he also displayed a talent for garden design (1912-1914).*
(b) *Most of the work he was doing at this time was a minor nature.*
(c) *Subsequently he built a house in the country for a wealthy barrister (Hurtwood in Sussex) and another in the Usk Valley (Colomendy), where he also displayed a talent for garden design (1912-1914). Most of the work he was doing at this time was a minor nature.*
(d) *Subsequently he built a house in the country for a wealthy barrister (Hurtwood in Sussex) and another in the Usk Valley (Colomendy), where he also displayed a talent for garden design (1912-1914). **However**, most of the work he was doing at this time was a minor nature.*

As can be seen in segments (2.2), both segments (2.2a) and (2.2b) seem relevant when they are put together as illustrated in segment (2.2c). At first, the reader may perceive that segment (2.2b) adds information to segment (2.2a). However, when the conjunctive adverbial *however* is placed at an initial position of segment (2.2b), these two independent clauses become semantically contrastive as illustrated in segment (2.2d). As a result, readers gather the idea that these two segments are contrastive because of the signpost *however*.

Celce-Murcia and Larsen-Freeman provide a list of all conjunctive adverbials².

² See Appendix for Celce-Murcia and Larsen Freeman's full list of conjunctive adverbials.

However, since the scope of this study will focus on oppositional connectors that signify oppositional relations, only those from their list that signify oppositional relations were examined in the study. For example,

(2.3) (a) **However**, they do not agree that the political power of the farming community has also been eclipsed, and they found that most local councils were still dominated by farmers (Newby et al., 1978). (b) **Furthermore**, they concluded that farmers had used this political power to prevent new employment in order to keep farm wages lower, and to keep rural council house building rates at a minimum so as to keep farm workers tied to their cottages. (c) **Nonetheless**, they also found that the professional newcomers to the area were often upset by the environmental consequences of modern farming (see Chapters 8 and 9) and since they lacked a rural power base they formed environmental pressure groups to protest against the farmers, thus creating a new form of social division in the rural community.

As can be seen from segments (2.3), there are three conjunctive adverbials adjoining three sentences (i.e., *however*, *furthermore*, and *nonetheless*). We can infer from segment (2.3a) that *however* expresses a concessive idea in segment (2.3a) with a preceding clause. *Furthermore* signals that segment (2.3b) adds information for segment (2.3a), and *nonetheless* signifies a contrastive idea between segments (2.3b) and (2.3c). Therefore, although readers may not know what the main idea in each clause is, they still can notice the direction of the following clause by SIGNPOSTS notifying readers of the meaning of the text and direction of the flow of ideas.

2.1.2 Conjunctive adverbials and their use in argumentation

Conjunctive adverbials are frequently used as cohesive devices in academic writing because writers usually prefer to guide the readers in the direction of the text so that the readers follow the writers' idea. More importantly, connectors that signify oppositional ideas are very important because they play a role for creating an argument in the text. According to Hyland, these adverbials are used as cohesive devices to frame and connect the steps of the argument and its propositions. Although the shift between the argument and the propositions may be implicitly embedded within the claim, writers often attempt to guide the reader explicitly through the use of oppositional connectors, signifying changes in the nature of the discussion. (Hyland, 1990: 72).

A number of studies dealing with connectors that signify oppositional relations have contributed to an understanding in the use, meaning, and function of individual oppositional connectors in creating argumentative texts. Previous studies have examined specifically the meaning of opposition (e.g., *but*), denial of expectation (e.g., *although*) and contrastive temporal analogousness (e.g., *while*). For example

- (2.4) *Pre - emptive local anesthetic field block for inguinal hemiorrhaphy resulted in reduced pain scores and a delay in requests for analgesia during the six hours studied by Ejlersen et al., **but** similar work detected no pre - emptive effect over a longer period.*
- (2.5) ***Although** gastrin is considered to be the main mediator of food stimulated acid secretion, its role in the regulation of basal acid output is unclear.*
- (2.6) ***While** the proportion of mentally ill among homeless people has probably not changed greatly over the past two decades, the absolute number has probably doubled in parallel with the number of homeless people.*

The study of contrast can be traced back to Lakoff's (1971) study of the contrastive meaning of *but*. *But* has been analyzed for almost half a century and continues to occupy research attention today. Because of space limitations and because so much has been written about the meaning and function of the conjunction *but* to signal oppositional relations and contrast, a complete discussion is not possible. Table 2.1 provides, however, a summary of previous studies.

Table 2.1: Summary of Study of Contrast with *But* (Rudolph, 1996)

Proposer	Meaning(s)	Follower(s)
Lakoff (1971)	Semantic opposition	Abbott (1972)
	Denial of expectation	
Abbott (1972)	Describes two different uses of expectation but	
Abraham (1975, 1977)	Sayable vs Unsayable	
Giuliani (1974)	Rejects Lakoff's meaning of semantic opposition by claiming that changing orders results in a different meaning of connectors	Biasci (1982)
Asbach-schnitker (1978)	Rejection of hearer assumptions	
	Reference to speaker assumptions	
	Blockade of a possible negative reaction from the addressee	
Posch & Rieser (1976)	Evaluation-opposition-but	
Gehrmann (1988)	Contrastive evaluation of the predicates as one of the four types of adversative conjunctions	
Spooren (1989)	Establishes a new type with the denomination "concessive opposition"—opposition related to the second conjunct is true for the speaker and obtain his perspective	
Punch (1975)	Studies Aber vs Sondern of German and Spanish	

2.1.3 A unified classification of oppositional connectors: the search from common ground

Despite the extensive amount of research, a consensus on a unified classification of oppositional relations still has not been achieved. Oppositional relations have been classified in different ways by different linguists and researchers, and variously termed in the previous literature as ADVERSATIVE, CONCESSIVE, CONTRASTIVE, DISMISSIVE, CORRECTIVE, and others (e.g., Halliday & Hasan, 1976; Rudolph, 1996; Izutsu, 2008). According to Rudolph (1996: 131), different types of oppositional relations depend on descriptive aims, basic linguistic material, or other restrictions. The classifications reflect the interpretative opinions of the authors and are based on semantic aspects that sometimes may be interpreted in another way. The framework of oppositional relations that is signified by conjunctive adverbials in the current study was based on three scholars in the field of functional and cognitive grammar, namely Halliday and Hasan (1976), Rudolph (1996), and Izutsu (2008). This framework is presented in the next section.

Halliday and Hasan's categorization of oppositional connectors

Halliday and Hasan (1976) have categorized conjunctions, together with conjunctive adverbials that signify oppositional meaning into different seven subcategories. A summary of their categorization is presented in Table 2.2.

Halliday and Hasan combined conjunctions and conjunctive adverbials under the category of COHESIVE DEVICES. As seen from Table 2.2, coordinating conjunctions (i.e., *yet, and, but*) and subordinating conjunctions (i.e., *though, only*) belong to more than one subgroup (e.g., simple, and + contrast³, and contrast).

Table 2.2: Summary of Conjunctions and Conjunctive Adverbials that Signify Oppositional Relations (Halliday & Hasan, 1976)

Core idea	Meaning	External/Internal ⁴	Internal
Simple	Direct contrast	<i>Yet</i> <i>Though</i> <i>Only</i>	
Containing AND idea: paratactic	And + Contrast	<i>But</i>	
Emphatic	Emphasizing contrast	<i>However</i> <i>Nevertheless</i> <i>Despite (this)</i>	
Avowal	Counter expectation		<i>In fact</i> <i>Actually</i> <i>As a matter of fact</i>
Contrastive	Direct contrast: “as against what the current state of the communication process would lead us to expect, the fact of the matter is ...”	<i>But</i> <i>And</i> <i>However</i> <i>On the other hand</i> <i>At the same time</i>	<i>In fact</i> <i>Actually</i> <i>As a matter of fact</i>
Correction	Corrective	Of meaning	<i>Instead</i> <i>Rather</i> <i>On the contrary</i>
		Of wording	<i>At least</i> <i>Rather</i> <i>I mean</i>
Dismissal	Topic Shifting	Closed	<i>In any case</i> <i>In either case</i> <i>Whichever way it is</i>
		Open-ended	<i>In any case</i> <i>Anyhow</i> <i>At any rate</i> <i>However it is</i>

³ According to Halliday and Hasan (1976), the conjunction *but* contains the element ‘*and*’ as one of its meaning components. They compared *yet* with *but* in a contrastive sentence and concluded that *yet* does not contain the element ‘*and*’ in its meaning components. We usually find sentences beginning *and yet*, but never *and but* because ‘*and*’ is a component in the meaning of *but*. As a result, *but* has been categorized in a different category from direct contrastive conjunction (e.g., *yet, though, only*). (pp.250)

⁴ According to Halliday and Hasan (1976), *external meaning* is defined as “inherent in the phenomena that language is used to talk about”. The external meaning is roughly analogous to referential meaning and the domain of semantics. *Internal meaning* is noninferential pragmatic meaning. It is “inherent in the communicative process.” For example, a speaker’s choice of speech role, rhetorical channel, and attitude function as internal meaning. (pp.241)

The main function of conjunctions is to conjoin two independent clauses into a single sentence. Therefore, coordinating and subordinating conjunctions were disregarded in the current study because they are beyond the scope of an examination of conjunctive adverbials that connect two independent clauses without down-ranking or up-ranking either clause and thus maintaining the clauses' status as independent clauses.

Nevertheless, most all of the previous studies examined both groups of connectors (e.g., *but*, *yet*, and *though*) as referent connectors for studying oppositional relations (e.g., Lakoff, 1971; Abbott, 1972; Spooren, 1989, as cited in Rudolph, 1996). Segment (2.7c) illustrates the use of *though* for oppositional relations that changes the syntactic structures of segments (2.7a) and (2.7b).

- (2.7) (a) *It remains true that examples of nearly all the types of chaotic behavior seen in other three-dimensional dissipative systems of differential equations can be found, for some parameter values, in the Lorenz system.*
(b) *Excessive concentration on these equations can be criticized (since they are not, in many ways, typical of chaotic systems).*
(c) **Though** *it remains true that examples of nearly all the types of chaotic behavior seen in other three-dimensional dissipative systems of differential equations can be found, for some parameter values, in the Lorenz system, excessive concentration on these equations can be criticized (since they are not, in many ways, typical of chaotic systems).*

The remainder of Halliday and Hasan's logical connector classification includes conjunctive adverbials that signify oppositional relations between two independent clauses, the focus of this study. Moreover, Halliday and Hasan classify the oppositional idea, which they termed ADVERSATIVE, into five additional subcategories of *emphatic*, *avowal*, *contrastive*, *correction*, and *dismissal* (see Table 2.2 above). Segments (2.8), (2.9), (2.10), (2.11), (2.12) illustrate oppositional relations of emphatic, avowal, contrastive, correction, and dismissal respectively.

(2.8) *Emphatic*

*He was very uncomfortable. **Nevertheless** he fell asleep.*

(2.9) *Avowal*

*Neither of these patients was co-colonised by *P aeruginosa*. **In fact**, only 8 of the 13 (62%) patients colonized with the epidemic strain were co-colonised with *P aeruginosa*.*

(2.10) *Contrastive*

*We do not believe that cholestasis is an important factor in the increase in laminin despite the significant correlation found with bilirubin and alkaline phosphatase, because alkaline phosphatase activity was not significantly associated with laminin in the multivariate analysis. **On the other hand**, bilirubin concentration increases with the severity of liver cirrhosis and, in fact, is one of the variables used to evaluate this severity.*

(2.11) *Correction*

*The phenomenon of expanding authorship in biomedical journal articles is not explained by the hypothesis that newer research technologies have necessitated more extensive collaboration. **Rather**, the data suggest that conferral of authorship may sometimes have a volitional component which contributes to rising author numbers.*

(2.12) *Dismissal*

*'I say, this isn't fair!' cried the Unicorn, as Alice sat with the knife in her hand, very much puzzled hot to begin. 'The Monster has given the Lion twice as much as me!'
'She's kept none for herself, **anyhow**,' said the Lion.*

Segment (2.12) illustrates that dismissal connectors such as *anyhow* are best used in colloquial contexts. In addition, the BNC medical concordance corpus was found to contain no instance of *anyhow*, which further supports this point. Because dismissal connectors are predominately used in the spoken genre, which is beyond the scope of the current study, this type of connector was excluded from the study.

A problem with Halliday and Hasan's categorization is that their subcategories are too comprehensive and detailed for the scope of the current study. That is, the focus of the study is oppositional connectors used in academic texts. Therefore, the connectors that are usually used in the spoken or other non-academic genres are excluded. In addition, some adverbials that carry more than one contrastive meaning are confusing for non-native speakers of English. For example, *however* connotes emphatic and contrastive meanings, and *as a matter of fact* expresses contrastive and avowal meanings. These two adverbials, therefore, are context-dependent. Thus, characteristic descriptions of oppositional connectors are needed in order to precisely delineate various meanings of oppositional connectors.

Rudolph's categorization of oppositional connectors

Rudolph (1996) adopts Halliday and Hasan's (1976) categorization to compare across four languages (i.e., English, German, Spanish, and Portuguese). Based on her analysis, she rejects Halliday and Hasan's seven adversative subcategories and concluded that there are only two main groups of connectors that signal oppositional relations: ADVERSATIVE RELATION (coordinating relation of the connection of contrast) and CONCESSIVE RELATION (subordinating relation of the connection of contrast). In addition, Rudolph classifies corrective connectors (such as *despite*) as a subtype of adversative since correction involves contrast but also indicates a replacement (1996: 88). Rudolph's classification of oppositional connectors is presented in Table 2.3.

Table 2.3: Functions of Connectives of Contrast (Rudolph, 1996: 88-93, 316-332)

Connector	Function	Example
<i>Functions as ADVERSATIVE ONLY</i>		
<i>Yet</i>	Originally functions as temporal adverb. To be used as an adversative means <i>but at the same time</i> .	<i>They talked together in the gathering gloom of the drawing room, not arguing yet faintly disagreeing.</i>
<i>Anyway, Anyhow, At any rate, In any case</i>	Underline that the propositional content to which they refer is true without exception.	<i>"Of course I could have stayed in England and lived on m widow's pension, but I thought that would be just too dreary, so I persuaded the Council to let me train as a librarian and to give me a job. They weren't too keen, but I was able to exert a certain amount of moral pressure. Anyway, I'm a good librarian.</i> <i><<can be replaced by "in spite of the abovementioned difficulties I'm good">></i>
<i>By contrast, On the contrary</i>	Mainly function as adversative connectives.	<i>But texts are usually not limited to one sentence; on the contrary, texts consisting of one sentence only are fairly rare.</i>
<i>Only, Still</i>	Expresses a limitation to the preceding part of the utterance, meaning something like <<"but we have to observe that">>. The adverb still originally indicating continuity in time, may sometimes acquire the meaning of 'nevertheless'; in written language the adversative application is very rare.	<i>Knowledge of phonological constraints is combined with the results of acoustic processing; only a restricted set of phonemes is possible at any position.</i> <i>It certainly was a very large Gnat: 'about the size of chicken,' Alice thought. Still, she couldn't feel nervous with it, after they had been talking together so long.</i>
<i>While, Whereas, Meanwhile</i>	Mainly function as temporal connectives. They are restricted to being used in journalistic or scientific text types.	<i>A text has a meaning as a text, whereas a passage consisting of more than one text has no meaning as a whole; it is simply the sum of its parts.</i>
<i>Instead, After all, For all that</i>	Generally they are used in their adverbial functions.	<i>Thus, the no-boundary proposal can account for all the complicated structure that we see around us. However, it does not make just a single prediction for the universe. Instead, it predicts a whole family of possible histories, each with its own probability.</i>
<i>On the other hand</i>	Emphasizes the second statement	<i>There no fixed limits either to the depth or to the extent of coordinate structures. With 'and' as a conjunctive relation, on the other hand, the situation is quite different.</i>
<i>Function as CONCESSIVE ONLY</i>		
<i>Though, Although</i>	Describes a signal of the "unexpected, surprising nature of what being said in view of what was said before that."	<i>Although he hadn't eaten for days, he looked strong and healthy.</i>
<i>Even if</i>	Expresses both the dependence of one circumstance upon another and the surprising nature of this dependence.	<i>Even if he went down on bended knees, I wouldn't forgive him.</i>
<i>Whether...or</i>	Indicates a choice between two possible conditions.	<i>Whether they beat us or we beat them, the result will be the same.</i>
<i>Functions as either ADVERSATIVE or CONCESSIVE</i>		
<i>However</i>	Marks the relationship between adversative and concessive expressive expressions. It belongs to the group of connectives composed with -ever announcing a special sub-type of hypothetical concessive clause.	<i>That theory is quantum gravity. We do not yet know the exact form the correct theory of quantum gravity will take. However, certain features can be expected to be present in any viable theory.</i>
<i>Nevertheless, Nonetheless, Notwithstanding</i>	Used with a negative element to stress a contrastive meaning almost situated between adversative and concessive. <i>Nevertheless</i> can function as an adversative connective in the same way as <i>however</i> , referring to a larger part of the next to which the following paragraph does not constitute an unexpected contrast.	<i>In this final section we bring together a number of individual items, which, although they do not express any particular one of the conjunctive relations identified above, are nevertheless used with a cohesive force in the text.</i>

Although Rudolph (1996) provides a more refined set of meaning of oppositional ideas by contrasting the different meaning across different lexis in four languages, her conclusion is somewhat even more limited than what Halliday and Hasan (1976) have provided. In addition, Rudolph's framework in categorizing the different semantic categories of oppositional meaning is not practical for coding purposes. Therefore, the researcher opts for the third scholar's framework, which provides well-refined categories and is plausible in terms of theoretical practice. This framework is presented in the following section.

Izutsu's classification of oppositional connectors: The framework of the current study

The current study adopts Izutsu's characteristics of oppositional connectors (Izutsu, 2008). Izutsu's parameters for categorizing the meaning categories of oppositional connectors were developed from Halliday & Hasan (1976), Rudolph (1996), and a number of scholars in the field of cognitive grammar. Izutsu provides a theoretical tool that is practical for oppositional meaning categorization. Therefore, the current study adopts Izutsu's characteristics of oppositional connectors resulting in three groups of connectors, namely CONTRAST, CONCESSION, and CORRECTION (Izutsu, 2008). Izutsu proposed four parameters⁵ that characterize the function of connectors used to signal oppositional meaning:

1. The mutual exclusiveness of different compared items in a shared domain.
2. The number and type of compared items.

⁵ Izutsu (2008) used the word "parameters" to characterize oppositional relation components. A combination of presence or absence of each parameter designates oppositional relation type. In the current study the term characteristic are used to describe different types of oppositional connectors.

3. The involvement of an assumption/assumptions.
4. The validity of segments combined.

Each of the four characteristics is described below:

The mutual exclusiveness of different compared items in a shared domain

The first characteristic is whether compared items which are different in some respects, signal mutually exclusive meaning in a shared domain. The notions of shared domain and mutual exclusiveness elaborate the idea of “the co-presence of similarity and differences.” (Izutsu, 2008). The compared items and shared domain is illustrated in segments (2.13)

(2.13) (a) *Jack is Tall. **In contrast**, (b) Jim is rather short.*

A shared domain for these two segments in (2.13) is tallness. Two compared items under the shared domain of tallness are tall and short. These two compared items are mutually exclusive in a shared domain of height. That is, tall is at the one end of the domain while short is at the other end of the domain and thus signal an oppositional relationship. Figure 2.1 illustrates a shared domain and compared items of segments (2.13).

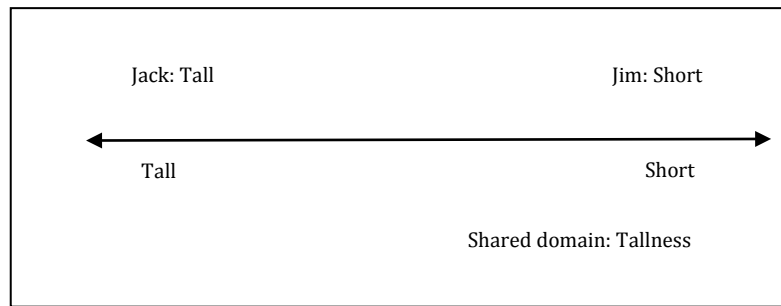


Figure 2.1: A Shared Domain and Compared Items

The number and type of compared items

The second characteristic of oppositional connectors consists of two parts. That is, (1) the number of compared items that can be involved in an oppositional relation and (2) the explicit or implicit difference between the compared items in the surface representation of the sentence. Based on previous studies of contrastive *but*, Spooren (1989) points out that the number and type of entities are important to distinguish contrastive from concessive meanings. That is, the contrastive use of *but* is about two different entities (i.e., semantic opposition), while the concessive use of *but* is about one and the same entity (i.e., counter expectation). This characteristic will be further discussed in the characteristics of contrastive and concessive connectors.

Involvement of Assumption(s)

The third characteristic concerns the assumption or assumptions made when assigning meaning to the oppositional relation in the sentence. The assumption indicates that

information is inferentially accessible to a speaker at the time of speaking in an association with semantic content. This notion is also known as EXPECTATION, IMPLICATION, and INFERENCE by other scholars (for example, Lakoff, 1971; Spooren, 1989; Winter and Rimon, 1994). Previous studies on coherence relations demonstrate that an assumption involved in some types of oppositional relations are causal in nature. Thus, it is generally described with a conditional form, such as '*If S1, (then normally) not S2.*' For example,

(2.14) *If John is poor, (then normally) he is not happy.*

As example (2.14) shows, there is an implicit assumption that John's poverty has resulted in his unhappiness.

Segment Validity

The fourth characteristic concerns the use of the oppositional connector in the second segment of the sentence to assert itself as valid, thus rejecting the validity of the introductory segment. According to Abraham (1979) and Gunthner (2000), this characteristic is important for understanding a difference between the concessive and corrective meaning of connectors. That is, a rejection-assertion meaning is an important characteristic of correction. For example,

(2.15) *John is not American but British.*

These four characteristics, therefore, divide oppositional connectors into three main categories, namely contrast, concession, and correction. The presence of these characteristics in each of the three categories is shown in Table 2.4 (page 30).

Contrastive meaning

Contrastive meaning is an opposition between the propositional contents of two symmetrical semantic comparisons. Connectors *in contrast* and *by contrast* are usually used to signify semantic oppositional relation. Segment (2.16) illustrates semantically contrastive relation.

(2.16) Contrastive relation

*Asia is the largest continent in the world. **In contrast**, Australia is the smallest.*

According to Izutsu (2008), a simple opposition can be explicitly characterized by the following three characteristics: (1) different compared items, (2) a shared domain, and (3) the mutual exclusiveness of different compared items. Every contrastive relation contains at least two different compared items. For example, segments (2.17a) are felicitous as a contrastive pair because the two segments contain two different compared items (i.e., Asia and Australia), which are comparable to each other with respect to a shared domain of size:

*(2.17) (a) The continent of Asia at approximately 17, 139,445 square miles is the biggest continent in the world. **In contrast**, the continent of Australia is the smallest, at approximately 3 million square miles in area, just smaller than Brazil.*

*(b)? The continent of Asia is the biggest continent in the world. **In contrast**, Hummingbird is the world's smallest bird.*

If no comparable items are observed in a sentence, a sequence of segments cannot designate the contrastive relation as in (2.17b). The sentence is awkward because the continent of Asia and the hummingbird are not in general comparable with each other. In other words, the continent of Asia and the hummingbird are not in a shared domain of comparison.

Compared items and a shared domain are necessary for characterizing contrast sentences. These, however, do not suffice to characterize the contrastive relation. They apply to the similarity relation, as well. THE MUTUAL EXCLUSIVENESS OF DIFFERENT COMPARED ITEMS is required for differentiating contrast from similarity. Consider the following segments:

(2.18) (a) *The continent of Asia is big. The continent of Africa is big, too.*

(b) *??The continent of Asia is big. **In contrast**, the continent of Africa is big.*

Segments (2.18a) express the similarity relation, where the two different compared items (Asia and Africa) represent the same value (therefore, are MUTUALLY INCLUSIVE) in the domain of size. Segment (2.18b) is unacceptable because the compared items are mutually inclusive while *in contrast* requires them to be mutually exclusive.

The requirement of *in contrast* is satisfied in “*The continent of Asia, at approximately 17, 139,445 square miles, is the biggest continent in the world. **In contrast**, Australia is the smallest continent, at approximately 3 million square miles in area, just smaller than Brazil.*” Here, Asia and Australia occupy mutually exclusive regions in the same domain of size. Asia occupies a region near the BIG extreme, while Australia occupies a region near the SMALL extreme, as diagrammed in Figure 2.2:

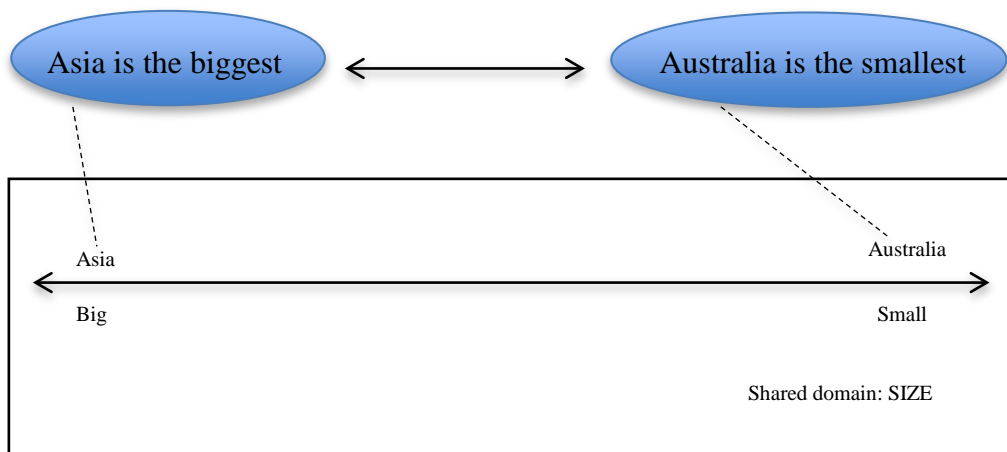


Figure 2.2: Contrastive Comparison

The double-headed arrow shows a mutually exclusive relation. The circles indicate entities that are coded and compared in the relation (that is, COMPARED ITEMS), and the square represents a shared domain. The dotted lines indicate a correspondence between an entity coded in segments and the one depicted in the semantic structure. The figure shows that the two different compared items (Asia and Australia) occupy mutually exclusive regions in the domain of size.

According to Izutsu (2008), contrast is not restricted to a binary opposition. Three or more compared items may be used in the contrastive structure in the contrastive structure. For example,

- (2.19) (a) *John likes math, Bill likes music, **while** Tom likes chemistry.*
 (b) *Mary votes Labor, Susan votes SDP, Anne votes Tory, **and** Jane votes for the Communist Party.*

Segment (2.19a) expresses a contrast between three situations, and (2.19b) a contrast between four situations. In (2.19a), for example, the compared items are ‘what

John likes,' 'what Bill likes,' and 'what Tom likes,' which are mutually exclusive in the domain of SUBJECTS. In English, three or four-way oppositions are possible with *and* and *while*, but not with *but*. This restriction is also applied to the current study. That is, three-way or four-way opposition is not possible in the use of oppositional connectors (i.e., CONJUNCTIVE ADVERBIAL) to signify contrastive idea of two segments.

In summary, contrastive meaning satisfies the first characteristic (the mutual exclusiveness of different compared items in a shared domain): it specifies that different compared items occupy mutually exclusive regions in a shared domain. For second characteristic (the number and type of compared items), contrast contains two or more explicitly differentiated compared items. The third characteristic (the involvement of an assumption) is not relevant to contrastive relation. Since contrastive relation represents a mutually exclusive relation between the propositional contents of clauses, no particular background assumptions are required for the interpretation. For the fourth characteristic (the validity of segments combined), the propositional contents of all segments are asserted as valid in contrast sentences. In uttering a contrastive sentence (such as S1. *In contrast*, S2), the speaker simply asserts the validity of both S1 and S2; neither claim is rejected.

Concessive meaning

Concessive meaning is the second type of oppositional relation in the current study. The concessive opposition can be explicitly characterized by the following three characteristics: (1) mutual exclusiveness in a shared domain, (2) two compared items, (3) the presence of an assumption/assumptions.

Concessive relation involves a background assumption or expectation. According to Izutsu (2008), previous studies (e.g., Spooren, 1989; Blackmore, 1989) have revealed that there are at least two types of concessive meanings: Direct concessive (D-concessive) and Indirect concessive (I-concessive).

- (2.20) (a) *D-concessive: John is poor. **However**, he is happy.*
(b) *I-concessive: The car is stylish and spacious. **However**, it is expensive.*

Direct concessive relation expresses an implication that the relation between the situations of two segments is unexpected in terms of a natural event assumed by a language user. Scholars in previous studies usually use a pattern of ALTHOUGH S1, S2 and claim that an assumption in direct concessive meaning is inferentially formulated as IF S1, (THEN NORMALLY) NOT S2. Because the focus of the current study is on oppositional connectors (i.e., conjunctive adverbial), segment (2.20a) exemplifies the use of concessive connectors. These segments convey the same meaning, as *Although John is poor, he is happy*. Segment (2.20a), inferentially invokes an assumption as given in segment (2.21a). It, therefore, conveys concessive meaning.

On the other hand, indirect concessive relation is incompatible with this assumption-evoking formula. The application of the formula to segment (2.21b) results in an infelicitous assumption, as shown in segment (2.21b):

- (2.21) (a) *'If John is poor, (then normally) he is not happy.'*
(b) ?? *'If the car is stylish and spacious, (then normally) it is not expensive.'*

This fact suggests that the two types of concessive meanings require independent semantic characterizations, as following:

Direct concessive meaning

Direct concessive relation involves an assumption inferentially drawn from the propositional content of the first segment:

- (2.22) (a) *John is poor. **However**, he is happy.*
(b) *“If John is poor, (then normally) he is not happy.”*

Segment (2.22a) conveys that the situation designated in the first sentence is unexpected in light of assumption (2.22b). Unlike contrastive relation, direct concessive sentences do not designate a mutually exclusive relation between the propositional contents of clauses. John’s being too poor and his being happy are not normally seen as being mutually exclusive, since it is difficult to invoke a shared domain constituted of ‘poor’ and ‘happy.’ What is mutually exclusive in direct concessive meaning is found between the propositional content of the second segment (he is happy) and an assumption evoked from the first sentence (he is not happy). Figure 2.3 depicts the semantic structure of (2.22a), in which the mutually exclusive relation is indicated by the double-headed arrow.

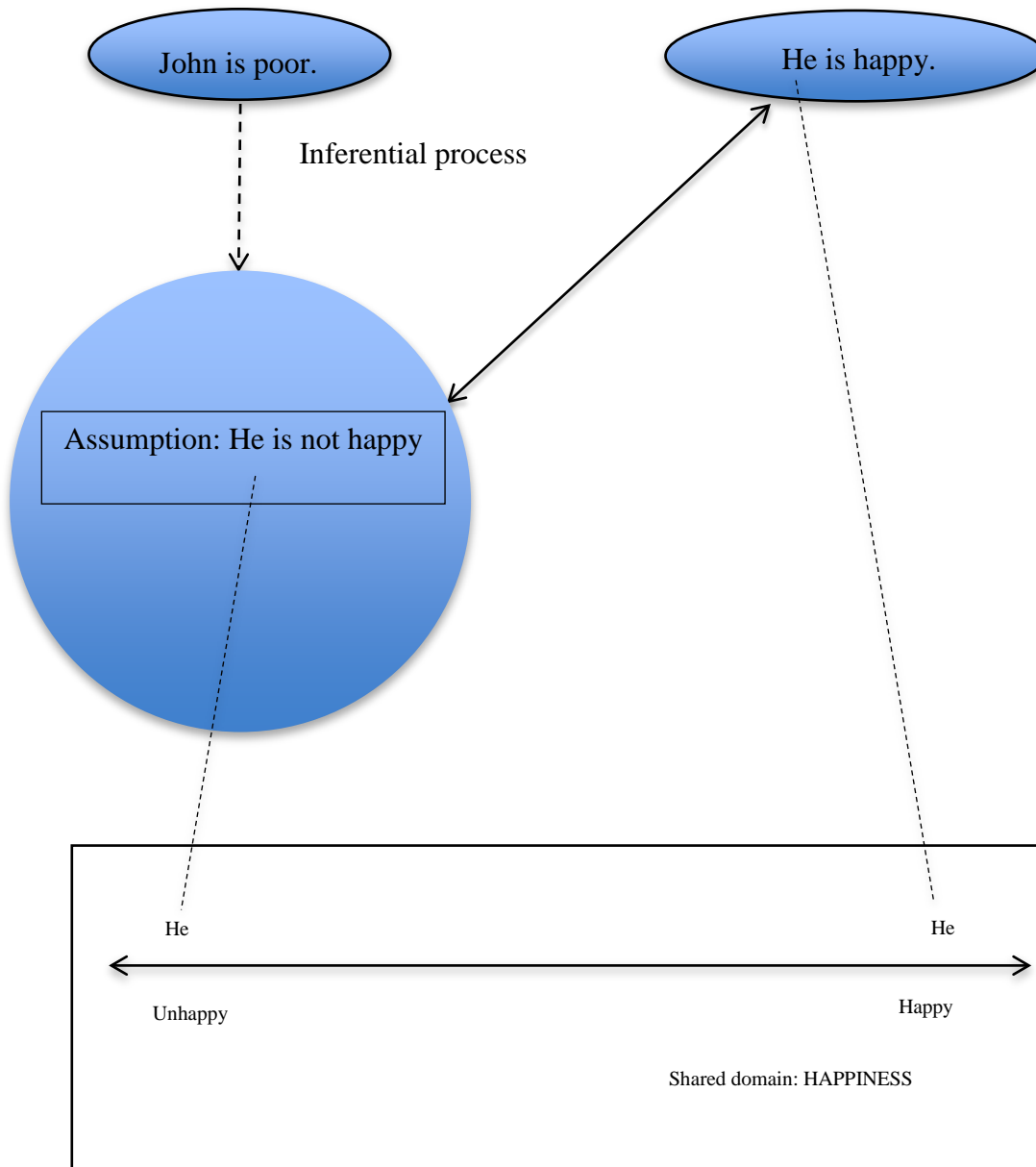


Figure 2.3: Direct Concessive Meaning

The assumption and the propositional content are mutually exclusive from each other because two different compared items (one in the assumption and the other in the propositional content of the second sentence) occupy mutually exclusive regions in the shared domain of HAPPINESS. Here, the compared items are two different tokens of the identical entity, namely, 'he (John)' in the assumption and 'he (John)' in the

propositional content. The term TOKEN is used here to refer to each occurrence of an entity in mind for the understanding of a connected utterance (Izutsu, 2008). For the interpretation of (2.22a), the entity ‘he (John)’ is conceptually relevant twice to the establishment of a mutually exclusive relation. In Figure 2.3, the two tokens are placed in extreme ends of the double-headed arrow in the shared domain square. The entity “he (John)” at the UNHAPPY extreme represented in the assumption and the entity “he (John)” at the HAPPY extreme coded in the second segment. As the figure shows, they occupy mutually exclusive regions in the domain of happiness: ‘he (John)’ in the assumption is located near the extreme indicating unhappiness, while ‘he (John)’ in the propositional content is located near the extreme indicating happiness.

The analysis given so far enables us to characterize direct concessive meaning as a mutually exclusive relation between an assumption and propositional content, as described as following:

(2.23) Direct concessive meaning

- (i) Two different compared items occupy mutually exclusive regions in a shared domain.
- (ii) The compared items are two different tokens of the identical entity with one in an assumption and the other in a propositional content.
- (iii) The relevant assumption is formulated as ‘If S1, (then normally) not S2.’

Indirect concessive meaning

The application of the assumption-evoking formula in direct concessive meaning [*“If S1, (then normally) not S2”*] generates an infelicitous assumption as seen in (2.24b).

- (2.24) (a) *The car is stylish and spacious. **However**, it is expensive.*
(b) ?? *“If the car is stylish and spacious, (then normally) it is not expensive.”*

Azar (1997: 310) explains that the clauses of an I-concessive sentence are ORIENTING TOWARD TWO OPPOSITE CONCLUSIONS, with one leading to a non-stated conclusion C ($S1 \rightarrow C$) and the other leading to the rejection to that conclusion ($S2 \rightarrow \sim C$). In (2.25a), the propositional contents of the two segments (S1 and S2) lead to the following opposite assumptions:

- (2.25) (a) *“If the car is stylish and spacious, we should buy it.”* “[If S1, (then normally) C].
(b) *“If the car is expensive, we should not buy it.”* “[If S2, (then normally) not C].

Here a mutual exclusive relation exists, but in this case the relation is established between the two assumptions. The compared items of the mutually exclusive relation are two different tokens of an identical entity with one evoked as a part of assumption (2.25a) and the other evoked as a part of assumption (2.25b). Unlike the examples seen so far, the entity involved in the mutually exclusive relation is not a thing (such as “we”, “the car”) but the relation of “our buying the car.” In cognitive grammar, a RELATION is defined as A SET OF INTERCONNECTIONS AMONG CONCEIVED ENTITIES (Izustu, 2008). One’s buying something corresponds to an interconnection between an entity coded as a

subject and an entity coded as an object, which is sketched as a line connecting two circles, as in Figure 2.4.

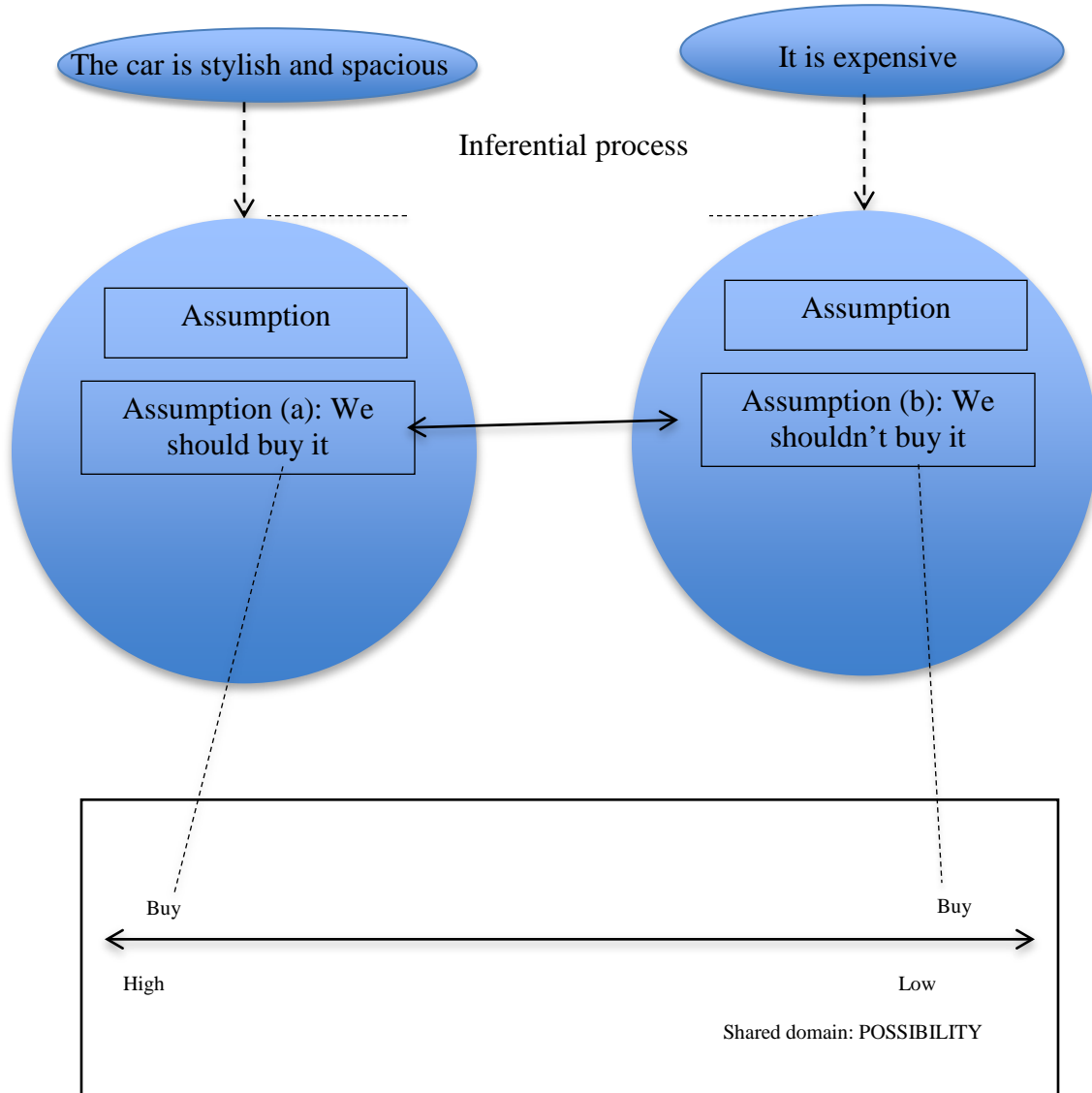


Figure 2.4: Indirect Concessive Meaning

The two compared items (“our buying it” in assumption (2.25a) and (2.25b) occupy mutually exclusive regions in the domain of POSSIBILITY: the compared items of assumption (2.25a) is located near the highest extreme on a scale of possibility, while that

of assumption (2.25b) is located near the lowest extreme. Here, both of the compared items are parts of the assumptions evoked.

According to Izutsu (2008), this analysis revealed that indirect concessive meaning designates a mutually exclusive relation between two assumptions. The semantic characterization can be summarized in (2.26):

(2.26) Indirect concessive meaning

(i) Two different compared items occupy mutually exclusive regions in a shared domain.

(ii) The compared items are two different tokens of the identical entity with each evoked as a part of a different assumption.

(iii) The relevant assumptions are formulated as [If S1, (then normally) C] and [If S2, (then normally) not C].

The characterization makes it clear that a major difference from direct concessive meaning lies in THE NUMBER OF ASSUMPTIONS involved: indirect concessive meaning involves two conflicting assumptions, while direct concessive meaning involves only one assumption.

In summary, direct concessive relation designates a mutually exclusive relation between one assumption evoked from S1 and the propositional content of S2, whereas indirect concessive relation designates a mutually exclusive relation between two assumptions evoked from S1 and S2.

The examination of the two concessive types along the four characteristics shows that they share same values in the general descriptions of the characteristics. These two concessive types both share the first characteristic: they designate a mutually exclusive relation in a shared domain. For the second characteristic, there are two compared items in both types of concessive meanings. The second characteristic marks a clear difference from contrastive meaning, which allows the inclusion of more than two compared items. The third characteristic is a major feature of concessive meaning that it necessitates the presence of assumption(s) in the mutually exclusive relation. The two types of concessive relations involve different number of assumptions: direct concessive meaning involves only one assumption while indirect concessive meaning involves two assumptions. The fourth characteristic, both concessive types preserve the validity of both S1 and S2. According to Izutsu (2008), a speaker of a concessive sentence rejects neither of the seemingly contradictory propositional contents of segments. Instead, the speaker acknowledges the validity of both propositional contents while at the same time expressing a sense of opposition by rejecting an assumption evoked.

Corrective meaning

According to Izutsu (2008), the corrective meaning requires the presence of a morphologically independent negative (e.g., not). The negation in corrective sentences expresses denial such as the rejection of a previously made statement (or previously held belief as recognized by the speaker), contrasting it with the type of negation which “is not necessarily related to either the verbal or the non-verbal context” (pp. 667).

Segments (2.27) show that (2.27*b*) is asserted as valid segment, rejecting (2.27*a*) as invalid:

(2.27) (a) *John is not American. **Instead**, (b) he is British.*

One essential characteristic of corrective relation is that the two segments must characterize the same fact, or compared items in a shared domain. From segment (2.28) the shared domain for the corrective relationship is NATIONALITY. In addition, the corrective relation necessitates the presence of the identical entity in a sequence of segments. For example,

(2.28) (a) *John_i is not American. **Instead**, he_i is British.*
 (b) *Ms. Evans_i is not a teacher. **Rather**, she_i is a graduate student at Pitt.*

Both segments in (2.28) are felicitous with the corrective interpretation. The two clauses of each sentence talk about the same entity (e.g., *John vs He* and *Ms. Evans vs She*). Figure 2.5 illustrates characteristics of corrective relation.

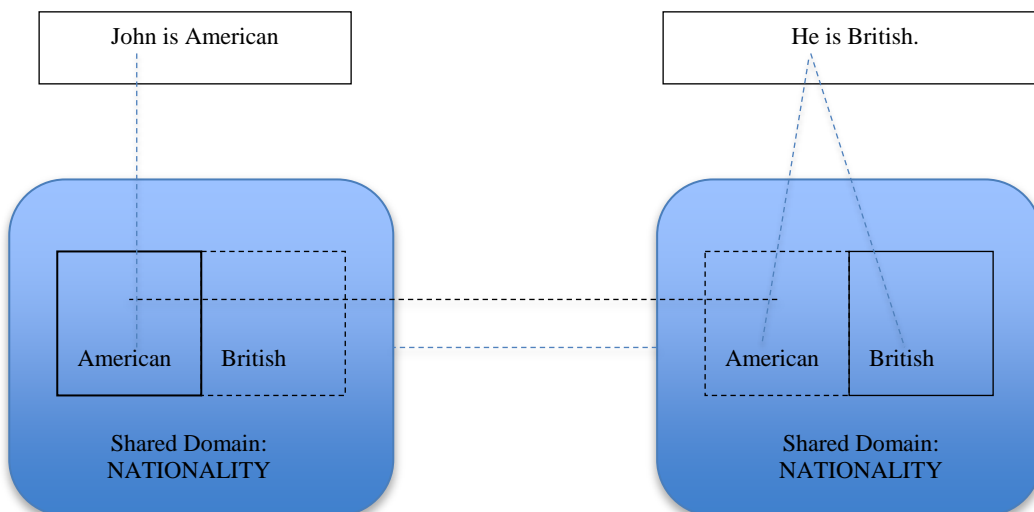


Figure 2.5: Corrective Meaning

The right-hand side of the figure shows corrective relation includes THE MUTUAL EXCLUSIVENESS OF DIFFERENT COMPARED ITEMS IN THE SEMANTIC STRUCTURE. What are mutually exclusive here are two different tokens of the identical entity before and after removal/relocation. The entity before removal is represented as a broken-line square, and the entity after relocation is represented as a bold-line square. These two squares indicate the identical entity. From figure 2.5, the first token (American) is removed and replaced by the second token (British). At the same time, they must be treated as different compared items in that one is an entity removed while the second entity is use to replace the first entity.

The present analysis reveals that corrective relation designates a mutually exclusive relation between a rejected semantic content and an asserted semantic content. A more precise characterization of the meaning is summarized as follow:

(2.29) Corrective meaning

(i) Two different compared items occupy mutually exclusive region in a shared domain.

(ii) The compared items are two different tokens of the identical entity before and after removal/relocation.

When look at the characteristics along the four characteristics. The first characteristic, corrective meaning designates the mutually exclusive occupation of different compared items. For the second characteristic, the number of compared items is two. There is no explicit differentiation of the compared items. If they are explicitly differentiated, the resulting sentence does not express the corrective meaning. For the

third characteristic, the involvement of an assumption/assumptions is not relevant to correction. The fourth characteristic exhibits a distinctive characteristic of corrective meaning. While contrastive and concessive meanings preserve the validity of both S1 and S2, corrective relation only asserts the validity of S2, rejecting S1 as invalid. Table 2.4 summarizes Izutsu's (2008) classification of oppositional connectors.

Table 2.4: Izutsu's (2008) Classification of Oppositional Connectors

Meaning	Contrastive	Concessive		Corrective
		Direct	Indirect	
Characteristics	(1) Semantic opposition	(1) Counter-expectation/or assumption		(1) Lexical replacement (2) Semantic replacement
(a) The mutual exclusiveness of different compared items (CIs) in a shared domain	Yes	Yes	Yes	Yes
(b) The number and type of compared items (CIs)	<i>All share an indication in which different Compared items occupy mutually exclusive regions in a shared domain.</i>			
i. Number of compared items	Two or more	Two	Two	Two
ii. Explicit differentiation of compared items	Yes	No	No	No
(c) The involvement of an assumption(s)	No	Yes	Yes	No
(d) The validity of segments combined	All	All	All	Only S2
Examples of conjunctive adverbials	<i>In contrast By contrast Conversely On the other hand</i>	<i>However Nevertheless Nonetheless In turn</i>		<i>Despite In fact Otherwise Instead On the contrary Rather At least</i>

As summarized in Table 2.4, the three categories of oppositional connectors all share the first characteristic. That is, they all indicate the relation in which DIFFERENT COMPARED ITEMS OCCUPY MUTUALLY EXCLUSIVE REGIONS IN A SHARED DOMAIN. However, differences exist in the remaining three characteristics. Contrastive meaning differs from concessive and corrective meanings in the second characteristics. As for THE NUMBER OF COMPARED ITEMS, contrast allows the inclusion of more than two compared items; therefore, capable of contrasting three or more situations, whereas concession and correction allow no more than two compared items. As for the type, contrast requires compared items to be explicitly differentiated either by means of linguistic or paralinguistic expressions. In the cases of concession and correction, compared items represent two different tokens of the identical entity without any explicit differentiation. For concession, compared items are different in that one item is a part of an assumption while the other is a part of a propositional content (or a part of a different assumption). For correction, compared items are different in that one is an entity removed while the other is an entity relocated.

The third characteristic differentiates concession from the other oppositional relations. The two types of concession involve some BACKGROUND ASSUMPTION: direct concessive relation involves one assumption, while indirect concessive relation involves two. That is, direct concessive meaning designates a mutually exclusive relation between the propositional content of one clause and an assumption evoked from the other; indirect concessive meaning designates a mutually exclusive relation between two assumptions. For contrast and correction, the evocation of an assumption is not relevant.

Finally, the fourth characteristic represents a distinctive property of correction. While contrast and concession both assert the validity of S1 and S2, correction only ASSERTS THE VALIDITY OF S2, REJECTING THE CONTENT OF S1 AS INVALID. The fact that correction is often left as argumentatively more straightforward than concession is easily explained in terms of the fourth characteristic. Since correction directly invalidates previously given S1, there is no implication of acknowledging or conceding the previous claim. On the other hand, the speaker of a concessive sentence does not reject either S1 or S2; what the speaker rejects is an assumption evoked from the propositional content of S1. Thus, the speaker can successfully make a concession over S1 as well as asserting somewhat contradictory S. It is for this difference in argumentative force that a speaker often employs a concessive construction as a means for avoiding a heated dispute (Izutsu, 2008: 673).

2.2 THEMATIC PROGRESSION

The study of thematic progression (TP) is based on the identification of the THEME and RHEME of each clause. In systemic functional linguistics (SFL), the Theme is realized as the point of departure of the clause and provides the local context of the clause. How to identify Themes in English sentences is described in more detail below. In English, the Theme often comes first in the clause (Fontaine & Kodratoff, 2003) but it is not necessary the grammatical subject of the sentence.

According to Thompson (2004), the theme must always include a constituent that plays a role in TRANSITIVITY. In SFL, the transitivity system contains three major constituents, PARTICIPANTS, PROCESSES, and CIRCUMSTANCES. Systemic functional

grammar prefers to use the above terms to describe constituents involved in transitivity rather than the typical labels SUBJECT, VERB and COMPLEMENTS of various kinds, given the confusion that these labels introduce into language analysis. For example, VERB is a class of words whereas SUBJECT represents the function of a word class. Instead, different functional labels are given to the PARTICIPANTS (realized by nominal groups), PROCESSES (realized by verbal groups) and CIRCUMSTANCES (realized by prepositional phrases or adverbials signifying time, place or manner) of each process type.

According to Halliday, the experiential metafunction is realized as a set of lexicogrammatical resources for referring to entities in the world and the way in which those entities act on or relate to each other. Language, according to this perspective, reflects our view of GOINGS-ON (verbs) involving THINGS (noun) which may have ATTRIBUTES (adjectives) and which go on against background details of PLACE, TIME, MANNER, etc. (adverbials) (Thompson, 2004: 86). In this study, the Theme is defined declarative sentences as the constituent that occurs up to and including the first experiential element in the proposition (Thompson, 2004). Therefore, the first experiential element in the proposition of declarative sentences can be either PARTICIPANT (e.g., nominal group or pronoun) or CIRCUMSTANCE (e.g., adverbial or prepositional phrases).

The Rheme is what remains after the first mention of one of these two experiential elements. An example of a sentence, containing Theme and Rheme is illustrated in (2.30).

(2.30) *Theme and Rheme in a sentence*

<i>The direct reading instrument</i>	<i>was operated</i>	<i>at three different temperature of 20, 25, and 30 C.</i>
Participant	Process	Circumstance
Theme	Rheme	

Understanding the structure and function of Theme and Rheme is important to understanding their role in thematic progression patterns in texts. Thematic progression pattern was first studied by Daneš. Daneš (1974) identified three patterns of thematic progression, which have been found to alternate and combine in texts in such a way as to account for most of the thematic patterning in academic texts. The three patterns include (1) *linear thematic progression (Linear TP)*, (2) *constant thematic progression (Constant TP)*, and (3) *derived thematic progression (Derived TP)*. These thematic patterns are described as follows:

2.2.1 Linear thematic progression

Linear thematic progression is the most basic of the three thematic progression patterns. In this pattern, the Rheme of one sentence become the Theme of the next sentence. This thematic progression pattern can be illustrated graphically in the following way:

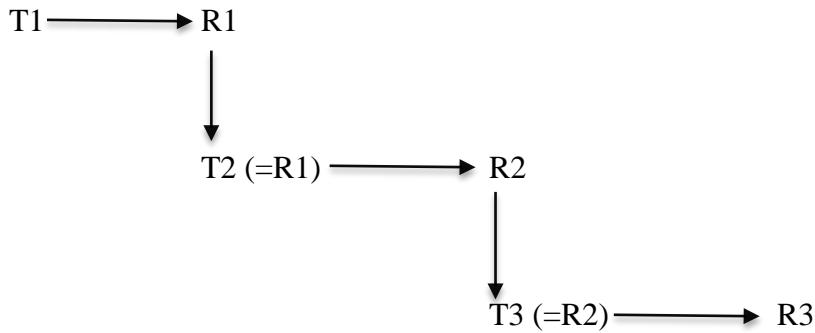


Figure 2.6: Linear Thematic Progression

The following text (2.31) illustrates linear thematic progression.

(2.31) Linear Thematic Progression

	<i>The first antibiotics</i>	<i>was discovered</i>	<i>by Sir Alexander Flemming in 1928.</i>
	Participant	Process	Circumstance
	Theme	Rheme	
	<i>He</i>	<i>was busy</i>	<i>at the time investigating a certain species of germ which is responsible for boils and other troubles.</i>
	Participant	Process	Circumstance
	Theme	Rheme	

2.2.2 Constant thematic progression

In this pattern, the same Theme appears repeatedly, though not necessarily with identical wording. Synonyms, paraphrasing, or pronouns may be used to refer to the same theme.

This thematic pattern develops as:

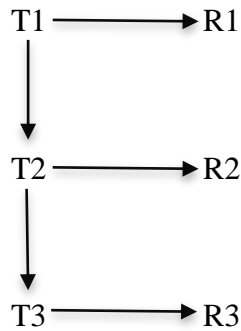


Figure 2.7: Constant Thematic Progression

The following text (2.32) illustrates constant thematic progression.

(2.32) Constant Thematic Progression

T1 → R1 ↓ T2 → R2 ↓ T3 → R3	<i>The Rousseauist</i>	<i>feels</i>	<i>an inner kinship with Prometheus and other Titans.</i>
	Participant	Process	Participant
	Theme		Rheme
	<i>He</i>	<i>is fascinated</i>	<i>by any form of insurgency.</i>
	Participant	Process	Circumstance
	Theme		Rheme
	<i>He</i>	<i>must show</i>	<i>an elementary energy in his explosion against established order.</i>
	Participant	Process	Participant
	Theme		Rheme

2.2.3 Derived thematic progression

The major distinction characteristic of this thematic progression type is that the themes of the utterance are derived from the same hypertheme (HT). The HT is the overarching theme (also called superordinate theme) within the progression. The choice of the derived themes will be controlled by various special uses of the presentation of the subject matter (Daneš: 1974: 120). The developmental pattern of a derived thematic progression is:

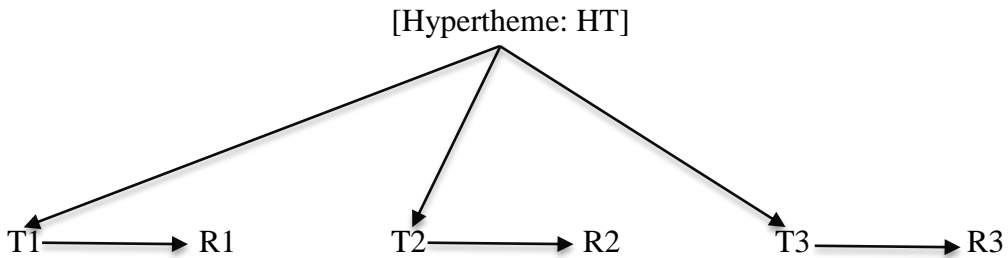


Figure 2.8: Derived Thematic Progression

The following text (2.33) illustrates derived thematic progression.

(2.33) Derived Thematic Progression

[HT]<New Jersey> T1 → R1 T2 → R2 T3 → R3	<i>New Jersey</i> Participant	<i>is</i> Process	<i>flat along the coast and southern portion.</i> Circumstance
	Theme		Rheme
	<i>The north-western region</i> Participant	<i>is</i> Process	<i>mountainous.</i> Circumstance
	Theme		Rheme
	<i>The coastal climate</i> Participant	<i>is</i> Process	<i>mild, but ...</i> Circumstance
	Theme		Rheme

It is to be noted that this study focuses at the local context of an immediate segment that is placed after a conjunctive adverbial. Therefore, utterances containing multiple progression types were excluded from the study.

2.3 PREVIOUS STUDIES ON ACADEMIC WRITING AND THE USE OF OPPOSITIONAL CONNECTORS BY EFL STUDENTS

In the larger context of the study of logical connectors, there are a number of studies focusing on the EFL writers' use of logical connectors as a cohesive device in academic texts (e.g., Milton & Tsang, 1993; Granger & Tyson, 1996; Altenberg & Tepper, 1998; Chen, 2006; Patanasorn, 2010; and Tangkiengsirisin, 2010). According to Halliday (1976), there are four major type of connectors used in the academic texts—(1) ADDITIVE for adding one statement to another (e.g., *for example, in addition, additionally*), (2) ADVERSATIVE for expressing contrast between two statements (e.g., *however, nevertheless, nonetheless*), (3) CAUSATIVE for signaling causal ideas between statements (e.g., *therefore, as a consequence, consequently*), and (4) TEMPORAL for expressing sequence and/or successive in time, as well as summarizing (e.g., *first, second, finally, in summary*). The current study focuses only to the second type of connector, which is called oppositional connector.

Studies have found that EFL students outnumbered their native English-speaking counterparts in terms of connectors used in the academic texts (e.g., Milton & Tsang, 1993; Granger & Tyson, 1996; Altenberg & Tepper, 1998; Chen, 2006). However, qualitative analyses revealed that EFL students overused connectors suggesting additive ideas (e.g., *in addition, additionally, moreover*). The findings suggest that the connectors indicating oppositional relations (e.g., *in contrast, by contrast, nevertheless*), and causal relations (e.g., *therefore, thus, hence*) were underused by EFL students. In fact, Altenberg & Tepper (1998) suggested that a possible explanation of the underuse of opposition and

causal relations is students' preference for less formal connectors (e.g., *but*) as compared to the formal alternatives (e.g., *however*, *nevertheless*, *nonetheless*). According to Altenberg & Tepper (1998), EFL students are not aware of the fact that these less formal connectors are not always appropriate in academic writing. Students' preferences for selecting less formal connectors is in line with Chen (2006), who found that Taiwanese students tend to use the informal connector *besides* to add information to their texts.

A recent study, conducted by Patanasorn (2010), on the use of linking connectors in the argumentative essays of Thai EFL students compared linking connectors used by Thai EFL students and American students across three levels of writing quality (i.e., good, fair, and poor). She found that students' preferences were similar in terms of sequences. That is, Thai and American students preferred to use causative, additive, and adversative connectors respectively. Although the orders of preference were identical, the percentages of each adverbial type used were different. That is, while Thai students preferred to use causative adverbials (38%), followed by additive (37%) and adversative (13%), American students demonstrated a stronger preference for causative (40%) but a weaker preference for additive (32%). This study also showed a significant difference in the preference for the use of adversative connectors. It is clear for this study that the Thai students applied fewer adversative connectors in their texts.

Tangkiengsirisin (2010) examined the effects of teacher written feedback and students' revision on the use of cohesive devices in expository compositions written by Thai graduate students. The teacher provided explicit instruction to the experimental group his feedback on cohesive devices, dealing with form, content, and essay organization. The results revealed a significant improvement of cohesion in the writing of

the experimental group, particularly in the use of conjunctive and lexical cohesive ties. The experimental group also used more connectors in their texts compared to those of the control group. However, it is unclear whether using more connectors in the texts produces better quality pieces of writing. Only qualitative analysis can determine whether larger numbers of connectors reflects improved quality in the argument put forth in the text. For this reason, the present study will include a qualitative analysis of texts to complement the quantitative corpus-based analysis.

In contrast with previous studies, Gardezi and Nesi (2009) examined variation of conjunctive ties in the writing of economics students in Britain and Pakistan. A small corpus of 56,142 words, consisting of 10 assignments written by British students and 10 assignments written by Pakistani students was created. AntConc⁶ and discourse analysis were employed in the study to identify and compare the various types of conjunctive adjuncts. Their findings revealed the overuse of conjunctives in the writing of Pakistani students. Furthermore, adversative connectors were the most favored choices, followed by causal and additive connectors in the academic texts produce by British students. In contrast, Pakistani students preferred to use causal, additive, and adversative connectors in relatively similar proportion. This contrastive finding also suggests that different fields of study may influence preference for the use of conjunctive adjuncts, an area also in need of further investigation. In addition, linguistic distance may influence the different use of conjunctive adjuncts between these two groups of writers.

Based on previous studies, it is evident that EFL students have sufficient knowledge of the organization of academic texts. In addition, regarding the use of logical connectors

⁶ AntConc is a corpus search and concordancer program that is available for three OS platforms: Windows, Mac, and Linux. It offers many corpus-processing functionalities, including concordancing, collocation search, keyword comparisons of multiple corpora, and generating lists such as word frequency lists, keyword lists, and n-grams. It also accepts regular expressions in search queries (Han, 2010). AntConc official page is: http://www.antlab.sci.waseda.ac.jp/antconc_index.html

as cohesive devices in the texts, the majority of these studies revealed that EFL students have sufficient knowledge in the use of connectors that signify ADDITION. Nevertheless, effective use of oppositional connectors is difficult for EFL students. One possible explanation may be because of their semantic complexity. That is, these types of connectors carry different nuances of meaning such as CONTRAST for semantic opposition, CONCESSION for counter-expectation, and CORRECTION for replacement. To help students to overcome this confusion, an examination of various meanings of oppositional connectors and types of thematic progression should be conducted. In addition, examining the systematic use of various meanings of oppositional connectors within particular types of thematic progression will raise the awareness of and call attention to EFL teachers, instructional designers, and instructional developers for their teaching or developing curriculum for teaching argumentation in academic writing. Given the importance of oppositional connectors to academic writing and argumentation, the framework of the study is presented in the following section.

2.4 FRAMEWORK OF THE STUDY AND POTENTIAL CONTRIBUTION TO THE FIELD OF EFL WRITING

The current study examines three types of oppositional connectors (i.e., CONTRAST, CONCESSION, and CORRECTION) and three types of thematic progressions (i.e., LINEAR TP, CONSTANT TP, and DERIVED TP) in the texts of Thai EFL students compared to texts of published scholars in the field of health sciences. The current study aims to identify oppositional connectors that may consistently or usually used with a particular type of

thematic progression in both groups of writers. For example, based on some findings from the pilot study, *in contrast* is usually used in a Linear TP while *on the contrary* is frequently used in a Derived TP. The framework of the study is illustrated in Figure 2.9.

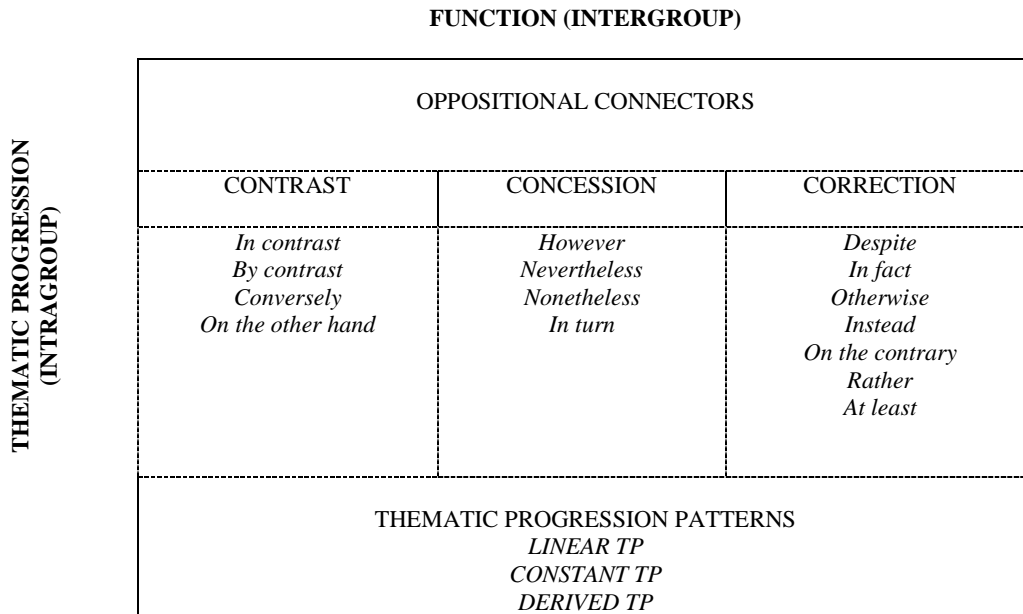


Figure 2.9: Framework of the Study

As seen from Figure 2.9, the current study will examine three functions of oppositional connectors (i.e., CONTRAST, CONCESSION, and CORRECTION) and the use of thematic progression in the academic texts of Thai EFL students. Characteristics of the three types of oppositional connectors are mainly adopted from Izutsu (2008). However, there are some connectors that may semantically carry more than one meaning (e.g. *however* conveys either CONCESSION or CONTRASTIVE meanings); therefore, the broken lines among types of connectors indicates that these ambiguous connectors are not

limited to only one oppositional category and they may be presented in other categories if other meanings are found during the analysis.

Another major facet of the study is the use of thematic progression patterns. Three thematic progression patterns (i.e., LINEAR, CONSTANT, and DERIVED) were examined in this study. These progression types are expected to be found in all oppositional connector types. Therefore, the broken line also indicates that these three types of progression are possible to be found across all types of connectors.

In short, the framework of the study presents that the current study will delineate types of oppositional connectors in thematic progression patterns of two groups of writers, Thai EFL students and published scholars in the field of health-related research. It is hoped that the findings from the study will reveal important variations in the use of oppositional connectors with particular thematic progression types in these two groups of academic writers. The potential findings of the study may contribute to the work of EFL teachers and curriculum developers for designing academic writing programs, courses, and assessments for teaching academic writing and argumentation to students for whom English is a foreign language. Findings will also indicate what areas of written argumentation require direct instruction and what areas may be less problematic for EFL students and therefore not requiring instructor time and effort. The study may also prompt researchers in the field of corpus-based text analysis to expand the comparative analysis and examine additional linguistic features of the academic writing published scholars and EFL students with a view toward improving instruction in EFL contexts.

2.5 SUMMARY

This chapter presents background theories and knowledge regarding the use of oppositional connectors as a cohesive device to develop argumentation in the academic writing. In addition, thematic progression patterns were also reviewed. Various meanings of oppositional connectors and types of thematic progression where these meanings are realized form the framework of this study. In the next chapter I will present the methodology for this comparative study on the use of oppositional connectors and their relationship to three thematic progression patterns in the writing of Thai EFL students and published scholars in the field of health sciences.

3.0 METHODOLOGY

3.1 INTRODUCTION

The purpose of the current study is to analyze the written academic papers produced by Thai EFL graduate students and scholars in health sciences from the perspective of oppositional connectors and their use in thematic progression. This chapter presents the study procedure that fulfills the research objective. To this end, corpus development, corpus validation, a pilot study, data analysis, and an expected timeline of the study are presented.

The current study is an extension of a pilot study on a small numbers of text segments containing oppositional connectors from two self-designed corpora. In this chapter, some preliminary findings are reported as way to motivate and inform the current study. The findings of the pilot study were quite promising in that different patterns in the use of oppositional connectors and thematic progression were found; however, they were not conclusive due to the small sample size. As a result, for this study, a larger number of sample segments are required for a systematic investigation leading to reliable and valid findings. Additionally, a larger corpus permits a mixed method of investigation, not possible in the pilot study due to the small sample size. The mixed method of investigation includes a quantitative analysis to determine the quantity of differences in these two different groups of writers' texts and a qualitative analysis to describe these differences in greater detail. This chapter describes how the corpora were

expanded for the purpose of the current study, to answer the research questions by the research procedures with the proposed timeline of the study.

3.2 RESEARCH QUESTIONS

1. What are the oppositional connectors that Thai EFL graduate students use to signify their oppositional ideas?
2. How does the use of connectors to signify oppositional ideas differ between Thai EFL graduate students and published scholars in the field of health sciences?
3. Which oppositional connectors tend to be used in certain types of sentence structures (i.e., thematic progressions) by Thai EFL graduate students and published scholars in the field of health sciences?
4. What differences, if any, are found in the use of oppositional connectors together with certain types of thematic progressions between Thai EFL graduate students and published scholars in the field of health sciences?

3.3 SAMPLE

A sample size of 1,000 segments containing oppositional connectors was drawn from each corpus (i.e., 500 segments from Mahidol University Learner Corpus: MULC, and 500 segments from Scholar Corpus of Health Science: SCHS). Fifty student and 50 scholar writers contributed 7-15 segments that contain oppositional connectors, on average of 10 segments. Article and thesis texts that are long and contain much more than

15 connectors were cropped to the initial portion of the texts to ensure that the files that were drawn as sample texts contributed similar numbers of oppositional connectors. It is important to note that student writers in the current study are considered intermediate, upper intermediate, or advanced English language users because they all were graduate students and achieved the English language proficiency requirement set by the Faculty of Graduate Studies. Total numbers of files and words finally drawn as sample texts are presented in Table 3.2 on page 67.

3.4 DESIGN

The study adopts a mixed-methods design. A quantitative method of investigation answers research questions 1, 2, and 3, while a qualitative method of investigation were used to answer research question 4.

3.5 RESEARCH TOOLS

3.5.1 Development of Expanded Corpora

The two corpora that were modified and expanded upon for the purposes of the current study were developed by the researcher. The EFL student's MULC contains 4.5 million words and a referent corpus, the SCHS, contains 1.9 million words (see Table 3.1 below). The next section presents the corpus size, balance and representativeness, as well as corpus annotation.

3.5.2 Corpus Size

According to Wynne (2005), the minimum size of a corpus depends on two main factors: (1) the query that is anticipated from users, and (2) the methodology the researcher will use to study the data. Due to difficulty in determining the optimal size of a corpus, Voorman & Gut (2008) proposed that the ideal corpus should contain one million words. Their proposal is based on the fact that the capacity of the computer to store gigabytes of data is continually increasing. Thus, a corpus size of one million words is worth the effort.

Based on usability and the ideal corpus size suggested by Voorman & Gut's proposal, the size of MULC is approximately 4,500,000 words while the counterparts, the SCHS, is approximately 2,000,000 words. The sources of the texts are illustrated in Table 3.1.

Table 3.1: Sources of Designated Written Texts

Corpus	Source	File	Words (Excluding non-textual scripts)*
MULC	Faculty of Dentistry	29	435,491
	Faculty of Medical Technology	29	616,207
	Faculty of Nursing Science	29	853,679
	Faculty of Public Health	27	685,755
	Faculty of Pharmacy	29	727,383
	Faculty of Medicine at Ramathibodi Hospital	30	538,535
	Faculty of Medicine at Siriraj Hospital	30	565,961
	Total	203	4,423,011
SCHS	International Journal of Epidemiology	182	1,908,539
	The American Journal of Medical Science	100	
		Total		1,908,539

*non-textual script refers to any contents which is not in an alphabetical text format such as tables, graphs, illustrations, table of contents etc.

3.5.3 Criteria of the text, balance, and representativeness

Because these two corpora contain writing samples in the field of health science (e.g., medicine, pharmacy, nursing, and public health), they are considered specialized corpora. As such, their general balancedness is evaluated relatively, that is, whether or not the makeup of the corpora is balanced enough for the present purpose of the study. To ensure their balance and representativeness, the source materials for the two corpora have been selected with two goals in mind: to ensure (a) similar sizes and (b) similar genres across the two corpora.

The MULC is composed of 203 master and doctoral theses between the academic years 2007 and 2009. The SCHS is composed of 275 articles published in two internationally recognized journals in health sciences—*the International Journal of Epidemiology* and *the American Journal of Medical Sciences* during the years of 2008-2010. It is noteworthy that students' academic texts in MULC are their post-edited version. Graduate students' texts may be edited by native speakers of English, competent English users who are not native speakers of English (e.g., English instructors/editors from the University writing center), and/or students' thesis supervisor. Although students' texts may not be their original productions (e.g., having been edited), differences and discrepancies in the use of oppositional connectors within certain type of thematic progression pattern are still expected.

As stated previously in the corpus size section, a prospective number of at least 1,750,000 words from each corpus are generally considered sufficient by researchers in corpus linguistics. This estimation is based on the number of words in SCHS (1.9 million

words). Approximately 150,000 words are reserved as a buffer for any unusual texts or segments that may be discovered during the analysis stage.

Homogeneity of the text is another important trait of a robust corpus. That is to say that text characteristics of both corpora need to have a number of shared features. For this study, the corpora represent the same genre, are in written form, and do not contain any non-textual scripts. In this way, comparability between these two corpora can be generally assured. This is in line with Wynne's suggestion that

“A corpus should aim for homogeneity in its components while maintaining adequate coverage, and rogue texts should be avoided” (2005: 14).

3.5.4 Corpus Annotation

The validity of corpus-based research is not only dependent on the type of primary data, but also on the quality of corpus annotation (Voormann & Gut, 2008: 236).

Corpus annotation is a process in which the corpus developer encodes textual information (e.g., tagging parts of speech, oppositional connectors, thematic progressions, etc.) and contextual information (e.g., student thesis or scholar articles) in the corpus. As such, annotation may involve some interpretation on the part of the corpus developer and the need for inter-annotator reliability measures of the annotations assigned (see discussion below).

The information that the annotator wants TO MARKUP in the corpus is called SCHEME. Designated types and numbers of schemes to be annotated in the corpus depend on research questions. Both corpora used in this study were annotated with schemes that the researcher expects to examine. For example, the texts used in the current study were

drawn from two sources (i.e., student's thesis and scholar's article). Thus, the source was a scheme for the texts (i.e., THESIS for students' texts and ARTICLE for scholars' texts). To maximize the quality and quantity of the annotations while minimizing the time and cost involved in corpus creation, annotation software was used in this stage.

The most recently updated version of UAM Corpus Tool (version 2.8.7 O'Donnell, 2010; <http://www.wagsoft.com/CorpusTool/>, as of March 2011) was used for the annotation process. The UAM corpus tool is user-friendly package that offers a variety of functionalities for annotation. For example, it enables us to annotate the same annotation scheme with multiple texts in the corpus. Moreover, this software also offers a multiple-level annotation, which serves the objectives of this research study. Two levels of annotation were employed for these two corpora. The first layer is a document type (i.e., thesis for students' texts, and article for scholars' texts), and specific type of connector (e.g., *however*, *in contrast*, *rather*). Additionally, this software offers comparative statistics across subcorpora, which makes it easy for other researchers who may be interested in comparing linguistics inquiries across subsets available in the corpus (e.g., groups, faculties etc.). In addition, as stated by the tool's producer (O'Donnell, 2010), all annotation can be stored in XML files, meaning the annotations can more easily be shared with other applications (O'Donnell, 2010).

To assure the annotation quality, a reliability measurement is required. A reliability measurement of inter-rater annotation was employed. The degree of agreement between those who annotate the same scheme in the text yields the inter-annotator agreement. As suggested by Voormann & Gut (2008), a high level of inter-annotator agreement will ensure that the annotations are done in a consistent and reliable manner.

Voorman & Gut (2008) state that .8 is an acceptable level of agreement. In the current study, the inter-rater agreement of oppositional connector and thematic progression pattern was 100% (or 1.0) after discussion.

In addition, these two corpora are designed to be open-ended. That is to say, new texts and annotation schemes may be incorporated into existing ones at any point and at any time. Both corpora will be expandable in terms of their sizes, as well as complexity for the future use.

3.5.5 Corpus Creation Procedure

The two corpora were created in accordance with the following procedure:

1. Students' thesis texts (in a PDF format) were accessed via Mahidol University library webpage (intranet.li.mahidol.ac.th). This page is restricted for Mahidol University affiliates. For the SCHS corpus, an online version of scholars' article texts (in a PDF format) was accessed via the University of Pittsburgh library webpage (www.library.pitt.edu). Access to this page is also restricted for University of Pittsburgh affiliates; thus, whoever wants to download any files must be authorized by the university. All designated files were downloaded.

5. All PDF files were converted into a rich-text format (.RTF), then to a document format (.DOC), and finally a text format (.TXT).

6. All non-textual scripts were removed from the documents. The removal includes tables of content, tables of figure, Thai-version abstracts (for the MULC), tables, illustrations, and lists of reference or bibliography.

7. All texts were annotated as described in the annotation section.

3.6 SAMPLING TECHNIQUES

The segments designated for this study were systematically randomized from all segments contained in both corpora. The use of randomization also controls text representativeness across all the sources in both corpora. The final numbers of segments that were used in the study are presented in Table 3.2.

Table 3.2: Designated Texts Recruited in the Study

Corpus	Source	Files	Words (Excluding non-textual scripts)
MULC	Faculty of Dentistry	9	90,009
	Faculty of Medical Technology	5	50,005
	Faculty of Nursing Science	9	90,009
	Faculty of Public Health	8	79,928
	Faculty of Pharmacy	9	90,009
	Faculty of Medicine at Ramathibodi Hospital	5	50,001
	Faculty of Medicine at Siriraj Hospital	5	50,005
	Total	50	499,965
SCHS	International Journal of Epidemiology	50	500,005
	The American Journal of Medical Science		

3.7 DATA ANALYSIS

Two approaches of data analysis—one quantitative and the other qualitative—were employed in this study. Regarding qualitative analysis, demographic data, and frequency comparison were analyzed in terms of descriptive statistics (e.g., frequency, mean,

percentage). In addition, one-way, two-way, and three-way ANOVA were employed to test for differences in relative proportion.

Additionally, mere numerical metrics may not provide sufficient insight into differences in the use of oppositional connectors. Therefore, a qualitative analysis was conducted in this study, including for example, whether particular connectors are used in certain types of thematic progressions. It was predicted that different connectors within semantic category (e.g., CONTRASTIVE, CONCESSIVE, and CORRECTIVE meanings) are used in different thematic progression types.

Employing quantitative analysis is crucial in terms of creating concise view of the findings and ease of interpretation including statistical comparisons. In addition, a qualitative method of analysis was used in the study to complement the presumed weakness of purely numerical analyses (such as lack of description of differences in the use of oppositional connectors among writers). Thus, a mixed-method of investigation was proposed with the goal of describing a comprehensive picture of differences between Thai EFL writers and scholars in the field.

All sampled texts were randomly drawn from the corpora. The source corpora are considered to have a high degree of homogeneity, with comparable characteristics and topics.

Annotation reliability measurements ensure reliability and validity of the findings. As stated earlier, the annotation stage is the central step in the current study; achieving a fairly good level of inter-annotator agreement guarantees its quality.

3.8 PILOT STUDY

A pilot study to investigate the patterns of oppositional connectors and thematic progressions was conducted during December 2010 to March 2011 (Chanyoo, 2011). The main objective of this pilot study was to explore the hypothesis that Thai EFL graduate students use a different pattern of oppositional connectors, in comparison to those of scholars. In addition, an investigation of the thematic progressions was also conducted in this trial run. Representativeness of the sample in the pilot study, in comparison to the actual study, was not considered as a major facet of this preliminary investigation. Due to small sample sizes, a qualitative analysis could not be conducted during this pilot study as well. A sample size of 66 segments containing oppositional connectors was purposefully drawn from two sources: the British National Corpus (BNC) and Mahidol University Learner Corpus (MULC). For scholars' medical texts, a total number of 52 segments were taken from the BNC medical subcorpus, accessible via http://www.lex Tutor.ca/concordancers/concord_e.html. Due to its rather large size of 1.4 million words, the BNC medical subcorpus is comparable to both corpora that were used in the actual study and additionally contains segments in health sciences. Nevertheless, all drawn segments were intentionally retrieved for all connectors that signal oppositional relations representing in the actual study.

All segments were classified in two categories: (1) oppositional connectors (i.e., *contrast*, *concession*, and *correction*), and (2) thematic progression patterns (i.e., *linear*, *constant*, and *derived* thematic progression patterns). Inter-rater reliability regarding parameters used to classify the meaning of oppositional connectors and thematic

progression patterns was conducted by an undergraduate student in the field of linguistics. The student was informed and understood the parameter protocols used as a source of reference to classify meanings of oppositional connectors and thematic progression patterns. After a discussion, 100% of agreement was achieved. It is noteworthy to mention that during the classification stage, a total number of 14 segments (9 from BNC and 5 from MULC) were disqualified because they failed to signal either oppositional relations or they were incomplete sentences and thus could not realize a thematic progression. An example of disqualified segments of oppositional relations and thematic progression pattern were illustrated in segment (3.1).

(3.1) (a) *This is certainly the case in many inner philosophical and political oppositions to the scheme where the organizational barriers to becoming a fundholding practice have been considerable. **Meanwhile**, (b) purchasing authorities themselves have changed, particularly where previous districts have merged.* (BNC-36)

As can be seen, (3.1) was disqualified because *meanwhile*, which functions either opposition or temporal meanings, signifies temporal meaning between these segments. Because the current study is investigating only connectors that signify oppositional relations, this segment was removed from the study.

Additionally, among the remaining 52 segments, there were five segments that seemed problematic for both raters to classify into a category of thematic progression patterns because two different interpretations of the pattern were possible. Thus, an expert in linguistics finalized the classification, and discussed the classification with both raters. After discussion with the third rater, all classifications were finalized with absolute agreement. To be clear on procedures for establishing agreement, discussion always took place before arriving at 100% agreement.

3.8.1 MULC

Table 3.3: Preliminary Analysis of the Use of Oppositional Connectors and Thematic Progression Patterns of Thai EFL Graduate Students

Connectors	Oppositional Meaning			Thematic Progression		
	Contrast	Concessive	Corrective	Linear	Constant	Derived
By contrast	1					1
Conversely	1					1
In contrast	1					1
On the contrary	1					1
On the other hand	1					1
However		1				1
Nonetheless		1				1
Rather		1				1
Otherwise			1		1	
In fact			1	1		
Total	5	3	2	1	1	8

As presented in Table 3.3, there were 10 connectors found in the primary analysis (five contrastive, three concessive, and two corrective) in students' text. Based on the data, we may conclude that students do not have difficulty in using contrastive connectors. For example,

(3.2) (a) Upon invading the epithelia of the terminalileum and colon, they spread intercellularly via actin-filament projections. **By contrast**, (b) *Yersinia enterocolitica* and *Y. pseudotuberculosis* transcytose across⁷ mucosa into the submucosa layer causing abdominal pain and diarrhea (Fleckenstein & Kopecko, 2001).

One student used *rather* to signify concessive meaning (i.e., counter-expectation). This seems to be inappropriate since *rather* normally signals correction. It is also evident in the scholars' texts that all cases of *rather* by scholars were used to signal corrective

⁷ It seems that the student misplaced across (prep.), instead of cross (verb) to suggest a meaning of to move, to pass, or to extend.

meaning. A segment (3.3) illustrates the use of *rather* by a student while (3.4) is from the BNC.

- (3.3) (a) *As we shall soon see, there is an abundance of appropriate words. **Rather**, (b) the main reason is that, fortunately, they are not words which we have occasion to use often. (MULC-DT28)*
- (3.4) (a) *The position of the health professional doctor, health visitor, or nurse- is not to pretend that their bit of health promotion is going to have more than a small additive effect to all the other necessary inputs, and they should be aware that they may be wasting their time if the other inputs are not there. **Rather**, (b) they should continue to point out that health promotion is mainly the government's responsibility, as are the economy and the laws of the land. (BNC-49)*

Nonetheless, it is notable that $\frac{3}{4}$ of *rather* that were used to signal corrective meaning by scholars in the BNC, were collocated with the verb *should*, which signifies a suggestive purpose.

Regarding findings concerning thematic progression patterns, students showed a preference for the use of derived thematic pattern. That is to say, 8 out of a valid 10 segments were derived thematic progression pattern (i.e., a comparison between different themes under the same hypertheme). A segment (3.5) shows the sentences produced by students, indicating a comparison between themes under the same hypertheme.

- (3.5) (a) *When operating with rotary atomizer, the air disperse creates a high degree of air rotation, giving uniform temperatures through out the drying chamber. **However**, (b) an alternative non-rotating airflow is often used in two of filter mat-type spray dryers using nozzle atomizers with equal success. (MULC-NS27)*

3.8.2 BNC

Table 3.4: Preliminary Analysis of the Use of Oppositional Connectors and Thematic Progression Patterns of Scholars

Connectors	Oppositional Meaning			Thematic Progression		
	Contrastive	Concessive	Corrective	Linear	Constant	Derived
By contrast	4			3		1
Conversely	5				1	4
In contrast	5				1	4
On the contrary	3		2	1	2	2
On the other hand	5					5
However	1	4		3		2
Nevertheless		4		2		2
Nonetheless		5		1		4
Rather			4		1	3
	23	13	6	10	5	27

As can be seen in Table 3.4, the three groups of oppositional connectors were presented. Among these connectors, *however* is a puzzling connector for students because it signals two meanings of oppositional relation: *contrastive* and *concessive* meanings. Sample segments that signal *contrastive* and *concessive* meanings are presented in (3.6) and (3.7) respectively. Nevertheless, it should be noted that *however* is mainly used to indicate a concessive meaning as in (3.8).

- (3.6) (a) *Whether platelet endoperoxides have a proaggregatory role in their own right or only when converted to thromboxane A2 has been the subject of many studies (Bunting et al, 1983). However,* (b) *from experiment using thromboxane synthetase inhibitors it appears that when platelets are activated and the prostaglandin cascade is triggered by release of endogenous arachidonic acid then the endoperoxides generated exert their proaggregatory effects by their conversion to the more potent compound thromboxane A2. (BNC-26).*

- (3.7) (a) *It has been proposed that endoperoxides and thromboxane A2 activate platelets by acting as calcium ionophores, hence mobilising intracellular free calcium (Gerrard et al, 1978). However, (b) all prostaglandins that induce platelet aggregation cause a monophasic reversible “primary” response at low concentrations and a monophasic irreversible “secondary” response at high concentrations. (BNC-27)*
- (3.8) (a) *He has a lot of his mother’s features. However, (b) he is not so tall as she is. (Izutsu, 2008: 664).*

Concerning the thematic progression patterns, scholars’ patterns were somewhat in line with those of students since both students and scholars favored the derived thematic pattern (i.e., 65% of all sample segments). Moreover, based on these preliminary findings, the connector *on the other hand* indicates only contrastive meaning, and favors only a derived thematic pattern. It is, therefore, the easiest connector for EFL student to use in their texts. However, asynchronizations of connectors and thematic progression patterns were still difficult for EFL students. For example, *however* signals contrastive meaning (3.6) as well as concessive meaning (3.7) while it favors both linear and derived thematic patterns. Moreover, *nevertheless* also favors linear, as well as derived thematic patterns. Based on this primary analysis, *nonetheless* seems to be the less difficult connector to signal concessive meaning since it mainly favors derived thematic progression pattern. Therefore, students tend to use *nonetheless* accurately. However, the findings for the Thai students’ use of thematic progression preference is inconclusive at this stage because it needs a larger quantity of segments to validate the finding, one major purpose of this current study.

Regarding corrective connectors *rather* seems to be an obvious connector that signifies corrective meaning. All instances of *rather* that were sampled from BNC signify corrective meaning. However, this finding contrasts with what was found in the

MULC. That is, students used *rather* more frequently to indicate concessive meaning. Apart from their incongruence in terms of meaning, both scholars and students preferred to use *rather* with derived thematic progression.

In summary, the pilot study gives us a preliminary picture for furthering an investigation in the use of oppositional connectors and thematic progression patterns. The findings showed differences in the use of oppositional connectors and thematic progression patterns. However, due to small numbers of sample segments, the findings were inconclusive. As a result, a larger number of segments are needed to validate the findings from the pilot study. Validating these findings by expanding the corpus and adding a qualitative dimension to the analysis is the proposed work of this dissertation study.

3.9 TIMELINE OF THE STUDY

The timeline in this study is presented in Table 3.5.

Table 3.5: Timeline of the Study

Activity	Oct 12	Nov 12	Dec 12	Jan 13	Feb 13	Mar 13	Apr 13	May 13	Jun 13	Jul 13	Aug 13	Sep 13	Oct 13	Nov 13	Dec 13
Overview	*	*													
IRB		*													
Data Annotation & Sampling		*	*	*											
Data Analysis					*	*	*	*	*	*	*				
Report of findings											*	*	*		
Discussion Chapter													*	*	
Summary														*	
Defense															*

In conclusion, this chapter has presented the methodology to be conducted in the current study. The chapter began with the main objective of the study, that is, to investigate a pattern in the use of oppositional connectors and thematic progression patterns of Thai graduate students and scholars in the field of health sciences. Additionally, research tools, including corpus development and corpus validation were discussed. A pilot study on a small numbers of segments containing oppositional connectors from MULC and BNC corpora was conducted. The findings were quite promising in that different patterns in the use of oppositional connectors and thematic progression were found. However, the findings in the pilot study were not conclusive. As a result, a larger number of sample segments is required for a more systematic investigation to conclude with reliable and valid findings. A mixed method of

investigation was utilized in this study. The quantitative analysis fulfills queries of quantity of differences. The qualitative analysis describes these differences in detail.

4.0 RESULTS

The purpose of the current study is to examine specific linguistic elements (i.e., the use of oppositional connectors within certain types of thematic progression patterns) in published scholarly articles and to compare this use with EFL students' written texts as a way to inform and promote health-related EFL academic writing research and instruction.

This chapter will be organized in line with the research questions as follows:

1. The use of oppositional connectors,
2. The use of thematic progression patterns,
3. The use of oppositional connectors within certain types of thematic progression patterns, and
4. Supportive analysis for the use of oppositional connectors within certain types of thematic progression patterns.

In order to understand better the meaning of the findings, we will compare the distributions of preferences of targeted features in the current study (i.e., oppositional connectors, thematic progression patterns, and combinations of oppositional connectors used within certain types of thematic progression patterns) by students to those used by scholars in the field. In this way, we may arrive at areas of academic writing that challenge student writers, that set them apart from published scholars, and that may indicate rhetorical moves that need to be addressed in teaching academic argumentation and writing.

4.1 THE USE OF OPPOSITIONAL CONNECTORS

4.1.1 Distribution of oppositional connectors

Fifty writers in each group contributed 1,000 segments containing oppositional connectors within certain types of thematic progression patterns. However, after employing the Universidad Autónoma de Madrid (UAM) corpus tool and AntConc program during the analysis stage, it turned out that only 901 segments from both softwares were matched. Among these matching segments, 13 segments were disqualified because their thematic progression patterns did not fit with the framework of study, nor were they sufficiently clear to allow them to be categorized into groups of oppositional meanings. As a result, 888 segments were analyzed and categorized into oppositional meaning within thematic progression patterns. Among all qualified 888 segments, 457 segments were produced by student writers while the other 431 segments were from scholars.

Regarding the use of oppositional connectors, 13 lexical connectors were found in EFL students' texts compared to 9 lexical connectors that were found in scholarly published articles. That is to say, student writers used wider range of lexical connectors than scholar writers. Table 4.1 presents the detail of oppositional connectors used in students' written texts, and Table 4.2 in published scholarly articles.

Table 4.1: Oppositional Connectors Used in Student Written Texts

	<i>f</i>	%	CUM %
<i>However</i>	355	77.68	77.68
<i>In contrast</i>	25	5.47	83.15
<i>On the other hand</i>	23	5.03	88.18
<i>Nevertheless</i>	22	4.81	93.00
<i>Conversely</i>	11	2.41	95.40
<i>Nonetheless</i>	6	1.31	96.72
<i>Instead</i>	5	1.09	97.81
<i>In turn</i>	3	0.66	98.47
<i>Otherwise</i>	3	0.66	99.12
<i>By contrast</i>	1	0.22	99.34
<i>On the contrary</i>	1	0.22	99.56
<i>Rather</i>	1	0.22	99.78
<i>At least</i>	1	0.22	100.00
Total	457	100.00	100.00

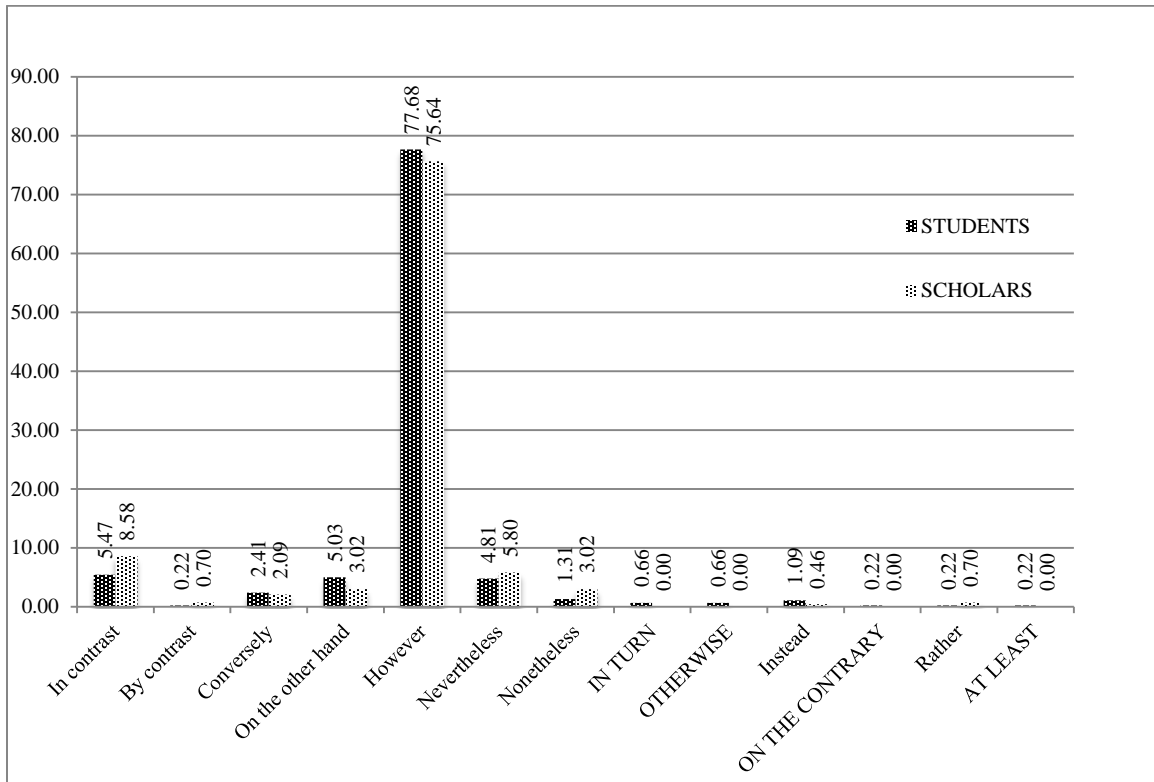
As shown in Table 4.1, the percentage of the use of *however* was the highest in the students' texts. It accounted for 78% of all oppositional connectors used in EFL students' written texts. When the use of *however* is combined with the connectors *in contrast* and *on the other hand*, these three connectors accounted for 88% of all connectors used in students' written texts. In other words, these three connectors are the most frequently occurring and dominate the written texts of the students.

Table 4.2: Oppositional Connectors Used in Published Scholarly Articles

	<i>f</i>	%	CUM %
<i>However</i>	326	75.64	75.64
<i>In contrast</i>	37	8.58	84.22
<i>Nevertheless</i>	25	5.80	90.02
<i>On the other hand</i>	13	3.02	93.04
<i>Nonetheless</i>	13	3.02	96.06
<i>Conversely</i>	9	2.09	98.14
<i>By contrast</i>	3	0.70	98.84
<i>Rather</i>	3	0.70	99.54
<i>Instead</i>	2	0.46	100.00
Total	431	100.00	100

As shown in Table 4.2, similar to those of students' written texts, the use of *however* is the highest in published scholarly articles (i.e., 76% of all oppositional connectors used). When the use of *however* is combined with the connectors *nevertheless* and *in contrast*, these three connectors accounted for 90% of all oppositional connectors used in published scholarly articles.

**Chart 4.1: Distribution of Oppositional Connectors Produced
in the Sample Texts**



As shown in Chart 4.1, both groups of writers preferred similar lexical connectors. However, students showed a wider range for the use of oppositional connectors. That is, while scholars had only 9 connectors in their entire sample texts, students used four additional connectors not present in the published scholarly articles (i.e., *in turn*, *otherwise*, *on the contrary*, and *at least*; see capitalized connectors on chart).

In addition, for both corpora, although the rank ordering of the four top connectors (*however*, *nevertheless*, *in contrast*, and *on the other hand*) are not distributed in exactly the same way between these two groups, when these four connectors are

combined, they equally accounted for 93% of all connectors used in the sample texts. It is noteworthy that both groups of writers favored the same group of oppositional connectors. According to these findings, advanced EFL students showed no difficulty in using oppositional connectors in their written texts. However, four additional connectors that were used by student writers were not present in scholars' data set. This use of four additional connectors may reflect different preference in the nature of argumentation between groups of writers. This different use of the number of individual connectors will be discussed in chapter 5.

4.1.2 Meaning categories of oppositional connectors

All oppositional connectors that were found in the sample texts produced by both groups of writers were categorized into three oppositional meaning categories, based on the framework adapted from Izusu (2008). Findings of the three oppositional meaning categories are presented in Table 4.3.

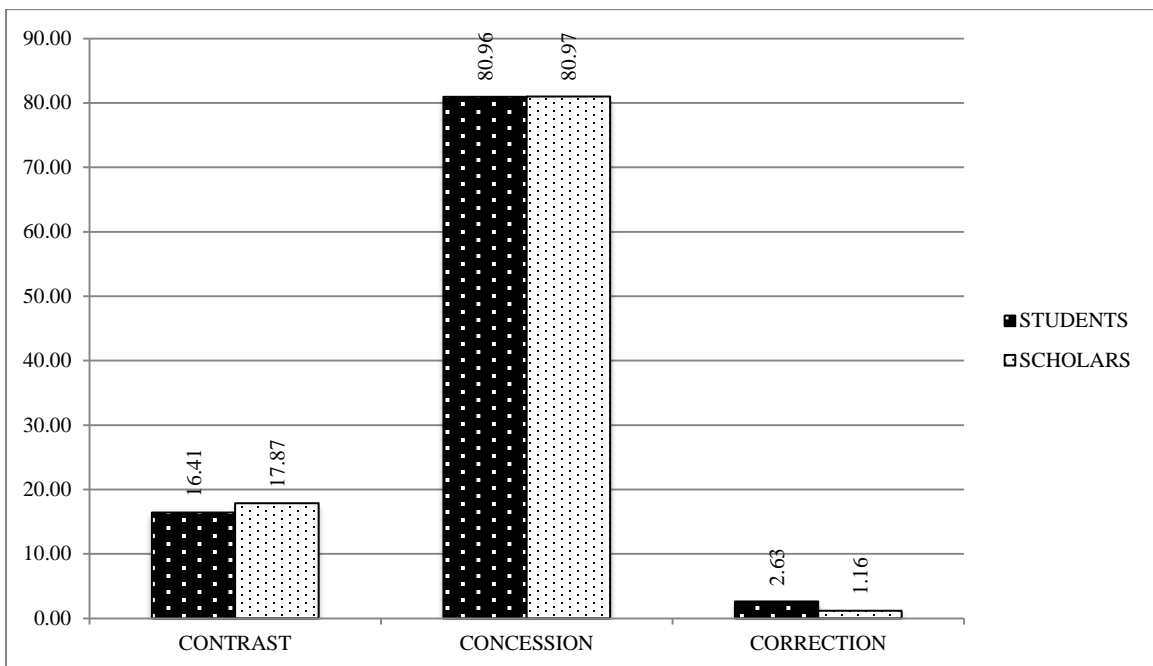
Table 4.3: Contribution of Meaning Category of Oppositional Connectors by Two Groups of Writers

Oppositional Meaning	Students			Scholars		
	<i>f</i>	%	CUM %	<i>f</i>	%	CUM %
Concession	370	80.96	80.96	349	80.97	80.97
Contrast	75	16.41	97.37	77	17.87	98.84
Correction	12	2.63	100.00	5	1.16	100.00
Total	457	100.00	100.00	431	100.00	100.00

As shown in Table 4.3, concessive connectors dominate the texts produced by both groups of writers. Specifically, concessive connectors accounted for 4/5 of all connectors used in the texts of both groups of writers. It is not surprising that concession dominated the meaning category for connectors because *however*, which mainly belongs

to concessive meaning category, outnumbered all oppositional connectors used in the sample texts. Therefore, it is plausible to conclude that both groups of writers favored concessive connectors in their health-related scientific academic texts. Chart 4.2 presents a comparison of the preference for meaning categories between groups of writers.

Chart 4.2: Preferences for Meaning Categories of Oppositional Connectors in the Sample Texts



As shown in Chart 4.2, concessive connectors had the highest occurrences in both corpora. Students and scholars showed the same preference for the use of concessive connectors to identify oppositional ideas in their texts. Nevertheless, student writers demonstrated lower preference for the use of contrastive connectors but a higher preference for the use of corrective connectors compared to scholars' texts (e.g. 16.41% vs 17.87% for contrast, and 2.63% vs 1.16% for correction). It is possible that competent

writers seem to use higher proportion of concessive connectors in their texts. It is also possible that to become a competent academic writer, an EFL student may have to use fewer contrastive and corrective connectors and make use of more concessive connectors in their scientific texts.

4.1.3 Comparison in the use of oppositional meaning categories between groups of writers

Method of analysis

The proportion of each meaning category of oppositional connectors was calculated for each writer, with a total number of 50 writers in each group. For example, Writer A (a hypothetical case) contributed 5 oppositional connectors in his segments. Among these 5 connectors, Writer A used 2 contrastive connectors, 2 concessive connectors, and 1 corrective connector. Thus, the proportion of oppositional meaning categories for Writer A is 40:40:20 (contrast: concession: correction). Writer B contributed 4 oppositional connectors in her segments. Among these 4, Writer B used 2 contrastive connectors and 2 concessive connectors. Thus, the proportion of oppositional meaning categories for Writer B is 50:50:0. Writer C contributed 5 oppositional connectors in his texts. Among these connectors, Writer C used 1 contrastive connector, 3 concessive connectors, and 1 corrective connector. Therefore, the proportion of oppositional meaning categories for Writer C is 20:60:20. This kind of proportional calculation for three oppositional meaning categories was conducted for all 50 writers in each group (e.g., Writer A [the 1st

writer], B, C, ..., AX [the 50th writer]). After that, the proportion numbers of all 50 writers were then aggregated and used for statistical analysis. Table 4.4 demonstrates how all proportions of opposition meaning categories were calculated and aggregated.

Table 4.4: Example of Oppositional Meaning Category Proportional Calculation and Aggregation Across All 50 Writers in Each Group

(All numbers are made up and for illustration purpose only)

Writer	Contrastive	Concessive	Corrective
A	40	40	20
B	50	50	0
C	20	60	20
...
AX	...	...	...
Σ	1000	3500	500
\bar{x}	20.0	70.0	10.0

Findings in the use of oppositional connectors: Student writers

A one-way repeated measures ANOVA was used to test for preference differences among three oppositional meaning categories of oppositional connectors used by students.

Mauchly's test indicated that the assumption of sphericity had been violated ($\chi^2(2) = 39.6, p < .001$); therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .64$). The findings indicate that differences were found among three oppositional meaning categories, $F(1.28, 62.8) = 512.9, p < .001, \eta_p^2 = .91$. Student writers preferred concessive connectors ($M = 81.1, 95\% CI [77.4, 84.9]$) to contrastive connectors ($M = 16.3, 95\% CI [13.0, 19.7]$) and corrective connectors ($M = 2.6, 95\% CI [.98, 4.1]$), $ps < .001$. Student writers also preferred contrastive connectors to corrective connectors at $p < .001$.

Findings in the use of oppositional connectors: Scholar writers

Using the same statistical analysis for calculating differences in the use of oppositional connectors of the scholars, a Mauchly's test indicated that the assumption of sphericity in the scholar group had been violated ($\chi^2(2) = 127.30, p < .001$; therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .52$). The findings indicate that differences were found among three oppositional meaning categories, $F(1.0, 50.8) = 219.1, p < .001, \eta_p^2 = .82$. Scholar writers preferred concessive connectors ($M = 80.2, 95\% CI [74.5, 85.9]$) to contrastive connectors ($M = 18.9, 95\% CI [13.3, 24.4]$) and corrective connectors ($M = 1.00, 95\% CI [.12, 1.9]$), $ps < .001$. Scholar writers also preferred contrastive connectors to corrective connectors at $p < .001$.

Findings in the use of oppositional connectors: Between-group comparison

Table 4.5: Mean Scores and Standard Deviations of Meaning Categories as a Function of Groups of Writers

Group	N	Oppositional Meaning Type					
		Contrast		Concession		Correction	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Students	50	16.31	11.82	81.13	13.14	2.56	5.55
Scholars	50	18.81	19.49	80.19	19.96	1.00	3.11

A two-way mixed ANOVA was performed to identify whether different groups of writers display certain preferences for meaning categories of oppositional connectors. Mauchly's test indicated that the assumption of sphericity had been violated ($\chi^2(2) = 157.62, p < .001$; therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .56$). The results show that preference of oppositional meaning categories

were not different between groups of writers, $F(1.1, 108.7) = .42, p = .53, \eta_p^2 = .004$. Multivariate results indicated that differences were not detected for all connector categories ($F = .60, p = .440$; $F = .078, p = .78$, $F = 2.976, p = .088$ for contrastive, concessive, and corrective connectors respectively). It is noteworthy, however, that differences in the use of corrective connectors were *approaching level of significance* between groups of writers. That is, students showed a higher preference for the use of corrective connectors than their scholar counterparts.

According to the findings, student writers showed similar preferences in the use of oppositional connectors, as compared to scholar writers, in the sample texts. That is, both groups of writers favored the same order of preference in the use of oppositional connectors. Concessive connectors were the most frequently preferred connectors, followed by contrastive connectors, and corrective connectors. Therefore, it is possible to conclude that concessive connector is the most widely used by the writers for expressing their oppositional ideas in health-related academic texts. Additionally, student writers used considerably higher numbers of corrective connectors than scholars. It is possible, that students find it hard to acknowledge the ideas of others while, at the same time, adding, clarifying, or asserting their position about the idea (concession). Rather, students prefer a less nuanced and direct rhetorical way to assert their views in the context of others' view. That is, by directly correcting what they perceive as ideas incompatible with their thinking. This point will be discussed further in chapter 5.

4.2 THE USE OF THEMATIC PROGRESSION PATTERNS

4.2.1 Distributions of thematic progression patterns

Student writers contributed 457 segments while 431 segments were produced by scholar writers. All sample segments were categorized into one of the three groups of thematic progression patterns based on the thematic progression framework of Daneš (1974).

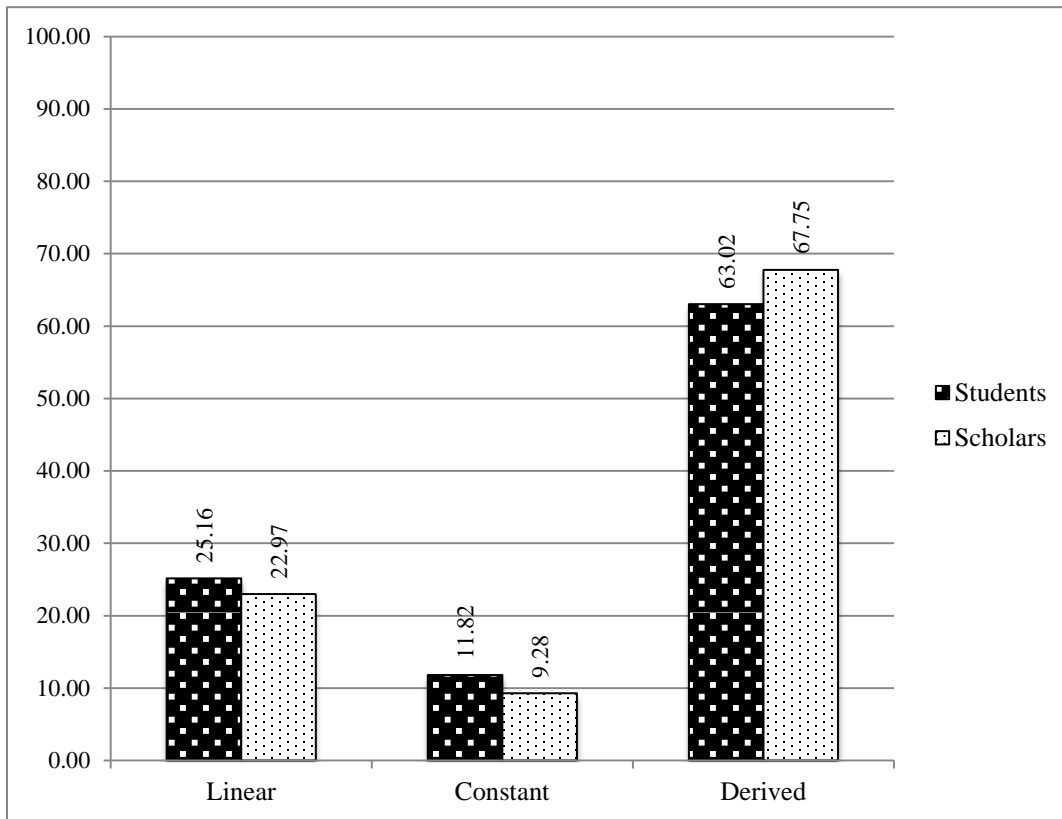
Details of thematic progression categorization of the two groups of writers are presented in Table 4.6 below.

Table 4.6: Numbers of Segments Identified for Thematic Progression Patterns in Both Groups of Writers

Thematic progression pattern	Students			Scholars		
	<i>f</i>	%	CUM%	<i>f</i>	%	CUM%
Derived TP	288	63.02	63.02	292	67.75	67.75
Linear TP	115	25.16	88.18	99	22.97	90.72
Constant TP	54	11.82	100.00	40	9.28	100.00
Total	457	100.00	100.00	431	100.00	100.00

As shown in Table 4.6, both groups of writers favored derived thematic progression patterns to the linear and constant thematic progression patterns. Interestingly, however, student writers used a larger proportion of linear ($n = 115$, 25.16%) and constant ($n = 54$, 11.82%) thematic progression patterns in their scientific academic texts compared to their scholar counterparts ($n = 99$, 22.97% and $n = 40$, 9.28% for linear and constant thematic progression patterns) (see chart 4.3).

**Chart 4.3: Comparison of Thematic Progression Patterns Contributed
by Two Groups of Writers**



From Chart 4.3, it is plausible to conclude that the favored thematic progression pattern in scientific academic texts in the field of health science is derived thematic progression. Although the rank order of favored thematic progression patterns (i.e., derived > linear > constant) were similar between groups of writers, student writers used a wider range of thematic progression patterns. That is, student writers used a greater number of linear and constant thematic progression patterns than those of their scholar counterparts. Therefore, it is also possible that a progression pattern for a competent scientific academic writer in health science is a transition from the use of constant TP to linear TP, and finally to derived TP. The implication of this finding in terms of EFL

writing instruction and students' ability to engage in health-related scientific argumentation will be discussed in Chapter 5.

4.2.2 Comparison in the use of thematic progression patterns between groups of writers

Method of analysis

The proportion of each thematic progression pattern was calculated for each writer, with a total number of 50 writers in each group as it was done with the proportional calculation for three meaning categories for oppositional connectors. Qualified segments for thematic progression pattern analysis were the segments that the oppositional connectors were identified in the previous section. Therefore, the proportional analysis was in line with what had been done with the oppositional meaning section. For example, Writer A contributed 5 oppositional connectors in his segments. Therefore, Writer A also contributed 5 segments to be identified for thematic progression pattern. Among these 5 segments, Writer A used 2 linear TPs, 2 constant TPs, and 1 derived TP. Therefore, the proportion of thematic progression pattern for Writer A is 40:40:20 (linear TP: constant TP: derived TP). Writer B contributed 4 oppositional connectors so she contributed 4 segments to be identified for thematic progression patterns. Among these 4 segments, Writer B used 2 linear TPs and 2 derived TPs. Therefore, the proportion of thematic progression pattern for Writer B is 50:0:50. Writer C contributed 5 oppositional connectors and so 5 segments to be identified for thematic progression in his texts.

Among these segments, Writer C used 1 linear TP, 3 constant TPs, and 1 derived TP. Therefore, the proportion of thematic progression patterns for Writer C is 20:60:20. This kind of proportional calculation for three thematic progression patterns was conducted for all 50 writers in each group (e.g., Writer A [the 1st writer], B, C, ..., AX [the 50th writer]). After that, the proportion numbers of all 50 writers were then aggregated and used for statistical analysis. Table 4.7 demonstrates how all proportions of thematic progression pattern were calculated and aggregated.

Table 4.7: Example of Thematic Progression Proportional Calculation and Aggregation Across All 50 Writers in Each Group

(All numbers are made up and for illustration purpose only).

Writer	Linear	Constant	Derived
A	40	40	20
B	50	50	0
C	20	60	20
...
AX	...	...	...
Σ	1000	3500	500
\bar{x}	20.0	70.0	10.0

Findings in the use of thematic progression patterns: Student writers

A one-way repeated measures ANOVA was used to test for preference differences among three thematic progression patterns used by students. Mauchly's test indicated that the assumption of sphericity had been violated ($\chi^2(2) = 16.4, p < .001$; therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .76$). The findings indicate that differences were found among the three thematic progression types

$F(1.6, 76.0) = 99.0, p < .001, \eta_p^2 = .67$. Student writers preferred derived TP ($M = 63.3, 95\% CI [57.8, 68.8]$) to linear TP ($M = 25.0, 95\% CI [21.1, 29.0]$) and constant TP ($M = 11.7, 95\% CI [8.1, 15.3]$), $ps < .001$. Student writers also preferred linear TP to constant TP at $p < .001$.

Findings in the use of oppositional connectors: Scholar writers

Using the same statistical analysis for calculating differences in the use of oppositional connectors of the scholars, a Mauchly's test indicated that the assumption of sphericity had been violated ($\chi^2(2) = 20.9, p < .001$; therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .74$). Statistically significant differences were found among the three thematic progression types, $F(1.5, 72.5) = 99.02, p < .001, \eta_p^2 = .75$. Scholar writers preferred derived TP ($M = 67.3, 95\% CI [62.8, 71.8]$) to linear TP ($M = 23.8, 95\% CI [18.8, 28.4]$) and constant TP ($M = 9.2, 95\% CI [6.5, 11.8]$), $ps < .001$. Scholar writers also preferred linear TP to constant TP at $p < .001$. Based on the findings, we find distinctive preferences for thematic progression types that appear to favor a scientific argument structure that is shaped by the use of derived themes over constant and linear TPs in both corpora. We will further discuss this finding in Chapter 5.

Table 4.8: Mean Scores and Standard Deviations of Thematic Progression patterns as a Function of Groups of Writers

Group	N	Thematic progression pattern					
		Linear		Constant		Derived	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Students	50	25.04	13.86	11.67	12.73	63.29	19.25
Scholars	50	23.58	16.77	9.15	9.20	67.27	15.80

A two-way mixed ANOVA was performed to identify whether different groups of writers display certain preferences for thematic progression patterns. Mauchly's test indicated that the assumption of sphericity had been violated ($\chi^2(2) = 26.12, p < .001$; therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .81$). The results show that both groups of writers display similar preferences for the types of thematic progression patterns, $F(1.6, 158.6) = .91, p = .39, \eta_p^2 = .01$. Multivariate results indicated that differences were not detected for all patterns ($F = .60, p = .44; F = .08, p = .78, F = 2.98, p = .09$ for linear TP, constant TP, and derived TP respectively). Interestingly, however, that the difference in the use of derived TP was approaching a significant level (i.e., $p = .09$). Therefore, it is possible to postulate that student writers display less preference for the use of derived thematic progression in their written texts.

4.3 THE USE OF OPPOSITIONAL CONNECTORS WITHIN CERTAIN TYPES OF THEMATIC PROGRESSION PATTERNS

4.3.1 Distributions of the use of oppositional connector within certain type of thematic progression pattern

Nine combinations of oppositional meanings and thematic progression patterns (i.e., 3 oppositional meanings \times 3 thematic progression patterns) were used by both groups of writers. Details of combinations of oppositional meanings and thematic progression patterns are presented in Table 4.9.

Table 4.9: Combinations of Oppositional Meanings and Thematic Progression Patterns of Student and Scholar Writers

Students					Scholars				
Rank	Combination Type	<i>f</i>	%	CUM%	Rank	Combination Type	<i>f</i>	%	CUM%
1	Derived TP/ Concessive	224	49.02	49.02	1	Derived TP/ Concessive	225	52.20	52.20
2	Linear TP/ Concessive	100	21.88	70.90	2	Linear TP/ Concessive	91	21.11	73.31
3	Derived TP/ Contrast	61	13.35	84.25	3	Derived TP/ Contrast	64	14.85	88.16
4	Constant TP/ Concessive	46	10.07	94.32	4	Constant TP/ Concessive	34	7.89	96.05
5	Linear TP/ Contrast	9	1.96	96.28	5	Linear TP/ Contrast	7	1.63	97.68
6	Linear TP/ Correction	6	1.31	97.59	6	Constant TP/ Contrast	5	1.16	98.84
7	Constant TP/ Contrast	5	1.09	98.68	7	Derived TP/ Correction	3	0.70	99.54
8	Constant TP/ Correction	3	0.66	99.34	8	Linear TP/ Correction	1	0.23	99.77
9	Derived TP/ Correction	3	0.66	100.00	9	Constant TP/ Correction	1	0.23	100.00
Total		457	100.00	100.00	Total		431	100.00	100.00

As shown in Table 4.9, both groups of writers preferred a combination of derived

TP with concessive meaning (Derived TP/ Concessive, n = 224, 49.02% for students, and n = 225, 52.20% for scholars). However, the percentage of preference for the use of Derived TP/ Concessive was different between student and scholar writers. That is to say, Derived TP/ Concessive was used slightly under 50% by students while over 50% was used by scholars, as compared to all 9 combinations found in the sample texts. In addition, the five top most frequently used combinations were identical between both groups of writers although all five top frequently used combinations accounted different cumulative percentages (i.e., 96.28% vs 97.68% for students and scholars) when these combinations were combined together.

Moreover, Constant TP/ Correction was the least preferred combination for both groups of writers (n = 3, 0.66% for students, and n = 1, 0.23% for scholars). This may reflect a unique linguistic feature that an argument in the health-related academic texts does not prefer a replacement of the same theme or point of departure. Nonetheless, students preferred to use this combination type three times to those were found in the published texts of scholars.

Regarding distribution in the use of the combinations of oppositional meanings and thematic progression patterns, it was found that student writers used a wider range of combinations as compared to scholar writers. Chart 4.3 presents the distribution in the use of all 9 combinations between groups of writers.

Chart 4.4: Distribution of Oppositional Meanings and Thematic Progression Patterns

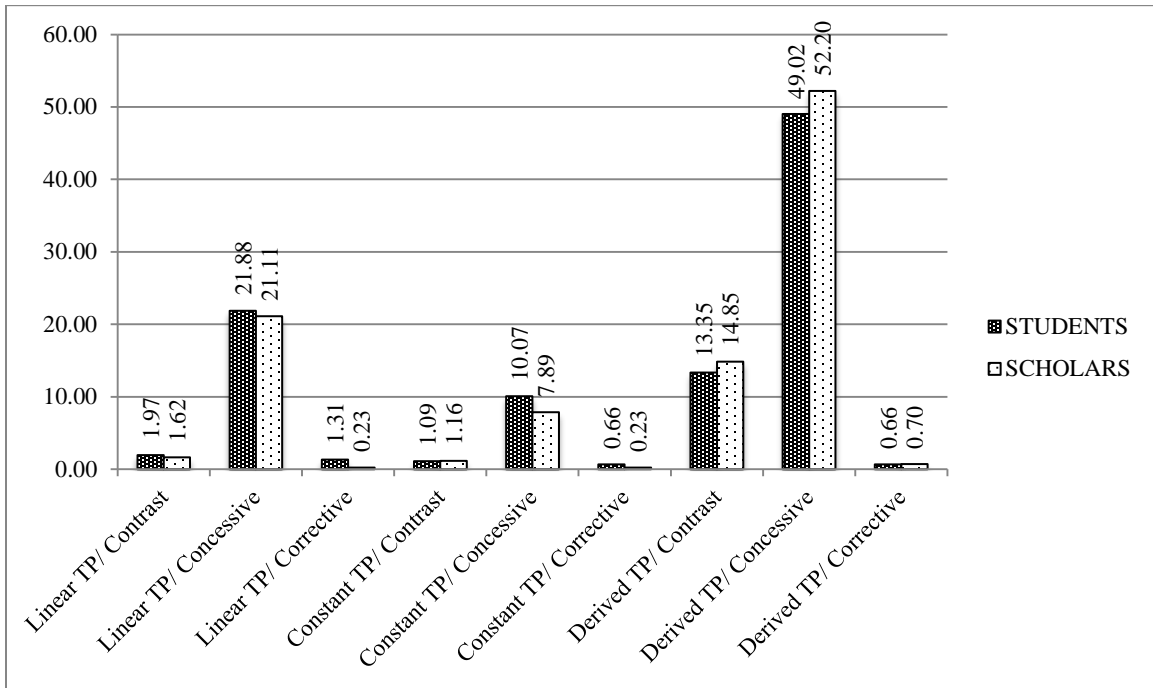


Chart 4.4 clearly shows that preferences for the use of oppositional meanings and thematic progression pattern combinations were similar between students and scholars, especially for Linear TP/ Contrast, Linear TP/ Concessive, Derived TP/ Contrast, Derived TP/ Concessive, and Derived TP/ Corrective. It is noteworthy that although both groups of writers displayed less preference for the use of corrective connectors within all three patterns of thematic progression, students somehow used a larger number of these corrective combinations (except for Derived TP/ Corrective combination) than scholars (e.g., 1.31% vs 0.23% for Linear TP/ Corrective, and 0.66% vs 0.23% for Constant TP/ Corrective). It seems that students used these combinations more liberally than scholars.

4.3.2 Comparison in the use of oppositional connectors within certain types of thematic progression patterns between groups of writers

Method of analysis

The proportion of all nine combinations was calculated for each writer, with a total number of 50 writers in each group. For example, Writer A contributed 12 segments that were qualified for a combination categorization. Among these 12 segments, Writer A used 1 Linear TP/ Contrastive, 1 Linear TP/ Concessive, 1 Constant TP/ Concessive, 1 Constant TP/ Corrective, 3 Derived TP/ Contrastive, 5 Derived TP/ Concessive. Therefore the proportion of oppositional meanings and thematic progression patterns for Writer A is 11: 11: 0: 0: 11: 11: 33: 55: 0 (see Table 4.10 below). This proportional calculation for all 9 combinations was conducted for all 50 writers in each group (e.g., Writer A [the 1st writer], B, C, ..., AX [the 50th writer]). After that, the proportion numbers of all 50 writers were then aggregated and used for statistical analysis. Table 4.10 demonstrates how all proportions of thematic progression pattern were calculated and aggregated.

Table 4.10: Example of Proportional Calculation and Aggregation for All Combinations Across All 50 Writers in Each Group

(All numbers are made up and for illustration purpose only)

Writer	Linear TP/ Contrastive	Linear TP/ Concessive	Linear TP/ Corrective	Constant TP/ Contrastive	Constant TP/ Concessive	Constant TP/ Corrective	Derived TP/ Contrastive	Derived TP/ Concessive	Derived TP/ Corrective
A	11	11	0	0	11	11	33	55	0
B	...	...	...	...	...	...	...	...	...
C	...	...	...	...	...	...	...	...	...
...
AX	...	...	...	...	...	...	...	...	...
Σ	48	13	10	62	58	35	79	185	10
\bar{x}	34.04	0.26	0.20	1.24	1.16	0.7	1.58	3.70	0.20

Findings of the use of oppositional connector within certain type of thematic progression combinations: Student writers

To analyze combinations of oppositional connectors with thematic progression patterns used by students in this study, a two-way repeated measures ANOVA was performed to test for the frequency of occurrence of oppositional meanings, within particular thematic progression patterns used by students. Mauchly's test indicated that the assumption of sphericity had been violated ($\chi^2(35) = 392.21, p < .001$; therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .34$). The findings indicate that the frequency of occurrence of oppositional meanings, within particular thematic progression patterns differed significantly, $F(2.68, 131.53) = 127.92, p < .001, \eta_p^2 = .98$. Post-hoc pairwise comparisons also revealed that student writers preferred to

use Derived TP/ Concessive to all other combinations types, statistically significant at $ps < .05$.

To break down the significant differences in the frequency of occurrence of oppositional meanings within particular thematic progression patterns, they are presented in Table 4.11. Please note that a plus sign designates higher preference of the combination in a horizontal row to a vertical column.

Table 4.11: Preferences in the Use of Combination of Oppositional Connector with Thematic Progression Patterns of Student Writers

	Linear TP/ Contrastive	Linear TP/ Concessive	Linear TP/ Corrective	Constant TP/ Contrastive	Constant TP/ Concessive	Constant TP/ Corrective	Derived TP/ Constantive	Derived TP/ Concessive	Derived TP/ Corrective
Linear TP/ Contrastive									
Linear TP/ Concessive	+		+	+	+				+
Linear TP/ Corrective									
Constant TP/ Contrastive									
Constant TP/ Concessive	+		+	+		+			+
Constant TP/ Corrective									
Derived TP/ Contrastive	+		+	+	+	+			+
Derived TP/ Concessive									
Derived TP/ Corrective									

Note: (all + signs are statistically significant at $p < .05$ levels)

As can be seen from Table 4.11, apart from the use of Derived TP/ Concessive combination type, a combination of Derived TP/ Contrastive connectors ranked second among all combinations that were targeted in the study. That is, derived TP secured its top position in students' written texts.

Findings of the use of oppositional connector within certain type of thematic progression combinations: Scholar writers

Using the same statistical analysis for calculating differences in the use of oppositional connectors within thematic progression pattern of the scholars, a two-way repeated measures ANOVA was performed to test for the frequency of occurrence of oppositional meanings, within particular thematic progression patterns used by scholars. Mauchly's test indicated that the assumption of sphericity had been violated, $\chi^2(35) = 593.07, p < .001$; therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .32$). The findings indicate that the frequency of occurrence of oppositional meanings, within particular thematic progression patterns differed significantly, $F(2.6, 126.5) = 104.25, p < .001, \eta_p^2 = .99$. Post-hoc pairwise comparisons also revealed that scholar writers preferred to use Derived TP/ Concessive ($M = 51.38, 95\% CI [45.9, 56.9]$) to all other combinations types at $ps < .05$.

To break down the significant differences in the frequency of occurrence of oppositional meanings within particular thematic progression patterns, they are presented in Table 4.12.

Table 4.12: Preferences in the Use of Combination of Oppositional Connector with Thematic Progression Patterns of Scholar Writers

	Linear TP/ Contrastive	Linear TP/ Concessive	Linear TP/ Corrective	Constant TP/ Contrastive	Constant TP/ Concessive	Constant TP/ Corrective	Derived TP/ Constantive	Derived TP/ Concessive	Derived TP/ Corrective
Linear TP/ Contrastive									
Linear TP/ Concessive	+		+	+	+	+			+
Linear TP/ Corrective									
Constant TP/ Contrastive									
Constant TP/ Concessive			+	+		+			+
Constant TP/ Corrective									
Derived TP/ Contrastive	+		+	+		+			+
Derived TP/ Concessive									
Derived TP/ Corrective									

Note: (all + signs are statistically significant at $p < .05$ levels)

As can be seen from Table 4.12, apart from the use of Derived TP/ Concessive combination type, a combination of Linear TP/ Concessive connectors ranked second among all combinations that were targeted in the study. That is, in published scholarly articles, the use of concessive connector is the prime linguistic feature in the texts.

Findings of the use of oppositional connector within certain type of thematic progression combinations: Between-group Comparison

A three-way mixed ANOVA was performed to test differences of the frequency of occurrences of oppositional meanings within certain type of thematic progression patterns across groups of writers. Mauchly's tests indicated that the assumptions of sphericity of oppositional meanings, thematic progression patterns, and combinations of oppositional meanings and thematic progression patterns had been violated, $\chi^2(2) = 157.6, p < .001$ for

oppositional meanings, $\chi^2(2) = 26.1, p < .001$ for thematic progression patterns, and $\chi^2(2) = 225.8, p < .001$ for a combination of oppositional meaning within certain thematic progression patterns. Therefore, degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .56, .81, \text{ and } .51$ for oppositional meanings, thematic progression patterns, and combinations of oppositional meaning within certain types of thematic progression patterns respectively). The results show that no statistical difference was detected between groups of writers in the use of oppositional meanings within certain types of thematic progression patterns, indicating that the use of oppositional meanings within certain types of thematic progression patterns between both groups of writers were in general the same, $F(1, 98) < 1$. A test of an interaction of groups of writers, the use of oppositional meanings, and the use of thematic progression patterns confirms these findings, $F(2.04, 199.55) = .174, p = .844, r = .03$.

Combining both groups of writers, a significant main effect of the frequency of occurrence of oppositional meanings was found, $F(1.11, 108.70) = 616.05, p < .001, r = .85$. Contrast comparisons revealed that contrastive connectors occurred more often than corrective connectors, $F(1, 98) = 90.77, p < .001, r = .69$, and concessive connectors occurred more often than corrective connectors, $F(1, 98) = 1768.09, p < .001, r = .97$. However, no significant interaction effect was found between groups of writers and their use of oppositional connectors, $F(1.11, 108.70) = .422, p = .538, r = .06$. In other words, both groups of writers preferred the same group of connectors.

A significant main effect of thematic progression patterns was also found when both groups of writers were combined, $F(1.62, 158.57) = 242.90, p < .001, r = .78$. Contrast comparisons revealed that derived thematic progression patterns occurred more

often than linear thematic progression pattern, $F(1, 98) = 173.07, p < .001, r = .80$, and constant thematic progression pattern, $F(1, 98) = 477.66, p < .001, r = .91$. However, no significant interaction effect was found between groups of writers and their use of thematic progression patterns, $F(1.62, 158.56) = .911, p = .386, r = .08$. In other words, both groups of writers preferred the same thematic progression pattern.

In summary, both groups of writers preferred to use similar type of oppositional connector (i.e., concessive connectors) within particular type of thematic progression pattern (i.e., derived thematic progression pattern). However, when examining closely at the raw data set, it is evident that although both groups of writers preferred concessive connectors within derived thematic progression pattern, student writers showed less preference for the use of concessive connectors and derived thematic progression pattern, but a stronger preference for the use of corrective connectors with linear and constant thematic progression types. Therefore, if we assume, based on the findings from the current study, that a combination of concessive connectors with derived thematic progression is an ultimate choice for argumentation in health-related scientific academic texts, EFL students, even as advanced as the sample group of the current study, need instruction that promotes the use of concessive connectors within derived thematic progression patterns. In addition, this type of instruction is essential for less advanced students (e.g., undergraduate students) so that they can achieve a “standard” in a health-related scientific academic writing.

4.4 SUPPORTIVE ANALYSIS FOR THE USE OF OPPOSITIONAL CONNECTORS WITHIN TYPES OF THEMATIC PROGRESSION PATTERNS

4.4.1 General description

To validate the findings, a second analysis was performed. Instead of controlling for numbers of oppositional connectors contributed from each writer, the researcher opted to draw 1,000,000 words from the same sample texts in both corpora. If the finding is similar to what was previously found, it assures that the previous findings are also valid; therefore, suggestions and/or recommendations from the current study are upheld and valid.

According to the first analysis, 888 segments were analyzed and categorized into the oppositional connector type that was used within certain type of thematic progression patterns. The findings revealed that Derived TP/ Concessive segments were the preferred combinations in the sample texts. Nonetheless, some degrees of differences were found, such as percentages and proportions, as well as the use of corrective connectors within all types of thematic progression patterns (albeit not statistically significant) between students and scholars. At least two possible explanations suggest why preferences for the use of oppositional connectors and thematic progression patterns were not statistically different:

1. The researcher controlled for the number of oppositional connectors contributed by each writer. That is, up to five counts of each oppositional connector (e.g., *5 however, 5 in contrast*) were limited in the analysis stage. As a consequence, even if any group of writer produced more oppositional connectors in their texts, their maximum

contribution of oppositional connectors in the analysis would be limited to only five for each. Therefore, their productions of oppositional connectors were not different enough to reach a statistical cutoff between groups of writers.

2. Both groups of writers used a large number of *however* in their texts (about 80% of all oppositional connectors used in the texts of both groups were *however*). As a consequence, it is inevitable that concessive connectors, to which the connector *however* belongs) were the most preferred connectors in the scholarly published articles-and the EFL students' texts.

Therefore, to control bias in the analysis of oppositional connectors, the researcher conducted a second analysis. That is, instead of controlling for the number of oppositional connectors contributed by each writer, word counts were controlled in the second analysis. A total number of 1,000,000 words from the same sample of scholarly published articles, and EFL theses (i.e., 50 excerpts produced by different 50 writers, containing 500,000 words from each corpus) were used for the second analysis, with no restriction on the amount of oppositional connectors produced by each writer. Once the oppositional connector produced in the texts were found, the thematic progression in which oppositional connector was embedded was categorized in the same way as in the first analysis.

4.4.2 Distributions of oppositional connectors

The Universidad Autónoma de Madrid (UAM) corpus tool was used as a major tool for the second examination. It was used for the purpose of texts' tagging, annotation, and analysis process. The findings were as follows.

Four hundred and fourteen and 365 oppositional connectors were found in students' and scholars' written texts. Occurrences of oppositional connectors used in the sample texts by both groups of writers are presented in Table 4.13.

Table 4.13: Occurrences of Oppositional Connectors in the Health-Related Sample Texts (order is according to occurrences in students' texts)

Connector	Students				Scholars			
	n	%	CUM %	per 1000	n	%	CUM %	per 1000
<i>However</i>	304	73.43	73.43	0.608	265	72.60	72.60	0.530
<i>In contrast</i>	25	6.04	79.47	0.050	37	10.14	82.74	0.074
<i>On the other hand</i>	22	5.31	84.78	0.044	9	2.47	85.21	0.018
<i>Nevertheless</i>	20	4.83	89.61	0.040	22	6.03	91.23	0.044
<i>Conversely</i>	10	2.42	92.03	0.020	9	2.47	93.70	0.018
<i>At least</i>	8	1.93	93.96	0.016	1	0.27	93.97	0.002
<i>Instead</i>	5	1.21	95.17	0.010	3	0.82	94.79	0.006
<i>Otherwise</i>	4	0.97	96.14	0.008	0	0.00	94.79	0.000
<i>Despite</i>	4	0.97	97.10	0.008	0	0.00	94.79	0.000
<i>In turn</i>	3	0.72	97.83	0.006	0	0.00	94.79	0.000
<i>Nonetheless</i>	3	0.72	98.55	0.006	13	3.56	98.36	0.026
<i>On the contrary</i>	3	0.72	99.28	0.006	0	0.00	98.36	0.000
<i>Rather</i>	2	0.48	99.76	0.004	3	0.82	99.18	0.006
<i>By contrast</i>	1	0.24	100.00	0.002	3	0.82	100.00	0.006
Total	414	100.00			365	100.00		

As can be seen from Table 4.13, *however* is the most frequently used connector in the health-related texts produced by both groups of writers, although the percentage in the use of *however* in the texts of both groups of writers were lower than those were found in the first analysis.

In students' texts, the four top most frequently used connectors were identical with the first analysis (i.e., *however*, *in contrast*, *on the other hand*, and *nevertheless*). However, when the percentages of these 4 connectors were combined, they accounted for only 89.61% of all oppositional connectors used in the sample texts, as compared to 93% in the first analysis.

In scholars' texts, *however*, *in contrast*, and *nevertheless* were the three most frequently used oppositional connectors. These three connectors were combined and accounted for 88.87% of all oppositional connectors found in the texts, which was slightly lower than 90% in the first analysis. Interestingly, the rank orders of *on the other hand* and *nonetheless* were reversed when compared to the first analysis. That is, while *on the other hand* ranked 4th and *nonetheless* ranked 5th for the most frequently used connectors in the first analysis, *nonetheless* ranked 4th while *on the other hand* ranked 5th, and tied with *conversely*, in the second analysis.

The second examination confirmed that *however*, *in contrast*, and *nevertheless* were preferred oppositional connectors in the health-related academic texts. Although advanced EFL students seem not to have problems with the use of these preferred connectors (that is, the occurrence percentages were similar), focusing on the use of these three oppositional connectors in writing courses to assist EFL learners to develop an academic argument would be beneficial. The focus on the use of these oppositional

connectors will be discussed in Chapter 5.

4.4.3 Comparison to a large-sized referent corpus

Another investigation that the researcher wants to present in this section is to verify if the distribution of the connectors in the sample texts is comparable to a widely recognized corpus. Therefore, the relative normed frequency of per 1,000 words was calculated. The Corpus of Contemporary American English (COCA)⁸ was used as a referent corpus for this investigation. The COCA was chosen in the current stage of analysis instead the BNC because of its larger size and coverage. The normed frequency per 1,000 words of the oppositional connectors was calculated by using the following formula:

$$\text{Norm frequency of 1,000 words} = (1,000 / \text{Corpus Size in word counts}) \times \text{Occurrences}$$

The normed frequency per 1,000 words was calculated for all corpora and is presented in Table 4.14.

⁸ The Corpus of Contemporary American English is accessible via: <http://corpus.byu.edu/coca/>

Table 4.14: Normed Frequency Per 1,000 Words of Oppositional Connectors in Three Corpora

Connector	COCA (450 million words)		MULC (500K words)		SCHS (500K words)	
	n	per 1,000	n	per 1,000	n	per 1,000
<i>However</i>	76,868	.17080	305	.61000	255	.51000
<i>On the other hand</i>	7,299	.01620	22	.04400	8	.01600
<i>Nevertheless</i>	5,179	.01150	20	.04000	20	.04000
<i>Rather</i>	5,137	.01140	2	.00040	3	.00060
<i>Instead</i>	5,104	.01130	5	.00100	3	.00060
<i>In contrast</i>	3,922	.00870	25	.05000	33	.06600
<i>In turn</i>	2,748	.00610	3	.00060	0	.00000
<i>Nonetheless</i>	2,590	.00580	3	.00060	11	.02200
<i>By contrast</i>	2,191	.00490	1	.00020	3	.00060
<i>Conversely</i>	1,643	.00370	10	.00200	9	.01800
<i>Otherwise</i>	1,142	.00250	4	.00800	0	.00000
<i>At least</i>	1,082	.00240	8	.01600	1	.00020
<i>On the contrary</i>	1,079	.00240	3	.00600	0	.00000
<i>Despite</i>	27	.00006	4	.00080	0	.00000

As can be seen from Table 4.14, *however* is the preferred oppositional connector in the COCA. Therefore, students' and scholar's sample texts were comparable to the referent corpus. However, the occurrence ratios of 1,000 words were greatly different. That is to say, while only .17 per 1,000 words was found in a very large corpus size of COCA, *however* occurs in a very high ratio in both MULC and SCHS. It is possible to assume that the occurrence of *however* is genre-specific for health-related scientific academic writing.

When examining all oppositional connectors, it is noteworthy that *on the other hand*, *in contrast*, and *despite* were used frequently in the COCA corpus as in the SCHS corpus. Regarding the frequency in the use of these three connectors, students seem to overuse *on the other hand* and *despite* in their texts. However, *in contrast* was used relatively the same number of times in all three corpora. According to this findings, EFL advanced students do not have any problem with the use of *in contrast* to express an argument in their texts but they need to be aware of not overusing *on the other hand* and

despite in their texts.

4.4.4 The use of oppositional connectors within certain type of thematic progression patterns

Table 4.15: Occurrences and Relative Percentages of the Use of Oppositional Connectors within Type of Thematic Progression Patterns by Both Groups of Writers

Oppositional Meaning and Thematic Progression Patterns	Students			Scholars			χ^2
	n	%	rank	n	%	rank	
Linear TP/Contrastive	4	1.0	7	3	0.8	7	0.05
Linear TP/Concessive	84	20.3	2	64	17.5	3	0.96
Linear TP/Corrective	1	0.2	9	0	0.0	9	0.88
Constant TP/Contrastive	5	1.2	6	5	1.4	5	0.04
Constant TP/Concessive	39	9.4	4	21	5.8	4	3.67*
Constant TP/Corrective	7	1.7	5	1	0.3	8	3.83*
Derived TP/Contrastive	77	18.6	3	75	20.5	2	0.47
Derived TP/Concessive	193	46.6	1	191	52.3	1	2.53
Derived TP/Corrective	4	1.0	7	5	1.4	5	0.28
Total	414	100.0		365	100.0		

*p < .05

As can be seen from Table 4.15, Derived TP/ Concessive is the preferred combination by both groups of writers. However, similar to the first analysis on the use of oppositional meanings within certain types of thematic progression patterns, students used Derived TP/ Concessive combination under 50% while scholars preferred to use this combination above 50% (i.e., n = 193, 46.6% for students; n = 191, 52.3% for scholars). This finding indicates that competent writers favor the use of Derived TP/ Concessive combination in their scientific academic texts. It is noteworthy that although written ESL texts used in the current study were produced by advanced EFL writers (e.g., they passed a English

proficiency requirement set by the faculty of Graduate Studies), they still need instruction to push them to a level that reaches the writing proficiency of published scholars. The implication of this finding is that students may need instruction from the beginning of their programs on the use of Derived TP/ Concessive combinations to understand how this combination is used in health-related academic texts. This type of instruction will assist learners in reading and interpreting academic articles and will support the production of their own written texts.

In comparison to the occurrence of combinations of oppositional meanings within certain type of thematic progression patterns, the UAM corpus tool provided a statistical analysis for a distribution in the use of these combinations between groups of writer. The Chi-square analysis provided by the UAM corpus revealed that occurrences of Constant TP/ Concessive and Constant TP/ Corrective were different statistically at $p < .05$ level between groups of writers. In other words, student writers showed a higher preference in the use of Constant TP/ Concessive and Constant TP/ Corrective than their scholar counterparts. It is noteworthy that although the difference did not reach a statistical significant point, scholars used a larger proportion of Derived TP/ Concessive combination than student writers, $\chi^2=2.53, p < .05$. Based on these findings, it is possible to conclude that instruction in writing in health-related content should target the use of derived thematic progression patterns with concessive connectors, while limit the use of constant thematic progression type, with corrective connectors because both features could be regarded as immature uses of language to express an argument in the field of health-related professions.

In summary, this chapter presents promising findings that the use of concessive

connectors within derived thematic progression type was the most preferred combination type in the health-related scientific academic texts. Discussions regarding differences in the use of oppositional connectors within certain type of thematic progression, proper statistical analyses for this study type, as well as suggestions and recommendations for future health-related EFL writing research and curriculum development will be presented in Chapter 5.

5.0 DISCUSSION

In this chapter, major findings will be discussed based on perspectives that relate to EFL/ESL writing curriculum and instruction, namely cognitive linguistic, cultural, and teaching and instructional perspectives. Particular findings will be summarized and discussed according to that perspective. Contributions of the current study and evidence-based recommendations for curriculum and instruction will be provided. The chapter will be organized as follows:

1. Cognitive linguistic perspective
2. Cultural perspective
3. Teaching and instructional perspective
4. Contributions of the current study and evidence-based recommendations for curriculum and instruction.

It is noteworthy that student and scholar writers showed similar preferences in almost every linguistic feature examined in the current study, except for preferences for student writers to use constant TP with concessive and corrective connectors. Therefore, it might plausibly be concluded that current EFL argumentative writing instruction provided for graduate students at Mahidol University is effective and ‘on the right track.’ Additional findings from a qualitative investigation using the data from the current study may complement and benefit curriculum developers as they move forward to monitor and evaluate more deeply the overall effectiveness of the writing program.

5.1 COGNITIVE LINGUISTIC PERSPECTIVE

Littlemore (2009) claims that cognitive linguists believe that the language is the central input from which the discerners and producers of language can draw inferences about form-meaning relationships, typical patterns, and schemata. Through exposure to language in everyday use, we constantly modify our mental lexicon in response to the language input that we received. Language knowledge and learning are usage-based in that our knowledge of language is derived from and informed by language use. As a result, the way to improve students' academic written production is to refine their cognitive abilities (for example, analytical processes) to allow them to express their intended meanings better in language production. This study reveals how EFL student writers construe knowledge through their written texts. Therefore, instruction and teaching materials should focus on cognitive modification of thinking processes and how particular language forms construe knowledge.

Three major key findings relevant to cognitive linguistic perspective will be presented in the following section: (1) Student writers' underuse of concessive connectors, (2) the case of *however* and (3) student writers' underuse of derived thematic progression pattern.

5.1.1 Underuse of concessive connectors

Thirteen connectors were found in the health-related sample texts of student writers while nine were found from scholars' corpus. The additional four connectors in students' texts

include *in turn* (contrast), *otherwise* (correction), *on the contrary* (contrast), and *at least* (correction). For example,

- (5.1) a) *Released renin converts the precursor of angiotensin, angiotensinogen, which is formed in the liver, to angiotensin I. **In turn**, b) angiotensin I is converted by a protein present in the vascular wall of the arterial vessels, angiotensin-converting enzyme, to angiotensin II.* (RA-1: Contrast)
- (5.2) a) *Unlike ceftazidime, however, cefepime has good activity against most penicillin-resistant strains of streptococci, and it may be useful in treatment of Enterobacter infections. **Otherwise**, b) its clinical role is similar to that of third generation cephalosporins.* (RA-16: Correction)

None of these additional connectors in students' texts signifies concessive meaning. It is, therefore, possible to conclude that students, even advanced groups, show preference for contrastive and corrective meanings in the texts and may be unable to express concession in language or may not think in terms of concessive meanings. Moreover, some students also use *however*, which typically connotes concessive meaning, to express contrastive ideas in their texts. For example,

- (5.3) a) *Streptococcus mutans KPSK2 was inhibited by the essential oil of Hairy basil followed by Mint, Lemongrass, and Clove, subsequently. **However**, b) the essential oil of Plai and Guava didn't inhibit the growth of this microorganism.* (DT-13)

Although statistical analyses did not yield any statistical significance, the data set indicates that scholar writers used considerably more proportion of concessive connectors than the student group. Moreover, corrective connectors, which function to replace one idea with another, are the least frequent in the sample texts produced by scholars. In contrast, student writer used a larger number of contrastive and corrective connectors in their texts. This is also support for the previous findings that students, even advanced

groups, show a difference in the texts they produce as compared to those that were produced by scholars.

According to this finding, it is clear that that student writers prefer to orient their arguments in texts in contrastive way. From this perspective, it may be that they view the truth as absolute (e.g., right or wrong dichotomy). They possibly do not know that the truth has its own degree of rightness, and particular discourse community perceives degree of rightness differently. This claim is in line with Wishnoff (2000), that non-native English speaking students tend to express an opinion or a belief as it were a statement of fact.

Author authority may be another reason of why students show less preference for the use of concessive connectors in their academic written texts. That is, the sample texts produced by student writers in the current study were unpublished graduate theses. Students may perceive that, as the author, they are the only one who assumes full responsibility for the arguments or claims. Contrastive and corrective connectors are the connectors that function to reflect a strong standpoint and, in using these two connector types, student writers may believe they are strengthening their arguments and declaring sole authorship. They may also feel that concessive connectors express weak arguments so using this type of connectors would weaken their arguments. They may also perceive that to use concessive meaning for an argument equates to the use of hedges, which signify uncertainty in arguments or claims, thus diminishing the strength of their position. The belief that hedges signify weak arguments likely comes from EFL/ESL writing courses that teach students that using hedges like modal verbs (e.g., may, might, could)

signal uncertainty (Wishnoff, 2000). In example (5.4) students may perceive this statement as a weak form of argument.

(5.4) *In the future, instead of being allies with the government as in the past, intellectuals **may choose** to be an independent force ...*” (Wishnoff, 2000)

Therefore, student writers might generalize this belief toward concessive connectors, as the weakest form of oppositional connectors. Therefore, they conclude that they should avoid using concessive connectors when they want to present strong arguments.

In contrast, scholars in the field prefer to use concessive connectors for their arguments. It is possible that scholars know that using concessive connectors does not weaken their arguments or claims. The truth of the argument is not absolute. Therefore, scholars opt to use concessive connectors to express their argument, while reserving that their argument may not be the only argument put forth about the topic under discussion. These concessive connectors also signal that the author is aware that oppositions to their argument may exist. Segment (5.5) shows the use of the connector to express concessive meaning by scholars.

(5.5) *(a) Allostatic load, in turn, produces changes in morbidity, mortality and quality of life. **However**, (b) the effects of cumulative risk exposure are both mediated and moderated by positive and negative aspects of religion.*

As a result, a new way of thinking about argumentation is necessary to help student writers. They need to consider that the argument is not right or wrong. Rightness is on a percentage continuum of zero to hundred and that absolute right hardly ever occurs. Scholars in the field know that their arguments or claims are not absolute right

and therefore express this subject position by using concessive connector to express their arguments.

Instruction that provides the use of concessive connectors to construe the truth of an argument and claim should be added to EFL academic writing curriculum. Students need to be introduced to what and how the writing community construes arguments in the field and how scholars in the field select appropriate linguistic tools for expressing their facts and truths of their academic positions. Moreover, the curriculum should not ignore introducing contrastive and corrective connectors because these two groups of connectors are still useful for strong contrasts, and corrections. In other words, students need to know all three meaning types of the oppositional connectors and select the right meaning that ultimately serves the function of their argument in the texts that they construct. This type of instruction should demonstrate how the three types of oppositional connectors differ in terms of function and semantics, and why competent English users in the field prefer to use concessive connectors as opposed to the other two oppositional connectors. In addition, a study that could provide an in-depth investigation in the use of *however*, and other concessive connectors produced by health-related EFL students should be conducted to examine whether the function for which students use concessive connectors is similar to or different from those scholars. Findings from such studies may inform corpus-based researchers, as well as EFL instructional developers regarding EFL students' construal of truth, and to focus on the different meanings and functions of concessive connectors in academic texts.

5.1.2. The case of *however*

The connector *however* is the most frequently used connector in the sample texts produced by both groups of writers. A relatively high occurrence of *however* is in line with what was found in the Corpus of Contemporary American English (COCA). That is to say, *however* is also the most frequently found oppositional connector in the COCA. However, the relative frequency per 1,000 words is rather different between the referent corpus and both sample corpora. While the relative frequency of 0.17 times per 1,000 words was found in the COCA, the very large number of .61 and .51 per 1,000 words were found from MULC and SCHS. It is possible to explain that such a large difference between a referent corpus and the sample corpora is because the COCA is a general corpus while the self-produced corpora in this study are specialized. The COCA covers a wider range of texts, including newspapers, novels, and journal articles in many fields. *However* may be preferred in a written form of text, while alternative, less formal lexicogrammatical choices (e.g., *but*) may be preferred in newspapers and novels. Therefore, it is possible to conclude that academic texts tend to have a strong preference for the use of *however*. So a large number of occurrences of *however* are genre-specific.

Students prefer to use *however* more often in their texts, in spite of the fact that its equivalent does not exist in the Thai language. Regarding students' preference to use quite a number of *however* in their texts, it is possible to explain that *however* frequently occurred in students' text although *however* does not originally exist in the Thai language. The word *however* may be a calque that Thai academicians introduced and incorporated as a signpost for expressing contrastive idea in the Thai language. The word

however is used as a direct translation to the Thai language as *yàang rai gôr dtaam*, which is from *how* = *yàang rai* and *ever* = *gôr dtaam*. Unfortunately, no documentations state an original source of the calque *however* in the Thai language. Based on the researcher's intuition as a native speaker of Thai, and personal communication with a number of teachers of Thai language in both high school and university levels, we all agree that *however* is not a Thai word and it is possible that *however* appeared in academic papers that were published in Thai, as a result of academicians who graduated from English-medium universities. As a result, to use *however* may be a regular practice among Thai writers, without noticing that the meaning of *however* carries both contrastive and concessive connotations. In addition, Thai speakers use *dtàe*, which is equivalent to *but* in English when they want to express their oppositional ideas.

According to scholars who study oppositional words in English and other languages (e.g., Rudolph, 1996; Izutsu, 2008), *but* carries all three meanings of opposition (i.e., CONTRAST, CONCESSION, and CORRECTION). However, the contrastive connotation seems to be the prototypical meaning of *but* in every language. It may be the case in Thai that when writers use the word *but* in Thai, they usually use it in terms of its prototypical meaning, rather than its radial meanings of concession or correction. When they opt to use *however* instead of *but* in their utterances, the word *however* still functions with its prototypical meaning of *but*, a contrastive connotation. Therefore, Thai writers use *however* to signify contrastive meaning rather than concessive connotation. For example,

- (5.6) a) *Alaska is the largest **but** Rhode Island is the smallest US states.*
b) *Alaska is large. **However**, Rhode Island is small.*
c) *Alaska is large. **In contrast**, Rhode Island is small.*

From example (5.6), *a*) is acceptable as it conveys a contrastive connotation of size between Alaska and Rhode Island. Native speakers of English may find *b*) awkward because the small size of Rhode Island is not a counter-expectation, the function of a concessive connector, with the previous segment of “*Alaska is large*”. Rather, “*Alaska is the largest. However, its population density is the lowest in the country*” is more acceptable for the use *however* for a counter-expectation in the second segment. They also prefer to use *c*) to express contrastive ideas between the two entities. However, Thai writers do not seem to grasp this differentiation among these semantic categories.

As stated in the previous paragraph, Thai writers seem to use interchangeably *however* and *but*. This interchangeable use may reflect a cognitive process, as well. *But* is used as a coordinating conjunction that combines two parallel sentence structures into one compound sentence. Therefore, the flow of ideas of the sentences joined by *but* is considered paratactic (e.g., creates a linear flow of independent rather than subordinated thoughts). For example,

- (5.7) *a) Alaska is large.*
b) Rhode Island is small.
c) Alaska is large but Rhode Island is small.

From example (5.7), *c*) is a compound sentence formed by joining *a*) and *b*) with *but*. The ideas from *a*) and *b*) are parallel and therefore denotes a paratactic structure. As Thai writers use *however* interchangeably with *but*, using *however* to express contrastive idea is always acceptable to them. This perception of the paratactic and linear flow of thoughts will also be discussed in the section on thematic progression patterns.

Based on this finding, instruction and teaching materials should provide and expand students’ frame of thought by emphasizing that *but* carries at least three semantic

categories (i.e., prototypical contrast, and radical concession and correction) in English. Therefore, whenever they alternate *but* with *however*, they must know that *however* has a different meaning than the connector *but*. *However* also signals concessive meaning rather than the prototypical contrastive connotation. Thus, the idea of prototypical and radial connotations of *but* (and its alternative *however*) needs to be included in EFL academic writing curriculum.

5.1.3. Underuse of derived thematic progression pattern

Derived thematic progression is the most favored thematic progression pattern used by both groups of writers. Regarding the current finding, although students and scholars preferred to use the same type of thematic progression pattern (that is, derived TP), discrepancy still occurred. That is to say, scholars used a larger percentage of derived thematic progression, as compared to students (i.e., 68% versus 63%), while students used a larger proportion of linear TP and constant TP (i.e., 25% versus 22% for linear TP, and 12% versus 9% for constant TP). Therefore, this finding from the current study may suggest that the two groups of writers have different thinking patterns when constructing their texts. If we assume that the development of thematic progression is in line with analytical thinking development, a novice writer should start their texts from the simplest thematic progression, constant TP (repetition of themes), then move to linear TP (the rheme from the previous sentence becomes a theme of the sentence), and then finally be able to use derived TP (themes and rhemes are under the same hypertheme) as their thinking process becomes more complex in terms of analytical ability. In turn, this type

of analytical thinking should result in their ability to write more complex sentence structures using derived TP. This idea of thematic progression development is in line with Halliday's (2004) claim that a child (less competent language user) produces a number of paratactic forms of the sentence, and syntactic structures are produced more when his/her cognitive processes develop. In other words, novice writers tend to produce simpler, paratactic sentence structure, while competent users tend to produce more complicated, syntactic structures in the texts. Therefore, student writers' production that contains a number of constant TP and linear TP may be regarded as an immature form in academic writing. Their thinking in language is additive, which is revealed in their use of constant or linear progression patterns. Less competent writer's realization of less complex, simple, additive forms of thematic progression is also supported by the study of Patanasorn (2010), which found that undergraduate EFL writers tend to overuse additive connectors while they underuse adversative connectors in their writing.

Based on this finding, the thought processes, and the semantics of construing these thoughts in argumentation, need to be emphasized in a writing instruction. That is, more analytical mapping of semantic of the argument, i.e., the functions of paratactic and syntactic structures reflected in analytical thinking, should be emphasized in the curriculum. Students need to think syntactically (that is, analytically), and not in a linear way. For example, a writing teacher may help students to analyze, interpret, or evaluate the argument based on its thematic progression.

5.2 CULTURAL PERSPECTIVE

In this section, I will focus on the influence of culture on thinking processes and how this cultural influence may affect language production. The idea that culture profoundly influences the contents of thought through shared knowledge structures has been a central theme in modern cognitive anthropology. Psychology has provided a set of concepts that are useful for describing these knowledge structures. The term “schema”, for example, refers to knowledge structures that govern thought by selective attention, retention, and use of information about a particular aspect of the world. Built into a schema is the specification of how its parts relate to each other and to the whole (Nisbett & Norenzayan, 2002). Culture shapes human thoughts so people who have been raised in different cultures construe the world differently, and this difference is often reflected in different styles of language production (e.g., in the social practice of specific purposeful genre). The cultural perspective is important for EFL writing curriculum developers, researchers, and teachers because understanding different cultures in community discourse, they will be able to provide appropriate instruction that helps L2 writers recognize when their cultural perspective is facilitating or preventing them joining the international discourse community. Awareness of cultural differences in different discourse communities will help L2 writers produce the texts in their target academic communities. Three major key findings that are relevant to cultural perspective will be presented in the following section: (1) Student writers’ underuse of concessive connectors, (2) the case of *however* and (3) student writers’ underuse of derived thematic progression pattern.

5.2.1 Underuse of concessive connectors

As stated earlier, student writers underuse concessive connectors compared to their scholar writer counterparts. Moreover, none of the additional four connectors signifies concessive meaning.

According to this finding, it is possible to explain that student writers' use a wider range of connectors that signify contrastive and corrective meanings because student writers are not fully socialized into the field. They do not realize the argument structures of the target discourse community because they have never engaged in the target discourse community (e.g., health-related academic community). Therefore, they select less preferred linguistic tools to express their oppositional ideas. In addition, student writers do not know how to make concession when they do not know the person they are conceding to due to the fact that they lack experience in engaging with a specific audience in the community discourse. In other words, student writers cannot assume an expectation whether the audience shares any background knowledge expressed in their written texts. Therefore, concessive connectors, which function to signal counter-expectations to the reader, will be less likely to be selected for use in the texts. In contrast, scholar writers, the discourse community members, are very active in the field. They engage in the discourse in a role of contributor of the article and as a member of a scholarly community who knows the issues, concerns, and controversies. We can assume that before they contribute their article(s) to the journals, they have investigated the current issues and controversies surrounding the topic about which they write. Moreover, scholars who contribute their articles are usually well known in the field, and they may know each other because they may correspond on topics of mutual interest. As a result,

scholar writers are able to set an expectation with the audience and they know the current body of knowledge that the writer and the audience share. When the writer presents their argument, they are therefore able to estimate whether the audience shares background knowledge about their topic and can concede to those who may not agree with their points of view and signal counter expectations to their claims or to the arguments that have been forth by others.

Based on this finding, it is important that student writers, who are new to the field and to the discourse community, know their audience. They need to be more active in the field by attending conferences, joining the group of shared interest, or keeping updated with recent movements of the field. It is important to emphasize that only reading articles is not enough for students to feel engaged and know the field. They should have some interaction with scholars in the field so they can formulate an expectation in their arguments, and realize when counter expectations or challenges may arise.

5.2.2 The case of *however*

As stated in cognitive linguistic perspective, the connector *however* is the most frequently occurring connectors in the sample texts that were produced by both groups of writers. However, the embedded meaning of *however* may be different due to its different cultural pattern of making arguments.

Interestingly, both groups of writers preferred to use *however* to other oppositional connectors in the sample texts. That is, more than half of all connectors used in the sample texts are *however*. Therefore, it is important to investigate whether *however* was

used differently in terms of its semantic function between groups of writers. For example, as discussed under the cognitive linguistic perspective on the use of *however*, student writers still use *however* to express their contrastive idea, while scholars preferred to use *however* solely for concessive meaning. The segment (5.8) shows that student uses *however* to express a contrastive meaning, which functions differently from what is typically used as a concessive connector by a scholar in segment (5.9)

(5.8) a) *Streptococcus mutans* KPSK2 was inhibited by the essential oil of Hairy basil followed by Mint, Lemongrass, and Clove, subsequently. **However**, b) the essential oil of Plai and Guava didn't inhibit the growth of this microorganism. (DT-13)

(5.9) a) Metronidazole was initially thought to be equivalent to vancomycin. **However**, b) failures to respond to metronidazole have been more common recently, although not related clearly to metronidazole-resistant *C difficile*. (ART-99)

However, in terms of a cultural perspective, both groups of writers may intend to use *however* as a concession but their rationale beyond the function of concession may be different. That is, while scholar writers use *however* to make a concession with the audience, student writers use this connector to avoid direct confrontation in an argument. The use of *however* by scholar writers may be a convention in writing for publication that it allows the author to avoid taking full responsibility for his/her claim. Therefore, using *however*, which functions as a concession, implies that the writer takes a position about his/her argument while reserving the right that his/her argument may not be accepted by everyone as the absolute truth or that some counter-evidence has come to light (such as in 5.7). This convention may be different from the argumentation culture in the Thai context. That is, Thais significantly value a notion of “face deference”. Thais tend to avoid direct confrontation or any overt suggestion that difference of opinion may exist.

From this perspective, it is reasonable to assume that making counter-expectations and objections to one's own position visible to the reader in one's argument is avoided at all costs in writing. For example, although *however* was the most frequently used connector in student texts, the word *however* in students' texts functioned differently from those of scholars. Student writers used *however* to soften their arguments rather than to move them forward.

Based on this finding, although the two groups use *however* frequently, the use of *however* derives from different cultural practices. Therefore, student writers need to be aware that the function of *however* in scholars' texts is different from theirs. That is, scholars use *however* for concession, and not for the dispute-softening function as used by students. Student writers used this concessive connector solely for the purpose of avoiding confrontation. The cultural practice of avoiding direct confrontation may be transferred to their writing style in that Thai writers tends to use less-confrontational connotation connectors, as well as hedges in their argument. However, this claim is solely based on the researcher's intuition as a native speaker of Thai. Thus, future investigation for linguistic features to express concessive meaning (such as hedges, ineffectual phrases, and connectors) among Thai EFL writers would be of interest to see whether the rationale for the use of concession by Thai student writers is similar to that of scholars. To this end, it might be interesting to ask students their reasons for the use of this connector to see if cultural expectations about stating one's position relative to another may be at shaping the use of this linguistic resource.

5.2.3 The use of derived TP

The current study revealed that derived TP is the most frequently used progression pattern in the sample texts. The current finding, however, contrasts to the findings in Nwogu & Bloor's (1991) study of thematic progression in professional and popular medical texts. They found that the linear and constant TPs occur frequently in their data set. Moreover, the constant pattern dominated the development of the discourse in their sample set of research articles. Although Nwogu & Bloor's and the current studies were sampled on health-related written texts, these studies demonstrated a discrepancy. One possible explanation for the findings discrepancy may be because the sample texts in Nwogu & Bloor's study included journalistic reported version sources like scientific articles in *New Scientist*, *The Times*, and *Newsweek*. Therefore, the language used in such journals may be less-academically orientated in order to grab the attention of a more general audience which is not in the field of health science. The language pattern used in these journals also reflects their writing convention (i.e., genre-specificity in report writing). In contrast, the language, as well as the thematic progression pattern in the current data set was used in published and potentially publishable academic articles. Thus, the academic genre requires different patterns of thematic progression and it is obvious that derived thematic progression is preferred in the field of academic health science.

As a result, EFL writing curriculum developers, researchers, and teachers need to raise students' awareness of different writing cultures (i.e., genre). That is, particular type of thematic progression pattern is preferred over the others across genres. Therefore, EFL

writers need to learn what the argumentation conventions of the target community are so they can adjust their written texts appropriately for the community discourse. In addition, to analyze the writing culture in a target community discourse by using thematic progression pattern as an analytical framework will help students identify and learn to adjust their written production to accord with the target community effectively. Additionally, since a discrepancy in thematic progression patterns was found between Nwogu & Bloor's and the current studies, future research to examine thematic progression pattern in the health-related academic should be conducted. The finding from future studies will support EFL writing curriculum developers and teachers to help the learners achieve the target patterns in text production.

5.3 TEACHING AND INSTRUCTIONAL PERSPECTIVE

In this section, the findings will be discussed regarding teaching and instructional perspective. This section attempts to explain that an existing gap between students' and scholars' productions may be from current EFL academic writing instruction. That is, students' production has resulted in below acceptable standards of performance because of current pedagogical practice. Inadequate instruction in the use of the connectors may prevent L2 writers to access alternate linguistic tools for expressing arguments in their academic texts. For example, pedagogically-minded writers criticize the common practice in textbooks of presenting a variety of connectors grouped in boxes, categorized by a particular function, such as contrastive, but with an example provided for only one or two of the items (Shea, 2009). Therefore, modification of academic

writing instruction for L2 writer is essential so that the future pedagogy will provide more effective linguistic tools for L2 writer to produce better written texts.

Two major key findings that are relevant to the teaching and instructional perspective of the findings will be presented in the following section: (1) different numbers of connectors used in the texts, and (2) a wider range in the use of oppositional connectors among student writers.

5.3.1 Different numbers of connectors used in the texts

As stated earlier in the previous sections, from a corpus of 500,000 words, student writers used 34 more oppositional connectors than their counterparts. This findings also accords with previous studies investigating the use of connectors in L2 writers. They all found that L2 writers use more connectors in the texts compared to competent L2 of English, and native speakers of English (e.g., Milton & Tsang, 1993; Granger & Tyson, 1996; Altenberg & Tepper, 1998; Jin, 2000; and Chen, 2006). One possible explanation may be because L2 writers have limited tools for expressing their oppositional idea. This lack of linguistic tools may be the result of instruction that does not provide L2 writers with alternative tools of expressing their arguments. Since oppositional connectors are easy to retrieve and directly provide the function of opposition, L2 writers with limited sets of linguistic tools seem to prefer to use connectors in the texts. Overusing connectors in the texts will result in impeding the flow of the argument and making the text sound rather fragmented. Moreover, overusing connectors provides too many ideas that may not be linked coherently (Chen, 2006).

Student writers use a large number of connectors that connote contrastive and corrective meanings. This may be the result of L2 writing instruction. That is, EFL students have long been taught that direct argumentation is preferred in academic English (for example, avoiding using hedges in argumentation). This overstatement in EFL writing instruction for avoiding concessive meaning and hedging when presenting an argument may be viewed by student writers as a set of forbidden linguistic choices when making argumentation. Therefore, contrastive and corrective connectors tend to be preferred by students, and made their texts inappropriately blunt from the scholar's point of view. Wishnoff (2000) also supports this point that non-native English speaking students tend to express an opinion or a belief as if it were a statement of fact.

As a result, more training on connector usage is needed for L2 writers of all proficiency levels. In addition to raising students' awareness of their overuse of oppositional connectors, teachers also need to provide alternative linguistic tools for them so students will not repetitively rely solely on connectors to express their arguments. Alternative linguistic tools to express arguments include the use of negation, opposite adjectives, and antonyms.

5.3.2 Wider range in the use of oppositional connectors among student writers

As stated earlier, thirteen connectors were found in the health-related sample texts of student writers while nine were found from the scholars' corpus. The four additional connectors in students' texts included in turn (contrast), otherwise (correction), on the contrary (contrast), and at least (correction). For example,

(5.10) *Released renin converts the precursor of angiotensin, angiotensinogen, which is formed in the liver, to angiotensin I. **In turn**, angiotensin I is converted by a protein present in the vascular wall of the arterial vessels, angiotensin-converting enzyme, to angiotensin II. (RA-1: Contrast)*

(5.11) *Unlike ceftazidime, **however**, cefepime has good activity against most penicillin-resistant strains of streptococci, and it may be useful in treatment of Enterobacter infections. **Otherwise**, its clinical role is similar to that of third generation cephalosporins. (RA-16: Correction)*

From example (5.10) and (5.11) we found that student writers tend to use connectors that are more frequently found in oral discourse rather than in the written texts. This may be because EFL academic writing pedagogy does not provide sufficient information about the difference between written and spoken genre. This finding is also in line with previous studies (for example, Field & Oi, 1992; Milton & Tsang, 1993, and Chen, 2006), which found that students tend to overuse informal connectors that are used more often in speech. In formal academic writing, their use is not register-appropriate and should be avoided (Chen, 2006).

Based on this finding, future EFL academic writing pedagogy should distinguish differences between languages for interpersonal communication in talk and external devices for creating coherence in written academic texts.

5.4 CONTRIBUTION OF THE CURRENT STUDY AND EVIDENCE-BASED RECOMMENDATIONS FOR CURRICULUM AND INSTRUCTION

The discussion in this section will provide some relevant contributions of the current study to the field, followed by some recommendations for future studies. Key elements to be discussed in this section include: 1) analytical methodologies, 2) an introduction for

the use of thematic progression patterns in health-related academic texts, and 3) evidence-based recommendations for EFL academic writing curriculum and instructional development.

5.4.1 Analytical methodologies

In the current study, the researcher demonstrates his attempts to validate the findings by performing two analytical methods to fulfill the same set of research questions. That is, the first analytical method was designed to limit the numbers of segments contributed from each writer in order to control for intrapersonal bias (e.g., the same writer tends to use the same writing style, keeps repeating the same connectors, etc.). That is, if the current study did not control the number of segments contributed by each writers, one writer might contribute four times more the number of connectors over others, therefore skewing the data.

However, to control for one factor could be a trade-off that leads to the loss of control of another. By controlling the numbers of segments contributed by each writers, we found that a significant difference between groups of writers were not found because the segments found into the analysis stage were not different enough, in terms of number of segments, to yield any statistical differences. Therefore, the second analysis was proposed to complement any bias that might occur.

In the second analysis, we lose control of the number of segments contributed by each writer by aggregating the segments contributed from all writers in each group and instead set the maximum number of words that would be recruited. Five hundred

thousand words of the sample texts from each group were recruited. This method is conventional in corpus-based studies. We may lose control of the number of segments contributed by each writer but we can compare these two data sets from other perspectives. The per-1000 words comparison is a good example of this analysis because it offers a different number visibly and vividly for the readers to notice the differences in the use of particular features between groups of writers. However, as stated earlier, by picking only one method, we can gain one perspective but we also lose another. The two analyses in the current study show that they are complement with each other. Moreover, the similar finding also reassures us that the findings are valid regardless methods of analysis. Therefore, future corpus-based studies should use as many analyses as possible in order to obtain valid findings. Nevertheless, factors like the time, cost, and specific questions for investigation must also be considered so as to not overburden the researcher.

In addition to providing two analyses, the researcher has made an effort to push forward the current methods used in the field of corpus-based linguistics. Instead of just analyzing and comparing percentages, a convention in corpus-based studies, other statistical analyses were introduced (i.e., Analysis of Variance). The current study demonstrates that other statistical analyses are available for the field of corpus-based studies, and they also provide precise and promising findings for the field. Therefore, other statistical analyses are beneficial for the researcher, as long as that particular analysis fulfills the research question(s).

In sum, the researcher has demonstrated his effort to conduct two analyses, and introduce some promising statistical measures in order to validate the findings of the

study. It is evident that the analytical methods used in the current study are complementary to each other, and informs other researchers that these analyses are effective and beneficial to the field.

5.4.2 Evidence-based recommendation for curriculum and instruction

Introduction of thematic progression patterns

The current study has adopted the framework of thematic progression pattern, initially introduced by Daneš (1974), as a unit of analysis for an examination of academic writing in the field of health sciences. Not only does it offer an insight into the most frequently used thematic patterns (i.e., derived TP) for both groups of writers, it provides a perspective that has been overlooked in EFL writing curriculum development efforts. For example, student writers preferred to use fewer proportion of derived TP in contrast to published scholars (50% more). This finding reflects student writers' need for more mature argumentation skills. That is, argumentation needs analytical thinking ability expressed in syntactic logic. Therefore, it requires syntactically complex sentences (which are derived TPs), rather than the less mature paratactic structure of constant or linear TPs. Introducing the concept of thematic progression patterns to EFL writing classes may help students think more syntactically and analytical. This type of instruction in thematic progression patterns will also be potentially beneficial for them to interpret the texts written by other scholars in the field. It therefore facilitates both receptive (e.g., reading, comprehension) and productive (e.g., analytical writing and speaking) skills in

students. Moreover, deconstructing and analyzing texts for the thematic progression patterns of arguments will also benefit students for analyzing the thinking and writing conventions of the discourse community. Introducing thematic progression patterns in academic writing curricula will thus ultimately be useful for EFL students.

Cognitive-based approach in second language teaching

It is evident from the current study that an approach to teaching text construction based on principles of how language enacts particular communicative and cognitive functions is useful in the field of second language teaching. As stated earlier, cognitive linguists believe that language knowledge and learning are usage-based in that our knowledge of language is derived from and informed by language use (Littlemore, 2009). We use language in interactive settings, and we also use contextual cues to work out how writers or language users situate their knowledge in the use of language in their language production (e.g., spoken utterances, written texts, etc.). Therefore, one way to improve EFL students' language production is to enable students to understand how their thinking is reflected in their use of language during the production of texts and how language is used as tools of thought (Taylor, 2008). The framework of the current study, which was based on cognitive linguistic and a cognitive grammar perspectives, reveals how EFL student writers construe knowledge through their written texts. The findings in the current study also show that EFL students, even advanced groups, do not construe arguments and ideas in quite the same way as scholars. Cognitive-based instruction and teaching materials will help students attain a certain standard in their language production

that reflects ways of writing in the discourse community. For example, genre-based instruction is one promising cognitive-based approach, among others, that makes argument structure visible to student writers. Therefore, genre-based writing instructional development will be a promising next step of the current study.

Engagement in a discourse community

Because cognitive-based instruction emphasizes the use of language in interactive settings, students need to be active in the community so that they will learn how knowledge in the community is construed through the use of language. Interaction with the community is the key for actively engaging students with the discourse community. As a result, EFL teachers and institution should provide students occasions for students to be more active in the community and to work side-by-side with scholars. For example, providing extensive reading, advanced technology to facilitate community interaction (e.g., VDO conferences with scholars in the field), or funds for students to join international conferences will help them familiarize themselves with the discourse community. Un this way, they learn how to communicate their knowledge, research, and arguments in accordance with community discourse practices.

A corpus-based study

Corpus-based studies are critical to academic writing research. Not only do corpus-based studies provide authentic evidence of the actual usage of oppositional connectors and

thematic progression patterns by both groups of writers, they also serve as a resource for developing usage-based academic writing instruction. For example, academic writing teachers may start their instructional and curriculum development projects by gathering information regarding the area of overuse, misuse, and underuse of a particular feature. As suggested by Crompton (2006), the teacher is in the best position to decide which features are essential in the curriculum by using this information. For example, the current study found that L2 writers underuse concessive connectors, which are preferred in the field of health-related academic writing. Corpus concordances will be useful for L2 writers in the stage of instructional implementation because it provides students with accurate, broad, accessible, and sustained coverage of the actual texts that their target community produces and disseminates. Student writers, therefore, will benefit from the use of corpus concordances to reconstruct their own approaches to writing in the direction of particular domain-specific ways of expressing knowledge. With the help of teachers, they will be able to interpret, and eventually produce their own texts of the same genre for their academic community. Moreover, they can use the corpus as their companion reference for a particular linguistic feature, style, register, and genre.

5.5 CONCLUSION

Four major concepts have been discussed in this chapter. The first three sections discussed the findings of this study from the perspective of cognitive linguistic, cultural, and teaching practice. These sections provide key findings from the previous chapter and were discussed according to each perspective. For example, students' underuse of

concessive connectors and derived thematic progression pattern were discussed in terms of their difficulties in analyzing and presenting arguments in the discipline, limited access to the culture of the community and its ways of speaking and writing, and insufficient instruction on deconstructing the genre. Within the discussion of the key findings, some promising future research and curriculum development projects were recommended. The chapter ends with the contribution of the current study, including the key elements of analytical methods, the use of thematic progression pattern as a framework of the study, and evidence-based recommendations for EFL academic writing curriculum and instructional development. The ultimate goals of the current study are to provide evidence of linguistic difficulties of L2 writers to express their oppositional idea in their arguments and to recommend some plausible research, instructional practices, and curriculum development ideas. The researcher hopes that the current study provides some helpful insights to those who are interested in L2 academic writing research and instructional development and how the use of corpus-based studies informs our understanding of the performance of student writers and what they need to continue to make progress in their future careers.

APPENDIX

LIST OF CONJUNCTIVE ADVERBIALS BY CELCE-MURCIA AND LARSEN-FREEMAN (1999)

Additionally	Furthermore	Likewise
After all	However	Moreover
Also	In addition	Nevertheless
Alternatively	In any case/ event	On the contrary
As a result	Indeed	On the other hand
In contrast	In fact	Otherwise
Consequently	In other words	Rather
Conversely	In particular	Similarly
Despite that	In spite of that	Still
First second... finally	In sum	That is
For example/ instance	In turn	Therefore

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