Use of Adverbials in Discussion Sections of Research Articles in Thai and International Journals

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Article information	Abstract
	The purpose of this study was to compare the discussion sections of research articles in applied linguistics in Thai and international journals. The corpus consisted of 20 English research articles: 10 from Thai journals and 10 from international journals. The adverbials framework of Biber et al. (1999) was employed in this study. The study explained the different usage of adverbials in discussion sections of both corpora. The results show that most of the use of adverbials in research article discussion sections in Thai and international journals is similar. There are five adverbials which are different and influence the presentation of content in discussion sections. It is hoped that this study may help teachers to design writing courses for novice writers or undergraduate and postgraduate students in writing research article discussion sections to publish in an international level.

INTRODUCTION

Research publication is a way for researchers to communicate and distribute their academic knowledge to people in their field (Swales, 1990, 2004). The place of research publication can help authors reach a wider audience. Therefore, the place of publication – international journal or national journal – can be a de facto key indicator of quality of research articles. International journals may have a stricter policy to select a paper, and the quality of writing may have an effect on paper selection. Therefore, this study started with an aim of comparing research articles published in international journals and Thai national journals to see if their writing quality is similar or different.

Research articles usually consist of four main sections which are introduction, method, results, and discussion, or IMRD (Swales, 1981). Each section offers different communicative purposes. The introduction aims to present the reasons for conducting research by providing general information leading to the specific investigated issue and drawing readers' attention to the topic. The methods section explains the research methodology, data, and approach. The results section describes the findings along with their descriptions. The discussion section expresses the interpretation of the results (Swales and Feak, 2012).

Among the four sections, the discussion section is the most challenging section to write for English native and non-native researchers (Bardi, 2015; Bitchener & Basturkmen, 2006; Swales, 2004). This is because in this section, authors must present their own opinions towards their study. Therefore, the current study was scoped down to the discussion section.

As the main communicative purpose of a research discussion is for authors to discuss their ideas and interpretations, they may need several writing techniques to produce a reasonable discussion, for example, hedging, elaborating upon and supporting their claims. Use of adverbials can affect the quality of discussion sections, so the use of adverbials can be considered essential and thus worth studying. From the abovementioned, this study aims to investigate the use of adverbials in the discussion sections of research articles published in international and Thai national journals.

LITERATURE REVIEW

Defining adverbials

An adverbial is a constituent of a clause that may appear in various forms such as a single adverb, an adverb phrase, a single noun, a noun phrase, a prepositional phrase, a finite clause, and a non-finite clause (Biber et al., 1999; Quirk et al., 1985). The distinction between adverbs and adverbials can sometimes be confusing as an adverb can sometimes act as an adverbial. However, they can be distinguished by their syntactic functions. An adverbial serves as a clause element that provides additional information to the clause it is attached to, while an adverb serves as a modifier of an adjective, an adverb, and a verb (Quirk et al., 1985). In this study, all forms of adverbials will be considered. This means adverbial phrases, adverbs that describe the whole clause, will be included.

Classifications of adverbials

Adverbials can be divided into four main categories based on grammatical functions, namely, adjuncts, subjuncts, disjuncts and conjuncts (Quirk et al., 1985). Apart from Quirk et al. (1985), Biber et al. (1999) designates adverbials into three main categories, namely, circumstance adverbials, stance adverbials and linking adverbials. Circumstance adverbials are used "to add circumstantial information about the proposition in the clause" (Biber et al., 1999, p.762). Stance adverbials are used "to express speaker/writer stance towards the clause" (Biber et al., 1999, p.762). Linking adverbials are used "to link the clause (or some part of it) to some other unit of discourse" (Biber et al., 1999, p.762). It can be concluded that circumstance adverbials are similar to adjuncts, stance adverbials are similar to disjuncts, and linking adverbials are similar to conjuncts (Lenker, 2010).

Conceptual framework

The two well-known frameworks (Quirk, 1989; Biber et al., 1999) are similar to some extent. Since Biber et al. (1999)'s framework is more up-to-date and has been derived from empirical

studies of large corpora, including academic papers, this study applies Biber's framework for its analysis. Detailed classification and description of different types of adverbials based on Biber et al. (1999) together with a coding scheme used in this study are presented in the following table:

Table 1
Classification of adverbials

Circumstance adverbials

Categories	Subcategories	Codes	Descriptions	Examples
a. Place (conveys distance, direction, or position)	1. Distance	Ca1	typically answers the question 'How far?', and includes both general descriptions of distance and specific measurements	*a long way, some miles, 50 feet*
	2. Direction	Ca2	describes the pathway of an action	*from here*
	3. Position	Ca3	occurs most often with stative verbs	*in the field, as shown in Example 8*
b. Time (conveys four time-related meanings)	1. Position in time	Cb1	tells when an event takes place	*when ending the discussion sections, when the reader sees the slogan*
	2. Duration	Cb2	describes how long an event lasts	*over an extended time period, during the interviews*
	3. Frequency	Cb3	describes how often an event occurs	*usually, rarely, normally*
	4. Temporal relationship	Cb4	conveys relationship between two events/states	*after the workshops, while they were studying*
c. Process (covers a wide range of semantic roles and is a less unified group than place or time adverbials)	1. Manner	Cc1	describes the way in which something is done	*point by point, extensively, based on explicit criteria*
	2. Means	Cc2	tells the means by which an activity or state is accomplished	*by focusing on the frequency of occurrence, through the internet*
	3. Instrument	Cc3	describes the item used to undertake a task	*with ICC, through learning materials in classroom*
	4. Agentive	Cc4	specifies the agent of an action and is used with passive constructions	*by one participant's (T10) response during the interview, by Grabe's (2009) assertion*
d. Contingency (shows how one event or state is contingent upon another, including cause, reason, purpose, concession, condition, and result)	1. Cause/reason	Cd1	answers the question 'Why?'	*because, due to, as, so*
	2. Purpose	Cd2	can be paraphrased as 'for the purpose of'	*to further investigate or study closely particular areas*
	3. Concessive	Cd3	expresses material that runs counter to the proposition of the rest of the clause or, in the case of adverbials realized as clauses, counter to the proposition in the main clause	*although, whereas, but, while*

Categories	Subcategories	Codes	Descriptions	Examples
	4. Conditional	Cd4	expresses the conditions which hold on the proposition of the main clause, including both positive and negative conditions	*when being asked how they would integrate ICC into their teaching*
	5. Result	Cd5	tells the results of the events described in the rest of the clause or in the main clause	*showing 10 percent of occurrences, providing distraction and relief*
e. Extent/degree	-	Ce	tells the extent to which a proposition holds, answers questions such as 'How much/many?' and 'To what extent?'	*nearly, partly, mostly*
f. Additive/ restrictive	-	Cf	shows a current proposition is being added to a previous one emphasizes that the proposition is true in a way which expressly excludes some other possibilities	*also, especially, only, in particular*
g. Recipient	-	Cg	identifies the target of an action	*for lust, giant teeth, and heat line upfixes*

Stance adverbials

Categories	Subcategories	Codes	Descriptions	Examples
a. Epistemic stance (focuses on the true value of the proposition, commenting on factors such as certainty, reality, sources, limitations, and precision of the proposition)	1. Doubt and certainty	Sa1	shows the speaker's certainty or doubt about the proposition in the clause	*of course, likely, perhaps, probably, possibly*
	2. Actuality and reality	Sa2	comments on the status of the proposition as real-life fact	*actually, in fact, really, indeed*
	3. Source of knowledge	Sa3	shows the source of the information reported in the associated proposition	*as has been proposed in broad descriptions of shonen and shojo manga, in terms of skills*
	4. Limitation	Sa4	marks the limitation of the proposition	*generally*
	5. Viewpoint or perspective	Sa5	marks the viewpoint or perspective from which the proposition is true	*in the researcher's view, according to the participants*
	6. Imprecise	Sa6	shows that the proposition being conveyed is somehow imprecise	*somewhat, to some extent*
b. Attitude	-	Sb	tells the writer's or speaker's attitude toward the proposition typically conveying an evaluation, value judgment, or assessment of expectations	*it is not sensible, it is noteworthy that*
c. Style stance	-	Sc	conveys a speaker's comment on the style or form of the utterance, often clarifying how the speaker is speaking or how the utterance should be understood	*honestly, quite frankly, more simply put, confidentially*

Linking adverbials

Categories	Subcategories	Codes	Descriptions	Examples
a. Enumeration and addition	-	La	can be used for the enumeration of pieces of information in an order chosen by the speaker/writer and for the addition of items of discourse to one another	*First, Second, In addition, Also*
b. Summation	-	Lb	shows a unit of discourse intended to conclude or sum up the information in the preceding discourse	*basically, overall, all in all*
c. Apposition	-	Lc	shows the second unit of text to be treated either as equivalent to or included in the preceding unit	*specifically, for example, accordingly, such as*
d. Result/inference	-	Ld	shows the second unit of discourse stating the result or consequence—either logical or practical—of the preceding discourse	*thus, therefore*
e. Contrast/ concession	-	Le	marks incompatibility between items of information in different discourse units, or that signal concessive relationships	*on the other hand, however, conversely, nevertheless, instead, besides*
f. Transition	-	Lf	marks the transition to another, usually tangential topic	*as for reading skills, meanwhile*

Previous studies on adverbials

Different types of adverbials have been studied to explore the use of adverbials in written discourse of non-native speakers of English. The use of conjunctive adverbials in English essay writing of postgraduate learners with different academic backgrounds was studied by An and Xu (2018). They applied AntConc to analyze the texts, and Celce-Murcia and Larsen-Freeman's taxonomy of conjunctions (1999) was applied to investigate the use of conjunctive adverbials. The results show that two types of conjunctives (additive and sequential) are most frequently used, while adversative conjunctive and causal adverbials are least frequently used.

Furthermore, there are two comparative studies of academic writing of non-native English speakers. Appel and Szeib (2018) compared the use of linking adverbials in English academic essays of authors from three different first languages (Arabic, Chinese, and French). All essays were carefully read to analyze linking adverbials. The results showed that the three different first language backgrounds overused different types of linking adverbials. Arabic writers overused additive linking adverbials, Chinese writers overused contrastive linking adverbials, and French writers overused appositional linking adverbials. Azhar and Mehmood (2018) compared the use of stance adverbials across three disciplinary fields – humanities, social sciences and sciences – in research dissertations of Pakistani university students. They used the theoretical framework of Biber et al. (1999) in analyzing stance adverbials. The results suggested that among the three disciplines in Pakistani academic writings, the most frequently

found adverbial is style adverbials followed by epistemic adverbials, and the least frequently found adverbial is attitude stance.

Although most studies have focused on written discourse, there is a study which investigated adverbials in both written and spoken discourse. Yin (2016) developed a new system of linking adverbials based on semantic and pragmatic meaning. Five registers — written academic prose, academic lectures, written news, broadcast news and conversation — from the Wellington Corpora of Spoken and Written New Zealand English (WSC and WWC) in the 1990s were analyzed. The meaning categories which are common among the four grammar books of Biber et al. (1999), Quirk et al. (1985), Huddleston and Pullum (2002), and Carter and McCarthy (2006) were used as the base meaning categories and to investigate linking adverbials. The data was stored and coded by NVIVO 9 software. It was found that there were 21 meaning categories of linking adverbials: Adversative, Addition, Result, Listing, Condition, Logical consequence, Alternative, Opposite, Conclusion, Signal of evidence, Exemplification, Explanation, Comparison, Summation, Initiating a topic, Restatement, Transition, Marker of continuation, Signal of returning to the main thread, and Similarity and Formulaic ending.

In sum, previous research on adverbials has largely focused on some types of adverbials in written discourse from non-native English speakers. The results from these studies indicate that not all types of adverbials were studied, and there was no comparative study of discussion sections in Thai and international journals. Since the current study focuses on discussion sections, the following part will present previous research regarding discussion sections.

Previous studies on research discussion sections

The discussion sections in research articles of international journals and national journals have been comparatively studied by many scholars (e.g., Alharbi, 2016; Sheldon, 2019; Sithlaothavorn & Trakulkasemsuk, 2016). Alharbi (2016) compared the schematic structure of the English discussion sections in British and Saudi dental journals. He used the framework of Basturkmen (2012), and Yang and Allison (2013). The results of this study note that the researchers in both corpora similarly used rhetorical moves pertinent in accomplishing the communicative function of discussion sections.

Also, there is a comparative study between the discussion sections in Thai and international journals. Sithlaothavorn and Trakulkasemsuk (2016) explored the rhetorical moves and the similarities and differences between the research article discussion sections of Thai and international journals of language learning and communication. This study adapted and developed the framework of Jalilifar et al. (2012), and Amnuai and Wannaruk (2013) to analyze data. The findings show that the rhetorical moves in research article discussion sections of Thai and international journals are similar. In Thai corpora, there are two obligatory moves (Move 2 Revisiting results and Move 4 Comparing results with literature) and three conventional moves (Move 1 Background information, Move 3 Interpreting results and Move 5 Accounting for results). In international corpora, there are two obligatory moves (Move 3 Interpreting results and Move 4 Comparing results with literature) and three conventional moves (Move 1 Background information, Move 2 Revisiting results, and Move 5 Accounting for results). In

both corpora, there are six optional moves (Move 6 Summarizing the current study, Move 7 Indicating limitations, Move 8 Indicating significance, Move 9 Evaluating methodology, Move 10 Recommendations for further research and Move 11 Drawing pedagogical implication).

Besides the comparative study of international and national journals, Sheldon (2019) examined genre and moves of discussion/conclusion sections written by English L1, English L2 and Spanish L1 writers in applied linguistics research articles. The author applied the move analysis of Hopkins and Dudley-Evans (1988), Kanoksilapatham (2015), and Swales and Feak (1994). The study found that Move 1 (Stating the focus of the study) is conventional for Spanish L1 writers and optional for English L1 and L2 writers. Move 2 (Stating selected findings) and Move 3 (Making overt claims and generalizations) are obligatory for the three groups of writers. Move 4 (Recommendations for practical application) is conventional for English L1 writers and optional for Spanish L1 and English L2 writers. Move 5 (Exemplifying) and Move 6 (Limitations of the study) are optional for the three groups of writers. Move 7 (Further research suggested) is conventional for English L1 writers and optional for Spanish L1 and English L2 writers.

Nonetheless, some researchers have focused on discussion sections of international journals (e.g., Amnuai, 2017; Dobakhti, 2016). Amnuai (2017) studied move analysis in English discussion sections of the accounting field. Yang and Allison's (2003) move model was used in the analysis. The findings presented that there are seven moves in the accounting discussion sections. There were two obligatory moves — Move 2 (Reporting results) and Move 4 (Commenting on results), two conventional moves — Move 1 (Background information) and Move 7 (Deductions from the research), and three optional moves — Move 3 (Summarizing results), Move 5 (Summarizing the study), and Move 6 (Evaluating the study).

Additionally, focusing on move analysis in the discussion sections of international journals, Dobakhti (2016) developed a move structure description of discussion sections of qualitative research articles in applied linguistics and proposed the patterns and options. The move structure model of Swales (1990, 2004) was used in discussion section analysis. There are 11 moves found from 15 applied linguistics discussion sections. They are Move 1 (Reporting findings), Move 2 (Referring to data to provide evidence for findings), Move 3 (Commenting on findings), Move 4 (Supporting the explanation/interpretation/evaluation/rejected explanation), Move 5 (Comparing findings with literature), Move 6 (Referring to data to provide evidence for inconsistency of findings with literature), Move 7 (Recommendation for practice), Move 8 (Deduction), Move 9 (Providing information), Move 10 (Stating limitations) and Move 11 (Recommending further research).

From reviewing these previous studies, although there are many comparative studies of the discussion sections in international and national journals, there is only one study which focuses on the discussion sections in Thai and international journals. In addition, the approach in studying the discussion sections in Thai and international journals of the previous research is not focused upon adverbials. Thus, the use of adverbials of the discussion sections of research articles in Thai and international journals may have thus far evaded study. To fill this gap, this present study will focus on the use of adverbials in the discussion section of research articles in Thai and international journals. The main research question of this study is as follows:

Research question

Are there any similarities or differences between the use of adverbials in discussion sections in Thai and international journals?

METHODOLOGY

The data

Two corpora of discussion sections in research articles published in international journals and Thai national journals were compiled and named as 'international journals' and 'Thai journals'. Each corpus consists of 10 discussion sections from 10 different research articles. All the articles were selected from journals in the field of applied linguistics published between 2016 and 2017. Furthermore, there were criteria for the selection of articles. First, to conform with conventional research articles and identification of the discussion sections, only articles including IMRD sections were considered. Second, they were published in journals listed in an accredited database, Journal Citation Reports, and consideration was given to their impact factor for the year 2017 for international journals, and the Thai-Journal Citation Index (TCI) for Thai national journals. Third, the length of the discussion sections ranged from 800 to 1,000 words. See Appendix for information of the selected articles.

Data analysis

To facilitate the analysis, the discussion sections in Thai and international journals were turned into text files. Then, sentences were separated into lines. Adverbials were manually identified then classified and coded for their types (see Table 1 above).

To confirm the coding reliability before the next stage of data analysis, 20 percent of the research articles, four research articles (two from each corpus), were coded by an intercoder. The intercoder was a university lecturer and had experience in doing research on move analysis. After comparing and discussing the coding results with the intercoder, the reliability coefficiency scores were calculated (0.84 for Thai discussion sections and 0.87 for international discussion sections). The scores confirm that the coding was highly reliable.

The frequencies of occurrence of each type of adverbial in the two corpora were manually counted. Then, a chi-square test was applied to compare the frequencies. As a result, significant types of adverbials frequently used in discussion sections in Thai and international journals could be identified. Thenceforth, three significant adverbials (circumstance position adverbials, circumstance additive/restrictive adverbials, and epistemic stance adverbials of source of knowledge) were divided into subcategories for further analysis.

FINDINGS

From 33 types of adverbials, 30 adverbials were found in Thai discussion sections (TD) and international discussion sections (ID). In identifying discussion sections, Thai discussion sections were codified as TD01-TD10, and international discussion sections were codified as ID01-ID10. Table 2 below lists all the adverbials found with their statistical information. From the results of the chi-square test, only five types of adverbials were found to be significant in their frequencies of occurrence in the two corpora (χ^2 < 3.84, p < 0.05). They are circumstance position adverbials, circumstance additive/restrictive adverbials, circumstance recipient adverbials, epistemic stance adverbials of source of knowledge, and linking summation adverbials. The five significant types of adverbials would then be further explored and discussed.

Table 2
Results of Chi-square test

Adverbials	Thai observed frequency	International observed frequency	Thai expected frequency[1]	International expected frequency	χ^2
Circumstance adverbials					
a. Place					
1. Distance	-	-	-	-	-
2. Direction	-	-	-	-	-
3. Circumstance position*	59	31	46.79	43.21	*6.64*
b. Time					
1. Position in Time	7	4	5.72	5.28	0.6
2. Duration	2	1	1.56	1.44	0.26
3. Frequency	4	-	2.08	1.92	3.69
4. Temporal relationship	4	5	4.68	4.32	0.21
c. Process					
1. Manner	12	16	14.56	13.44	0.93
2. Means	12	20	11.44	10.56	2.69
3. Instrument	3	1	2.08	1.92	0.85
4. Agentive	6	7	6.76	6.24	0.18
d. Contingency					
1. Cause/Reason	23	23	23.91	22.09	0.07
2. Purpose	18	10	14.56	13.44	1.7
3. Concessive	30	30	31.19	28.81	0.09
4. Conditional	10	11	10.92	10.08	0.16
5. Result	4	8	6.24	5.76	1.67
e. Extent/degree	2	2	2.08	1.92	0.01
f. Additive/restrictive*	20	36	29.11	26.89	*5.94*
g. Recipient*	2	8	5.20	4.80	*4.1*

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[1] The observed frequency is acquired from real observations, whereas expected frequency is acquired from a calculated value of the following formula: E= (O) x (number of samples)
                                                                                                                                                                                    (total number of samples)

Adverbials	Thai observed frequency	International observed frequency	Thai expected frequency[1]	International expected frequency	χ^2
Stance adverbials					
a. Epistemic stance					
1. Doubt and certainty	14	10	12.48	11.52	0.39
2. Actuality and reality	5	7	6.24	5.76	0.51
3. Source of knowledge*	43	24	34.83	32.17	*3.99*
4. Limitation	-	1	0.52	0.48	1.08
5. Viewpoint or perspective	5	2	3.64	3.36	1.06
6. Imprecise	2	-	1.09	0.96	1.85
b. Attitude	7	10	8.84	8.16	0.8
c. Style stance	-	-	-	-	-
Linking adverbials					
a. Enumeration	43	44	45.23	41.77	0.23
b. Summation*	3	11	7.28	6.72	*5.24*
c. Apposition	40	34	38.47	35.53	0.13
d. Result/inference	25	27	27.03	24.97	0.32
e. Contrast/concession	35	26	31.71	29.29	0.71
f. Transition	5	2	3.64	3.36	1.06

Note: * = significant at $p < 0.05$, cut off point $\chi^2 < 3.84$

1. Circumstance position adverbials

Circumstance position adverbials are used to tell where an event happens. From Table 2, it can be interpreted that this type of adverbial occurred significantly more often in the Thai journals than in the international journals. Circumstance position adverbials can be further divided into three subcategories, namely, internal, external and physical place.

Internal circumstance position adverbials refer to a place of information within the paper.
>   e.g.   "The last point to discuss **here** is the pattern in ordering move." (TD01)

External circumstance position adverbials refer to information from external sources.
>   e.g.   "On the other hand, most authors try to give reasons for some interesting or unexpected results **in their studies**." (TD01)

Physical place circumstance position adverbials refer to any physical locations.
>   e.g.   "These are basic skills that can be used both **in classrooms and at work**." (TD05)

From Figure 1 below, the distributions of the subcategories show that the functions of circumstance position adverbials in the Thai and international journal discussion sections are similar. In the discussion sections of the Thai and international journal articles, internal links are mostly used, external links are used less often, and physical places are used only when necessary. Physical place is frequently used in international discussion sections because international journal articles are expected to have in-depth discussion sections. To write

in-depth discussion sections, international journal authors must provide a physical place to link the experience in conducting research to discussion sections. This is in contrast to Thai journal authors, who might focus on supporting their discussion sections by referring to different sources, so physical place might be less frequently used.
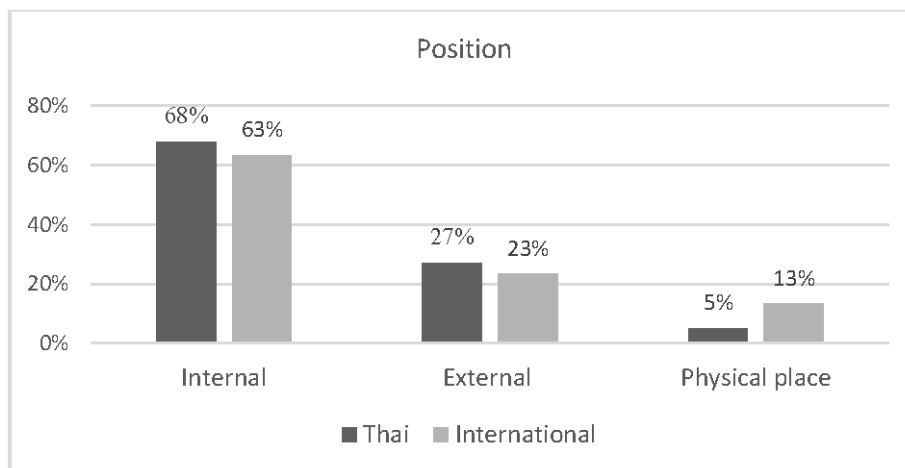

Figure 1 Circumstance position adverbials

2. Circumstance additive/restrictive adverbials

Circumstance additive adverbials show a statement connected to a preceding sentence (Biber et al., 1999).

> **e.g.** "The study utilized self-report measures, ***meaning that participants' own level of insight and biases might influence the results***." (ID01)

Circumstance restrictive adverbials emphasize that "the idea in the clause is limited in some way" (Biber et al., 2002, p. 366).

> **e.g.** "***Focusing only on the body***, the data makes clear that the problem move and the response move were supported by a high number of move features." (TD08)

As shown in Table 2, circumstance additive/restrictive adverbials were used significantly more in the discussion sections of international journal articles than in Thai journal articles. The general usage and distribution in this category are different between the two groups of researchers. From Figure 2, international journal authors used additive adverbials more often than Thai journal authors to support and explain the results in depth. Conversely, Thai researchers used more circumstance restrictive adverbials, which usually integrates the restrictive, diminishing and hedging functions of adverbials (Zareva, 2009), to restrict and discuss the limitations of their results. Since the discussion section is a section in which the authors can express their opinion freely, international journal authors might use additive adverbials to add information, comment and strengthen arguments, while Thais usually make arguments with strong supports of reference, and they might use restrictive adverbials to limit their own opinion and arguments.
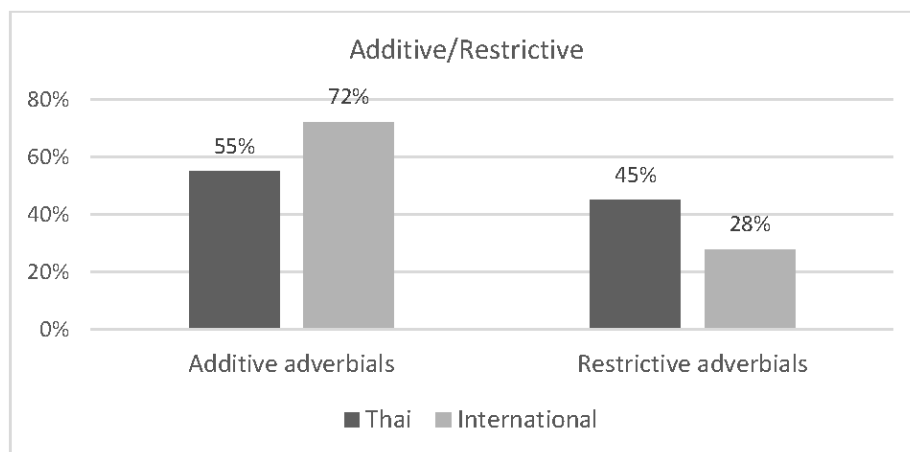
Figure 2 Circumstance additive/restrictive adverbials

3. Circumstance recipient adverbials

Circumstance recipient adverbials determine the result of an activity (Biber et al., 1999).

> **e.g.** "The current research has several important contributions ***to the hospitality literature***." (ID10)

As seen in Table 2, although Thai journal authors and international journal authors used this kind of adverbial to refer to people, actions and objects, international journal authors used this adverbial more often than Thai writers. It can be implied that international discussion sections prioritize clarity regarding the objective of results, while Thai discussion sections are not as clear in terms of the recipients of results. Because this kind of adverbial was found least, it can be implied that the purpose of the discussion section is presenting the authors' opinion and making an argument; thus, referring to recipients might be found least in this section. Because international journals require in-depth discussion sections, international journal authors might frequently use this kind of adverbial. Conversely, discussion sections in Thai journals might not be as in-depth, so they may tend to provide little information regarding the recipients.

4. Epistemic stance adverbials of source of knowledge

Epistemic stance adverbials of source of knowledge show the reference of the information described in the same sentence (Biber et al., 1999).

> **e.g.** "***Recalling the definitions given by Whittier (1958), Leech (1972), and Ke and Wang (2013)***, slogans must be concise, catchy and memorable." (TD03)

Thai journal authors used epistemic stance adverbials of source of knowledge significantly more often than international journal authors, as shown in Table 2. This kind of adverbial is classified into internal source of knowledge and external source of knowledge. Internal source of knowledge means the adverbials which refer to a source of knowledge inside a study, and external source of knowledge means the adverbials which refer to a source of knowledge

outside a study. It is interesting that in the two corpora, the usage of this adverbial is contrasting. Thai journal authors deploy internal source of knowledge more often than external source of knowledge. International journal authors equally deploy internal and external source of knowledge. International journal authors refer to internal source of knowledge to create cohesion in the papers and external source of knowledge to support and discuss results. Although Thai journal authors use internal and external source of knowledge for the same purpose as international journal authors, they are likely to link to the source within the paper more often than referring to an external source. Thai journal authors may prefer to make arguments with the strong support of an external source of knowledge. If they cannot find an external source which is strongly consistent with their argument, they might not make the argument or refer to the source.
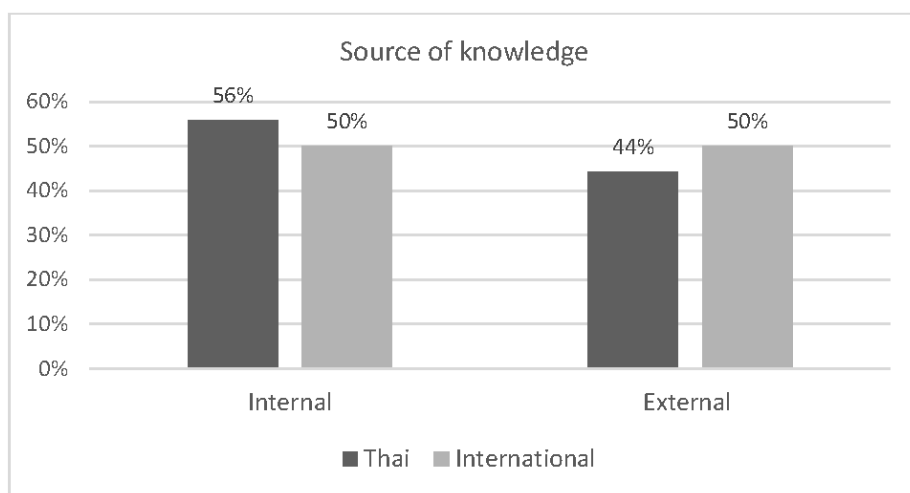

Figure 3 Epistemic stance adverbials of source of knowledge

5. Linking summation adverbials

Linking summation adverbials signal a sentence which summarizes the information of previous sentences (Biber et al., 1999).

> **e.g.** "***Overall***, these results provide support for the notion that aspects of authenticity may be related to humor styles." (ID01)

Linking summation adverbials are significantly more often used in international discussion sections than Thai as seen in Table 2. It can be implied that international writers report each result and support with conclusion to facilitate readers' understanding, while Thai writers usually report results with less summarizing.

DISCUSSION

The purpose of this study is to analyze the adverbial deployment in discussion sections of applied linguistics research articles in Thai and international journals. We assumed that discussion sections in international journals are different in style and higher in quality than those of Thai journals (Jaroongkongdach, et al., 2012). There might be some differences between these two corpora. After analyzing adverbials in the discussion sections in Thai and international journals, we found five significantly different subcategories of adverbials: circumstance position adverbials, circumstance additive/restrictive adverbials, circumstance recipient adverbials, epistemic stance adverbials of source of knowledge, and linking summation adverbials. The findings of adverbials in this study reveal that the use of adverbials of both Thai and international authors is grammatically correct, but their use in terms of frequencies of different types of the adverbials indicates different use of adverbials when discussing the results.

Circumstance position adverbials and epistemic stance adverbials of source of knowledge are used significantly more often in Thai discussion sections. The authors of Thai journals used more circumstance position adverbials and epistemic stance adverbials of source of knowledge, potentially because they felt comfortable in expressing their opinions with solid supports. In other words, it could imply that discussion sections in Thai journals usually provide a summary of the research findings and discuss the similarities and differences of findings from previous studies. Moreover, Thai journal authors may prefer not to make arguments or criticize others' studies in their discussion sections for three reasons: Firstly, there might be some factors influencing the English writing of Thai journal authors (Amnuai & Wannaruk, 2003; Kanoksilapatham, 2007). These scholars assumed that some Thai cultural traits such as modesty and humility could influence the English writing of Thai authors. That is to say, Thai culture influences the use of adverbials in Thai authors' making of arguments. Secondly, since readers of Thai journals are in Thai settings, making arguments and criticizing others' studies may not be as desirable. Therefore, Thai journal authors might use these adverbials only to conform to the norms and conventions in line with readers' expectations. Thirdly, there might be less publication requirements in Thai journals (Sithlaothavorn & Trakulkasemsuk, 2016). It can be implied that authors of Thai journals have relatively little academic experience. As a result, they may not confidently state strong arguments and critiques.

Circumstance additive/restrictive adverbials, circumstance recipient adverbials and linking summation adverbials are used significantly more often in international discussion sections. It might be for three reasons: Firstly, the authors of international journals might have a different view on qualities of the discussion section. They would view the discussion section as a place to show their opinion, so they usually express their viewpoint, build credibility and support, and argue their claims (Basturkmen, 2012; Holmes, 1997; Peacock, 2002; Yang & Allison, 2003). Thus, circumstance additive/restrictive adverbials, circumstance recipient adverbials and linking summation adverbials were found significantly more often. Secondly, publication requirements of international journals may be more rigorous than those of Thai journals. Thus, authors who can publish in international journals probably have more academic experience. Thirdly, readers of international journals may expect to see authors' opinions and strong arguments. Consequently, authors in international journals use these adverbials in order to meet readers' expectations

and conform with the norms and conventions of publication requirements of international journals.

Accordingly, it is recommended that authors wanting to publish their research in Thai or international journals be aware of the requirements, expectations, and conventions of the given discourse community. For example, if authors would like to publish their research articles in international journals, making strong, convincing arguments with proper rationale, sharing the experience in conducting research and summarizing the results might be key points for consideration in writing a discussion section.

Findings from this study demonstrate that expectations of discussion sections in Thai and international journals are different. Given that publishing in international journals is an indicator of career advancement of academic researchers, one should be aware of the different usages of adverbials in writing a discussion. Without clear and strong arguments, discussion sections in Thai journals might be considered bland and superficial. Therefore, researchers wishing to publish their papers in high-quality international journals may need to pay heightened attention to making arguments.

In sum, the findings of this study show that the use of adverbials in discussion sections in Thai and international journals reflects different styles of writing. To be published in international journals, Thai writers should adjust their use of adverbials, with one important consideration being their manner of presenting their argument. As Sheldon (2011) notes, writers need to adjust their writing styles to broaden their potential base of readers and accommodate international contexts. In publishing research articles of international journals, one of the most important sections is the discussion section. Flowerdew (2001) points out that the introduction and discussion sections of research articles having improper organization, when written by non-native English-speaking writers, is a key factor of rejection in publishing. The outcome of the current study could raise the non-native English-speaking writers' awareness in employing adverbials in discussion sections and improve their chances in publishing their research articles in international journals. Another potential outcome of this study is that it could help instructors in designing a course to help inexperienced writers and undergraduate students get their work published at the international level.

LIMITATION

One limitation of this study is that the data, from 2016 and 2017, might be outdated and thus might not accurately reflect the use of adverbials in 2020. Another limitation of this study is that there are relatively few journals in the Thai-Journal Citation Index (TCI); thus, the research articles could not be selected based on a specific type of study. Therefore, further research could focus on the use of adverbials in specific types of studies.

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Appendix

Research articles published in Thai journals

TD01   Amnuai, W. (2017). The textual organization of the discussion sections of accounting research articles. *Kasetsart Journal of Social Sciences, 40*(2), 389-394.

TD02   Cheewasukthaworn, K. & Suwanarak, K. (2017). Exploring Thai EFL teachers' perceptions of how intercultural communicative competence is important for their students. *PASAA, 54*, 177-204.

TD03   Huadhom, M. & Trakulkasemsuk, W. (2017). Syntactic analysis of online tourism slogans: Frequency, forms and functions. *PASAA, 53*, 182-213.

TD04   Manachon, N. & Eamoraphan, S. (2017). A comparative study of attitudes toward English as a foreign language learning between upper secondary students in science-mathematics and arts-language programs at the demonstration school of Ramkhamhaeng University, Thailand, *SCHOLAR, 9*(1), 142-156.

TD05   Piamsai, C. (2017). An investigation of Thai learners' needs of English language use for intensive English course development. *PASAA PARITAT JOURNAL, 32*, 63-97.

TD06   Puagsang, N. & Intharaksa, U. (2017). Vocational students' use of vocabulary learning strategies. *PASAA PARITAT JOURNAL, 32*, 146-165.

TD07   Pul-A-Nan, J. (2016). The Study of Lexical Features in English Press Registers. *Vacana Journal, 4*(2), 56-73.

TD08   Ratanakul, S. (2017). A study of problem-solution discourse: Examining TED talks through the Lens of move analysis. *Language Education and Acquisition Research Network (LEARN) Journal, 10*(2), 25-46.

TD09   Sithlaothavorn, J. & Trakulkasemsuk, W. (2016). A Move Analysis of Research Discussion Section in English Articles Published in Thai and International Journals. *rEFLections, 21*, 24-46.

TD10   Tunskul, T. & Piamsai, C (2016). The English oral reading fluency test: Relationships to comprehension and test takers' Attitudes. *Language Education and Acquisition Research Network (LEARN) Journal, 9*(1), 25-44.

Research articles published in international journals

ID01   Barnett, D. M., & Deutsch, T. J. (2016). Humanism, authenticity, and humor: Being, being real, and being funny. *Personality and Individual Differences, 91*, 107-112.

ID02   Cohn, N., & Ehly, S. (2016). The vocabulary of manga: Visual morphology in dialects of Japanese visual language. *Journal of Pragmatics, 92*, 17-29.

ID03   Izquierdo, J., Martínez, G. V., Pulido, G. G. M., & Zúniga. A. P. S. (2016). First and target language use in public language education for young learners: Longitudinal evidence from Mexican secondary-school classrooms. *System, 61*, 20-30.

ID04   Llosa, L., & Malone, E. M. (2017). Student and instructor perceptions of writing tasks and performance on TOEFL iBT versus university writing courses. *Assessing Writing, 34*, 88-99.

ID05   Mitchell, D. T., & Pessoa, S. (2017). Scaffolding the writing development of the argument genre in history: the case of two novice writers. *Journal of English for Academic Purposes, 30*, 26-37.

ID06   Rekittke, L. (2017). Viewpoint and stance in gesture: How a potential taboo topic may influence gestural viewpoint in recounting films. *Journal of Pragmatics, 122*, 50-64.

ID07   Themistocleous, C. (2017). Dialect classification using vowel acoustic parameters. *Speech Communication, 92*, 13–22.

ID08   van Goch M. M., Verhoeven, L., & McQueen, M. J. (2017). Trainability in lexical specificity mediates between short-term memory and both vocabulary and rhyme awareness. *Learning and Individual Differences, 57*, 163-169.

ID09   Wang, W. (2017). Learner characteristics in an EAP thesis-writing class: Looking into students' responses to genre-based instruction and pedagogical tasks. *English for Specific Purposes, 47*, 52–60.

ID10   Wu, L., Shen, H., Fan, A., & Mattila, S. A. (2017), The impact of language style on consumers' reactions to online reviews. *Tourism Management, 59*, 590-596.