Move Analysis and Hedge Use in the Research Paper Abstracts of Thai EFL English-majored Undergraduates

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Article information	Abstract
	While much effort has been devoted to the analysis of moves and hedging devices in research articles and graduate-level dissertation abstracts, little work has been done on the research paper abstracts of Thai EFL English-majored undergraduates. This research aimed to analyze the move structure and use of hedges in each of the identified moves in 60 abstracts from Thai EFL undergraduate English-majored research papers. Pho's (2008) analytical framework was employed for move identification, and Wang's (2019) taxonomy was adopted for the analysis of hedges. The findings indicated the presence of three obligatory moves: Move 2 (Presenting the research), Move 3 (Describing the methodology), and Move 4 (Summarizing the findings). The dominant move sequence was Move 2 followed by Move 3 and then Move 4. In terms of hedges, it was found that hedging devices were employed in Move 2, Move 4, and Move 5. Modal verbs were the most frequently used hedging devices, followed by epistemic lexical verbs and epistemic adverbs, with epistemic adjectives appearing rarely. Notably, epistemic nouns were absent. This study provides a comprehensive understanding of how Thai EFL English-majored undergraduate students compose their research paper abstracts. Pedagogical implications for abstract writing are also discussed.

INTRODUCTION

One of the most significant elements of a research paper is its abstract. An abstract is considered the first screening section for readers to determine whether they should read the entire research paper (Fauzan et al., 2020; Li & Pramoolsook, 2015). It is the writer's job to convince readers to peruse the entire research paper by effectively presenting the research abstract to capture readers' attention (Wallwork, 2011) given that the abstract plays a key role in representing the entire research paper.

To compose an abstract, writers should understand the discourse patterns (Pho, 2008). Lorés (2004) pointed out that despite the salient linguistic similarities between an abstract and a complete research article, the rhetorical structure of an abstract differed from that of a complete research article. In a comparative study of the research abstracts in linguistics and educational technology, Pho (2008) revealed that while their rhetorical structures varied, the linguistic features within each identified move tended to be similar. Ventola (1994) highlighted that knowledge on both rhetorical structures and linguistic features is crucial, particularly for L2 novice writers. This is because each discourse community appears to adhere to discoursal conventions influenced by communicative purposes and linguistic features (Swales, 1990). Consequently, novice writers often find themselves struggling with the rhetorical organization and linguistic features when composing an abstract (Wannaruk & Amnuai, 2016).

In the context of Thailand, writing has been a challenging skill that Thai EFL undergraduates often struggle with (e.g., Sermsook et al., 2017; Waelateh et al., 2019). For instance, Rattanadilok Na Phuket and Othman (2015) identified prevalent grammatical errors made by Thai EFL undergraduate students, including translated words from L1 to L2, word choice, tense, preposition usage, and comma placement. Sermsook et al. (2017) also revealed that Thai EFL undergraduate students made grammatical errors related to punctuation, articles, subject-verb agreement, spelling, capitalization, and sentence fragments. Additionally, Waelateh et al. (2019) highlighted that difficulties in understanding genres and the rhetorical organization of discourse were challenges encountered by Thai EFL undergraduate students.

In the realm of abstract writing within the Thai context, Nguyen et al. (2014) conducted a survey among graduate students at a university in Thailand to assess their knowledge and opinions regarding conference abstract writing. Their findings indicated that approximately one-third of the participants had never written a conference abstract. The most problematic issues found were language use and rhetorical structures. Notably, despite being graduate students studying in the English-language field, the lack of familiarity with conference abstracts could cause their rejection at a conference. That is to say, the issue of abstract writing in the Thai context calls for considerable attention. In addition to a macro-level analysis, that is, rhetorical structure, a micro-level study on abstracts authored by Thai EFL writers was carried out by Thongvitit and Thumawongsa (2017). Drawing on a corpus of 40 English abstracts in the fields of liberal arts and humanities, they found that Thai EFL writers frequently misused grammatical and lexical collocations, such as noun + preposition and verb + noun combinations. Hence, there is an urgent need to equip students with knowledge about abstract writing, that is, rhetorical structures and linguistic features.

Amnuai (2019) highlighted that one of the most significant and influential approaches to addressing second language (L2) writing challenges involves conducting a move analysis of a genre, which can provide insights into how a text is organized in a discourse community. Move analysis is conceptualized as a research method for textual analysis, aimed at investigating the rhetorical organization of a genre. Nwogu (1997) defines a move as "a text segment made up of bundles of linguistic features (lexical meaning, propositional meanings, illocutionary forces, etc.)" (p. 122).

Since the development of the influential genre theory by Swales (1990), genre analysts have dedicated considerable attention to analyzing research abstracts, which are regarded as a genre under a research article or report. Swales (1990) coined the term "abstract" as an independent genre, while Bhatia (1993) classified it as a recognizable genre. To understand the discourse pattern of each genre, move analysis allows for the analysis of rhetorical structures that are influenced by communicative purposes tailored for specific target readers (Lim, 2006). Biber et al. (2007) also emphasized that move analysis can provide insights into how a text is organized, as well as how linguistic features in each move function to serve their specific communicative purposes.

As the purpose of a research article is to disseminate research findings in discourse communities, numerous genre analysts have explored sections of research articles and theses/dissertations across various disciplines, for example, Ph.D. dissertations (Saengsai, 2015), literature review chapters in Ph.D. theses (Kwan, 2006), conclusion chapters in Ph.D. theses (Bunton, 2005), acknowledgements in both MA and Ph.D. studies (Hyland & Tse, 2004), and research article abstracts (e.g., Kurniawan, 2023; Lorés, 2004; Pho, 2008; Santos, 1996). However, to the best of our knowledge, there has been limited research on the analysis of the abstracts of Thai EFL undergraduate research papers. While research studies have been conducted on the abstracts of graduate theses (e.g., Aziz et al., 2021; Pasavoravate, 2011; Saengsai, 2015), undergraduate research paper abstracts have not received the attention they deserve. The dearth of knowledge regarding the rhetorical structures and linguistic features of abstracts from Thai undergraduate English-majored research papers in the Thai EFL context serves as the motivation for this research. This study aims to enrich the existing literature, providing fresh insights into understanding rhetorical structures and linguistic features. In terms of pedagogical implications, by drawing on findings from genre analysis research, the application of a genre-based approach can enhance students' awareness of both rhetorical structures and linguistic features (Henry & Roseberry, 1998).

Genre analysis

According to Hyon (2018), a genre can be, generally speaking, defined as "a type of spoken or written text" (p. 3) that can be identified by its linguistic conventions or frequent discursive similarities. It is important to note that, despite being concerned with spoken or written texts, a genre itself is not a single text that can be directly heard, seen, or produced. Instead, it is what members of a discourse community see, hear, or produce to communicate in that community. To determine whether texts belong to a particular genre, communicative purposes play a critical role, and genre members constitute the discourse pattern, known as a move (Swales, 1990). For instance, the abstracts of Thai undergraduate English-majored research papers represent a genre or category of written text specific to a particular discourse community.

As the concept of genre analysis is concerned with communicative events within the discourse community (Swales, 1990), considerable attention has been paid to analyzing various genres, for example, research introductions (Swales, 1990) and research article abstracts (Bhatia, 1993; Hyland, 2000), aimed at understanding the discourse conventions employed by discourse community members. Swales (1990) defines a genre as "a class of communicative events, the

members of which share some set of communicative purposes" (p. 58). According to Hyland (2004), there are three Schools of genre studies. The genre concept of each School is conceptualized both similarly and differently. The first School is SFL, or Systemic Functional Linguistics, inspired by Halliday. In the SFL School, language is a semiotic tool used for meaning making. Genre is viewed as "a staged, goal oriented social process" (Martin, 1992, p. 505 as cited in Hyland, 2004), influencing and characterizing distinctive genres (Hyland, 2004). In other words, the context of the language influences the way language is used. The second school is the New Rhetoric. Rather than focusing on a linguistic perspective, genre analysis of the New Rhetoric focuses mainly on the notion of how social activity contributes to discourse conventions (Dias & Pare, 2000). The last School is the ESP, or English for Specific Purposes, which was pioneered by John Swales. Swales (1990) pointed out that a discourse community is the owner of its genres, shaping the way the language is used. Genre is a property of a discourse community realized by its communicative purposes and linguistic features for a specific or target audience (Hyon, 2018; Swales, 1990).

In the current study, there are two reasons why the researchers followed the ESP School of genre analysis. Firstly, the primary objective of this research is to investigate the rhetorical structures of research abstracts that are written by Thai undergraduate students. The Swalesian analytical framework was conducted in the ESP perspective particularly for L2 learners. Secondly, Swales (1990) pointed out a two-layer genre analysis, including micro and macro analyses. Macro structure analysis enables researchers to understand the communicative purposes in which a genre can be separated into moves, and the micro-level analysis can shed light on the understanding of linguistic features of the discourse (Pasavoravate, 2011).

Although the Swalesian CARS model (1990, 2004) is a prominent reference for much of the move analysis research on research abstracts (e.g., Lorés, 2004; Yoon & Casal, 2020), it is not without criticism. Despite its initial development for analyzing research introduction sections, several previous studies (e.g., Lorés, 2004; Nguyen et al., 2014) used the CARS model to analyze research article abstracts. Nonetheless, Lorés (2004) encountered challenges in analyzing some abstracts using the CARS model because this model does not have a methodology move.

According to Lorés (2004), the CARS model's rhetorical structure falls under the indicative type of abstract because it does not include the methodology of a research study. She pointed out that the CARS model can be used for indicative abstracts, which focus on providing the general picture and scope of the research article. In an indicative abstract, even though the participants and primary findings of a research project are included, the research methodology is absent. The second type is the informative abstract, in which abstractors compose the methodology of the research project. The IMRD pattern, which stands for Introduction–Methods–Results–Discussion sequence, is the rhetorical pattern of this abstract type. Taking into account the integration of the indicative and informative research abstracts, Lorés (2004) proposed the third type called the informative–indicative or combinatory abstract in which the functions of the indicative and informative research abstracts are combined. Therefore, she conceptualized the three types of abstracts: indicative, informative, and informative–indicative or combinatory.

Following Lorés (2004), Nguyen et al. (2014) classified 137 abstracts from two TESOL conferences in Asia into the three abstract types, and each type was analyzed with the different analytical framework to reflect its rhetorical structures. Indicative abstracts were analyzed with the CARS model, while Hyland's (2000) framework was adopted for the analysis of informative abstracts. Yakhontova's (2002) adapted framework of the CARS model was used for combinatory abstracts. The findings revealed that the majority (80%) were informative abstracts, followed by combinatory abstracts (19.3%), while only 0.7% represented indicative abstracts. Notably, the most frequently occurring abstract type was the informative type, which contains the 5-move pattern: Introduction-Purpose-Methods-Product-Conclusion.

Santos (1996) analyzed 94 abstracts in applied linguistics and found that their rhetorical patterns followed a 5-move sequence. In addition to the prevalence of such a move sequence, Santos also found that two moves: "Presenting the Research" and "Describing the Methodology," were obligatory moves found in all the 94 abstracts. Using Santos' (1996) framework for the analysis of the data, Pho (2008) found that research abstracts in the fields of applied linguistics also followed the pattern of the 5-move sequence with three obligatory moves, namely "Presenting the Research" (Move 2), "Describing the Methodology" (Move 3), and "Summarizing the Results" (Move 4). Pasavoravate (2011) compiled the two corpora, each of which contains 35 graduate theses and dissertations from Thai writers and 35 written by British writers, using a 5-move pattern adapted from the established frameworks for the analysis of moves. The three moves, namely "Presentation of the Research" (Move 2), "Methodology" (Move 3), and "Results" (Move 4) were considered obligatory, or must-have moves in the corpus of theses written by the Thai students, while only Move 2 in the corpus of UK theses and dissertations was regarded as obligatory.

In terms of move sequence, the findings by Pasavoravate (2011) were in line with Pho (2008) and Santos (1996), as applied linguistics research abstracts followed the sequence of Move2-Move3-Move4. More recently, Aziz et al. (2021), adapting the two frameworks by Bhatia (1993) and Hyland (2000) as analytical frameworks, analyzed 30 master's degree theses in TEFL. The findings were in contrast with Pasavoravate (2011) because only the Methods Move was an obligatory move. The findings from Aziz et al. (2021) and Pasavoravate (2011) revealed variations between the two different contexts, even though they were from the related fields: linguistics and TEFL.

Hedges

In addition to an analysis of genre moves at a macro level, which reveals the rhetorical organization of texts, another crucial aspect for genre analysis is the lexico-grammar investigation at a micro level (Hyon, 2018). Bhatia (1993) pointed out that lexico-grammatical features include vocabulary and grammatical patterns. In other words, an analysis of the frequency of lexico-grammatical features in a genre can help understand how writers employ them to achieve communicative purposes for a particular audience. As a result, numerous studies have integrated move analysis and lexico-grammar investigation to shed light on the rhetorical structures and the extent to which lexico-grammatical features are employed across a wide range of research disciplines.

In academic writing, one of the crucial lexico-grammatical features that writers should be aware of is the use of hedges, which is a form of politeness strategy (Hyon, 2018). The main function of hedges is to tone down the intensity of a claim. Hedges can be used to avoid taking full responsibility for a writer's statements, effectively reducing the confidence or certainty of the claims (Hyland, 2005). Hyon (2018) and Papangkorn and Phoocharoensil (2021) pointed out that hedges are important in academic discourse as they are used to express the possibility of the writer's claim rather than fact. In a study by Hyland (1996), hedges were found to be used as a face-buffer to protect the writers if their claim was found to be wrong. The vital role of hedges is to express uncertainty, maintain objectivity, and acknowledge limitations by avoiding absolute claims and overgeneralization (Hyland, 1996).

The literature on hedging in academic genres has spanned across various academic disciplines, as evidenced by studies conducted by Boginskaya (2022), Hu and Cao (2011), Hyland (2005), Li and Pramoolsook (2015), and Papangkorn and Phoocharoensil (2021). For instance, the use of hedges in thesis discussions by Thai and Malaysian students was analyzed by Hayisama et al. (2019), revealing that hedges were the most frequently employed interactional metadiscourse among the five types for both groups. Similarly, Papangkorn and Phoocharoensil (2021) analyzed the use of hedging devices in English-language argumentative essays written by both English and Thai writers. They found that hedges were the most frequently used interactional metadiscourse among the five types for both groups.

As highlighted by Doğan-Uçar and Akbasb (2022), metadiscourse plays a vital role in research abstracts, with hedges under the interactional metadiscourse category of Hyland's (2005) taxonomy. Writers employ hedges in order to "withhold commitment and open dialogue" (Hyland, 2005, p. 49). Hu and Cao (2011) analyzed the use of hedging devices in English-language applied linguistics research abstracts and found that the writers tended to use hedges more prevalently than boosters. Li and Pramoolsook (2015) examined the use of hedges in management and marketing research abstracts, revealing differences in the types and frequency of hedges between the two disciplines. Their findings indicated that hedges were found at a rate of 19.2 per 1,000 words in management abstracts and approximately 21.3 per 1,000 words in marketing abstracts. Epistemic lexical verbs were the dominant type of hedges in both management (37.6%) and marketing (42.2%) abstracts. Notably, the findings from Li and Pramoolsook (2015) suggested that abstract writers employed a modest tone when interpreting their results. The use of the epistemic adverb *relatively* in "a relatively understudied context in the justice literature" (Li & Pramoolsook, 2015, p. 59) as a hedging device in this excerpt exemplifies how abstract writers aim to avoid making a full commitment to their findings, employing a modest tone as a strategy to mitigate potential criticism.

Ekoç (2010) explored thesis abstracts from various disciplines, including ELT, chemistry, biology, international relations, and political science, and found that MA students employed different hedges to tone down the level of confidence and express their attitudes to readers. Remarkably, English Language Teaching (ELT) was the discipline where hedges were most frequently used, accounting for 0.5% of the total tokens compared to other disciplines. By analyzing two different genres: Translation Practice Reports (TPR) and Interpretation Practice Reports (ITP), written in English by Chinese postgraduate students, Wang and Pramoolsook (2021) discovered that

each genre employed specific hedges to express stance expression. For instance, words like *generally* and *properly* were found only in TPR abstracts, while *tends to, simply*, and *somewhat* occurred only in the ITP abstracts. This observation highlighted how each discourse community member tended to have particular hedges.

Hyland (2023) pointed out that one of the salient differences between different disciplines is the use of hedging devices because research findings cannot be reported with a high degree of confidence. In other words, findings in a research article are expected to be reported "more cautiously by using more hedges" (Hyland, 2023, p. 515). Ekoç (2020) investigated the use of hedges in research paper abstracts of Turkish ELT undergraduates. Even though Ekoç's (2020) findings indicated a certain extent of hedging in abstracts, she suggested that hedging be included in undergraduate writing lessons because undergraduate students are novice abstract writers and often struggle with toning down their claims by using hedges.

In the Thai context, Wiboonwachara and Rungrojsuwan (2020) investigated the use of hedges in English research articles of Thai novice and professional writers. They found that the latter employed hedging devices more frequently than the former. When comparing Thai writers with native speakers of English, Sukhanindr (2009) found that the former used fewer hedging devices in ELT research articles than the latter. In the realm of abstract writing, where conciseness and clarity are of importance, the use of hedges becomes crucial. By employing hedges, abstract writers can strike a balance between asserting the significance of their research and toning down the degree of confidence (Hyland, 2005).

Waelateh et al. (2019) reported that Thai EFL undergraduate students faced challenges with written errors at the discourse level. One reason for this struggle might be their inexperience in research abstract writing, as they were novice writers (Wannaruk & Amnuai, 2016). Ekoç (2020) argued that students might face challenges in integrating hedges smoothly into their writing due to a lack of explicit instruction on the diverse linguistic forms of hedging. Therefore, our study seeks to shed light on the rhetorical structure and the use of hedging in each of the identified moves. Given the existing literature highlighting the importance of integrating a two-layer investigation, namely move structure and hedges, in research abstracts, the current research poses three crucial questions, which are as follows:

1) What is the move status of each of the moves identified in Thai undergraduate English-majored research paper abstracts?

2) What are the move sequences in Thai undergraduate English-majored research paper abstracts?

3) To what extent are hedges employed in Thai undergraduate English-majored research paper abstracts?

METHODS

Corpus compilation and text selection

The corpus compilation consisted of 60 abstracts, constituting 50% of the total available ones (120 abstracts), from English-majored undergraduate research reports spanning the academic years 2019 to 2022. This corpus size is deemed suitable, as it was benchmarked against previous research corpora, which contain around 20–100 abstracts (e.g., Aziz, 2021; Lorés, 2004; Pho, 2008; Zhang et al., 2012).

The data collection process involved manually converting the chosen printed abstracts into .txt files to be compatible with the corpus software, AntConc 4.2.0 (Anthony, 2022). This software offers free access and enables researchers to analyze linguistic features through various functions, such as KWIC and Word, facilitating semantic analysis of hedges.

The abstracts were written by 4th-year Thai undergraduate English majors, working in groups of 4–5 students, as part of their compulsory independent study course, which is a requirement for their bachelor's degree in English at a university in Thailand. Each abstract was coded from AB1 to AB60 successively. The research project topics were related to English for Communication, English applied linguistics, and English educational technology. Notably, none of the students had previously studied abroad, and Thai was their first language. All of them had prior experience in academic writing. Abstract writing was one of the topics covered in the academic writing course.

The analytical framework for the move analysis

The six abstracts were randomly selected for the pilot analysis before the actual analysis. The findings indicated that the move sequence of the six abstracts aligned with the sequence of Move 2-Move 3-Move 4 from Pho (2008). Among several established frameworks, including Hyland (2000), Santos (1996), and Swales (1990), Pho's (2008) framework was adopted for this study for the following reasons. First, even though a 5-move pattern by Hyland (2000) enables genre analysts to realize distinct functions of each move, it was developed based on a gigantic corpus from a wide range of hard and soft disciplines. Secondly, Swales's (1990) CARS model is primarily designed for research article introductions rather than abstracts because there is no methodology move in this framework. Third, Pho's (2008) framework was adapted from Santos's (1996) model to make it more suitable for applied linguistic research abstracts because Santos's model contains an unclear sub-move in Move 2, which he adapted from Swales's CARS model. For these three reasons, we believe that Pho's framework is likely to be the most suitable for the analysis of our Thai undergraduate EFL English-majored research paper abstracts, given that the research topics are related to applied linguistics and educational technology, and their major is English.

In terms of move status, even though Swales's (1990, 2004) criteria have been used extensively, Kanoksilapatham (2015) argued that they lack a clear-cut percentage for distinguishing moves as obligatory, conventional, and optional. She proposed that an obligatory move must

be found in 100% of instances, while a conventional one is found in more than 60%, and an optional one is found in less than 60% of the total abstracts in a corpus. We followed Kanoksilapatham's (2015) criteria to determine the move status.

Data analysis

Hyon's (2018) move analysis procedure served as the foundation for this study. The initial step involved amassing a sufficiently extensive sample within the specified genre. In this study, 60 abstracts were randomly selected from the academic years 2019 to 2022, amounting to 10,053 words. The second step was to read all of the abstracts. Before categorizing the moves, each abstract underwent a thorough reading to achieve an initial and comprehensive understanding of the entire text. Hyon (2018) suggested that this initial comprehension is significant for researchers, enabling them to grasp the genre and overall communicative purposes before segmenting the texts into moves.

The third step focused on identifying moves based on Pho's (2008) analytical framework, which was applied to the chosen abstracts. Moves within each abstract were labeled according to their communicative function. The fourth step in data analysis involved re-reading all the identified moves in the chosen abstracts to ensure that they were coded accurately according to their communicative function. The fifth step was dedicated to conducting inter-coder reliability for the moves developed in the fourth step across the chosen abstracts, assessing the degree of agreement between the two coders involved in the study. This includes the corresponding author, and a key informant named Soya, an assistant professor with a PhD, who has been teaching at the research site for decades. Each of the chosen abstracts (AB1-AB60) was independently analyzed by both coders. After completing the coding, they cross-checked their results to resolve any initial discrepancies until they reached 100% agreement.

Following the inter-coder reliability check, the sixth step was to report the results of move frequency and move sequences. The final step involved analyzing the use of hedging devices, employing the framework proposed by Wang (2019) to identify hedging devices across each of the identified moves.

Table 1
Pho's (2008) analytical framework for move analysis

Moves	Function/Description	Question asked
Move 1: Situating the research (STR)	Setting the scene for the current research (topic generalization	What has been known about the field/topic of research?
Move 2: Presenting the research (PTR)	Stating the purpose of the study, research questions and/or hypotheses	What is the study about?
Move 3: Describing the methodology (DTM)	Describing the materials, subjects, variables, procedures, . . .	How was the research done?
Move 4: Summarizing the findings (STF)	Reporting the main findings of the study	What did the researcher find?
Move 5: Discussing the research (DTR)	Interpreting the results/ findings and/or giving recommendations, implications/applications of the study	What do the results mean? So what?

The analytical framework and data analysis of hedging devices

While there are established taxonomies for analyzing hedging devices, we purposefully followed Wang's (2019) taxonomy. By adapting Hyland's (2005) interactional metadiscourse framework, Wang's (2019) framework includes several frequently used hedging devices such as *can*, functioning as hedges, that are not included in Hyland (2005). For example, as Demir (2018) and Getkham (2011) suggested, *can* serves as a hedging device, and is heavily used in academic discourse. These hedges encompass modal verbs (can), epistemic lexical verbs (*attempt*), epistemic adverbs (*from my point of view, generally speaking, kindly, properly, to some extent, to a certain extent*), and epistemic nouns (certain amount, certain degree).

Hyland (2017) suggested that the particular function of each hedge must be checked to ensure whether it functions as a hedging device. For example, the word *quite* in "quite good" is a hedge, while it serves as a booster in "quite extraordinary" (Hyland, 2017). Thus, we manually investigated each of the hedges identified after the identification calculated from AntConc software. The function "Word" of AntConc was used to count all the hedges in the corpus, while the researchers manually investigated the functions of each word using the KWIC (Key-Word-In-Context) function through the concordance lines in order to observe how each word was used in the context of each abstract (Anthony, 2022). Since the software could yield only the frequency and range of the words, semantic and pragmatic meanings were investigated manually. Thus, we manually analyzed each word in the concordance lines of AntConc.
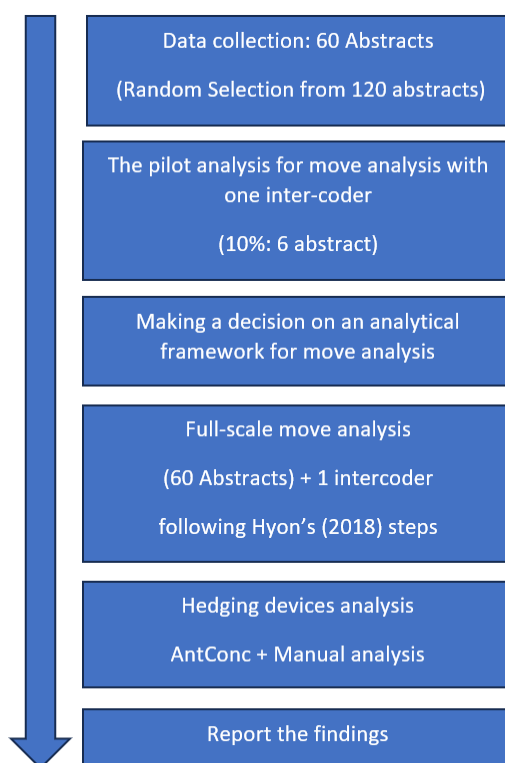

Figure 1 Research method procedures

RESULTS AND DISCUSSION

This section reports on the move status, move sequences, and hedge use in each of the moves identified

Move status

Table 2
Move status

Move	STR	PTR	DTM	STF	DTR
Number	2	60	60	60	20
Percentage	3.33%	100.00%	100.00%	100.00%	33.33%

As shown in Table 2, the findings indicated three obligatory moves and two optional moves following Kanoksilapatham's (2015) criteria. PTR (Move 2), DTM (Move 3), and STF (Move 4) were the must-have moves that writers need to include in their abstracts. Regarding PTR, this confirms the findings from Pasavoravate (2011), who found that Thai MA and PhD students in linguistics employed this obligatory move in every abstract in her corpus. This is also in line with Santos (1996) and Zhangsirikul (2013), who found that the ELT and applied linguistic abstract writers considered the Purpose Move, or Move 2, as an obligatory move. However, in an analysis by Imsa-ard (2021), the Methods Move, or Move 3, in language education and acquisition abstracts was regarded as an optional move due to its absence from some abstracts.

The last obligatory move was STF (Move 4). This is, of course, a must-have move employed to present their research findings. This confirms the existing literature which stated that research abstracts in the field of English needed to include this move (Pasavoravate, 2011; Pho, 2008; Santos, 1996). The writers of the samples in our current research, despite being undergraduate students, demonstrated a solid understanding of these obligatory moves given the guidance from their project supervisors. One possible reason is that throughout the course, students were strongly advised by their project supervisors to incorporate all the three must-have moves in their abstracts. Failure to do so would risk rejection or non-approval. Thus, the students' awareness of obligatory moves can be attributed to the explicit instructions they received.

In terms of the optional moves in the corpus, the findings indicated that there were two, STR (Move 1) and DTR (Move 5). Our findings are also in line with Loan (2022), Pasavoravate (2011) and Zhangsirikul (2013), who found that Move 1 and Move 5 were optional moves the writers might consider including in an abstract. This means the writers could consider extending their alternative choices in their abstracts by making use of these two optional moves.

The limited use of STR might be due to the culture of Thai writers. Vathanalaoha and Tangkiengsirisin (2018) found a lack of the background move in the dental abstracts written by Thai writers because of the traditional practice of Thai politeness, in which criticism should be avoided. A possible explanation for the underuse of DTR might be due to its role. Saeeaw and Tangkiengsirisin (2014) pointed out that "in some cultures people are not encouraged to sell their ideas and contributions" (p. 90)., which is the main function of this move.

Move sequences

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Table 3

Move sequences

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No.	Move sequences	Found	Percentage
1	PTR-DTM-STF	40	66.66%
	(Move 2-Move 3-Move 4)		
2	PTR-DTM-STF-DTR	18	30%
	(Move 2-Move 3-Move 4-Move 5)		
3	STR-PTR-DTM-STF-DTR	1	1.66%
	(Move1-Move 2-Move 3-Move 4-Move 5)		
4	STR-PTR-DTM-STF	1	1.66%
	(Move1-Move 2-Move 3-Move 4		
	Total	60	100%

Regarding the move sequences, as seen in Table 3, there were only four found throughout the corpus. The most frequently used move sequence was PTR-DTM-STF (Move 2-Move 3-Move 4), accounting for 66.66% or two-thirds. Our findings are in line with Pasavoravate (2011), who found that Thai graduate students in linguistics mostly employed the sequence of Move 2-Move 3-Move 4.

PTR-DTM-STF-DTR (Move 2-Move 3-Move 4-Move 5) was the second most dominant move sequence, accounting for 30%. This confirms the findings from Pasavoravate (2011) that the move sequence of Move 2-Move 3-Move 4-Move 5 was the second preference among MA and PhD student abstract writers in the field of linguistics. These two sequences, PTR-DTM-STF and PTR-DTM-STF-DTR, were traditional move sequences of abstract writing. The sequence of PTR-DTM-STF is exemplified in (1):

(1) Move 2 (PTR) *This research aimed to 1) study the factors that affect the performance of the final year students the English proficiency test before graduating and 2) explore the attitudes of final year students towards the administration of the English proficiency test.*

Move 3 (DTM) *The participants, obtained by purposive sampling, were 192 final year students of xxxxxxx in the academic year 2022. The instrument for data collection was a questionnaire. The data were analyzed by using statistical techniques including frequency distribution, percentage, mean, and standard deviation.*

Move 4 (STF) *The research results revealed the following: 1) Overall, the psychological factors affected the performance of the final year students in the English proficiency test required for graduation at the highest level (3.77). In terms of the overview of the participants' attitudes towards the administration of the test, it was found that the participants were satisfied with the administration of the test at the moderate level (3.34).* (The excerpt from the abstract No. AB45)

Another example of the move sequence of PTR-DTM-STF-DTR is exemplified in (2):

(2) Move 2 (PTR): *This research aimed to investigate the factors affecting Thai English as Foreign Language (EFL) undergraduate students' anxieties in English Presentations as well as the main causes influencing those factors.*

Move 3 (DTM): *An attitudinal questionnaire was used as a tool for the data collection. The respondents of the study were 30 out of all 156 fourth-year students in XXX at the XXX University, randomly selected by purposive sampling.*

Move 4 (STF) *The result of the study revealed that the students agreed on factors affecting anxiety in English Presentation including (1) Preparation, (2) Simultaneous talk, (3) Presentation skill, (4) Vocabulary Limitation, and (5) Fear of being judged. It was found that the students still panic when the presentations in English need to be performed in class, either with or without preparation. The students tend to feel excited when being called on in a presentation in English. The main causes of the anxieties can be resulted from overthinking, lack of preparation, level of English language proficiency, degree of self-confidence, and fear of making mistakes.*

Move 5 (DTR): *The findings suggest that the combination of presentation preparation, presentation practice, and the development of certain English language skills should be focused on when preparing Thai EFL undergraduate students for making a presentation in English language efficiently and successfully.* (The Excerpt from the abstract No. AB4)

After the two dominant move sequences, there was variation found in the corpus. Only one abstract followed the reference framework or STR-PTR-DTM-STF-DTR (Move 1-Move 2-Move 3-Move 4-Move 5), and there was also one move sequence of STR-PTR-DTM-STF (Move 1-Move 2-Move 3-Move 4). This indicated that not only did a few abstract writers employ the three obligatory moves (PTR-DTM-STF), but they could also make abstracts more informative by employing either the 5-move or the 4-move sequence.

The absence of Move 1 (STR) in abstracts led to "the absence of well-defined sets of problems in the soft field domain" (Suntara & Usaha, 2013, p. 86). Since the function of STR is to state the background of the study, its inclusion can enhance the importance of an abstract. Hyland (2004) noted an increasing preference among soft science writers to incorporate a background move. When abstract writers omit Move 1, the sequence may start with Move 2. In other words, rather than situating the research or providing readers with research background, most abstracts from the corpus begin with Move 2 or "Presenting the research."

The findings support the previous studies (Pho, 2008; Santos, 1996; Suntara & Usaha, 2013) which stated that although starting an abstract with Move 2 was acceptable, it would be more effective for authors to initiate an abstract with Move 1 (background).

Another noteworthy aspect of move sequences was the inclusion of Move 5. Previous studies indicated the increasing trends in the use of Move 5 in both hard and soft sciences, as closing an abstract with Move 5 sheds light on interesting implications from the research (Kanoksilapatham, 2013; Saeeaw & Tangkiengsirisin, 2014; Suntara & Usaha, 2013; Vathanaloha & Tangkiengsirisin, 2018). In other words, even though they are undergraduate students, one-third of the total abstracts concluded with Move 5, providing readers with implications or discussions derived from the findings.

Use of hedging devices

Table 4

The use of hedging devices in terms of types across each of the moves identified

| Move | Hedging devices | | | | | |
	Modal verbs	Epistemic lexical verbs	Epistemic adjectives	Epistemic adverbs	Epistemic nouns	Total hedges per move
STR (Move 1)	0	0	0	0	0	0 (0%)
PTR (Move 2)	5	4	0	5	0	14 (15.91%)
DTM (Move 3)	0	0	0	0	0	0 (0%)
STF (Move 4)	21	9	0	18	0	48 (54.55%)
DTR (Move 5)	15	7	1	3	0	26 (29.55%)
Total	41 (46.59%)	20 (22.72%)	1 (1.14%)	26 (29.55%)	0 (0%)	Total 88 (100%)

Table 4 illustrates the use of five different types of hedging devices across the five moves. In terms of frequency, the total number of hedging devices was 88 out of 10,053 words, accounting for 0.87% (1.47 per abstract). This finding closely aligns with the results of a study by Wiboonwachara and Rungrojsuwan (2020), who examined the use of hedging devices by two groups of Thai novice and professional research article writers. They found a small number of hedging devices used by both groups as follows: 240 hedging devices out of 38,283 words (0.62%) were used by Thai novices, and 304 words out of 41,190 words (0.73%) used by Thai professionals.

Additionally, the frequency of hedging devices found in our corpus (1.47 per abstract) was also lower than that of Hu and Cao (2011), who found that English-language abstracts published in English-language journals contained an average of 2.04 hedges per abstract. One possible reason for the lower number of hedging devices in our findings is that the abstract writers were novice researchers at the undergraduate level who were not yet familiar with academic writing conventions. Another reason may be due to their limited exposure to a variety of research abstracts, resulting in a lack of rhetorical knowledge. Evidence of the limited use of hedging devices highlight that teachers should place greater emphasis on the use of various kinds of hedging devices in order to increase students' lexical repertoire.

Next, when it comes to the use of hedging devices across each of the identified moves, it was found that the majority of them (43.18%) were found in STF or Move 4. According to Hyland (1998a), the main function of hedging devices is to highlight the subjectivity of a viewpoint by presenting information as an opinion rather than a fact. In other words, hedging devices used in Move 4, or "Summarizing the Findings," allow abstract writers to present their position as

an opinion drawn from the findings rather than an indisputable fact (Hyland, 2005). One possible reason for the use of hedging devices in Move 4 is, as Amnuai et al. (2020) claimed, that Move 4 aims to underline the significance of the authors' viewpoints regarding their research, or the existing literature related to their work.

Excerpt (3) exemplifies the use of hedging devices in Move 4 or the Summarizing the Findings Move.

> (3) *The findings of the study revealed that the first batch evening program students **estimate** the statement of satisfaction in the high Level* (AB16).

Hedging devices were also prevalent in DTR or Move 5, in which the writers used them to reflect on, interpret the findings, as well as to provide further research recommendations as in (4).

> (4) *The satisfaction in its usability and physical appearance informs its **plausible** application for gamification class and out-of-class practice activities for the learner autonomy encouragement of language learners* (AB51).

Regarding Move 5, given that it is to handle discussions, interpret results, and/or provide recommendations/implications (Pho, 2008), the writers employed hedging devices in this move when their statements "contain controversial claims" (Gillaerts & Van de Velde, 2010, p. 135), pointing out the need for the writers to negotiate with readers to become effective members of the discourse community. Our findings stand in contrast to those of Amnuai et al. (2020) and Zhang et al. (2012). Zhang et al. (2012) found a limited use of hedging in Move 5 of agricultural abstracts and Amnuai (2020) also reported a restricted use of hedging in Move 5 in applied linguistics abstracts.

Liu and Buckingham (2018) analyzed hedging devices used in the discussion sections of applied linguistics research articles using the reference framework proposed by Yang and Allison (2003), which consists of a 7-move pattern. Interestingly, they found that two moves, namely M6: Evaluating the study, and M7: Deductions from the research, heavily contained hedging devices. Although Liu and Buckingham (2018) focused on the discussion section, the functions of these moves are likely to be similar to our findings in Move 4: Summarizing the findings, and Move 5: Discussing the research in research abstracts.

As seen in Table 4, there were no hedging devices evident in either Move 1 or Move 3. This is unsurprising given that only two abstracts contained Move 1, and the primary purpose of Move 3 is to detail the methodology or research procedures. There were few claims for the writers to address in Move 3 as Gillaerts and Van de Velde (2010) argued that the methodology section may not require hedging because there are no claims to be reported.

Apparently, our findings revealed the prevalence of hedging devices, accounting for 15.91%, in Move 2. Despite the main function of Move 2 being to announce the purpose of the study, the abstract writers still employed hedging devices to temper the strength of their claims. An illustrative example is quoted in (5).

(5) *The study **attempted** to explore student's motivation and behavior on English language learning* (AB14).

Our findings highlighted a growing trend in the use of hedging in Move 2 of abstracts. This is in contrast to previous studies by Zhang et al. (2012) and Amnuai et al. (2020), where limited hedging was identified. Notably, all hedging devices in Move 2 found in our study were expressed through the lexical verb *attempt*. One plausible explanation for this pattern is due to the role of Move 2, which is to articulate the purpose of the research. Linguistic expressions predominantly revolve around the use of epistemic lexical verbs, such as *attempt*, to convey the intended investigation in a study.

Types of hedging

Among the five types of hedging devices, it was found that the majority of hedging devices were modal verbs, accounting for 46.59% and comprising almost half of all the devices. Analyzing hedging devices in all sections of research articles in applied linguistics, Getkam (2011) revealed that modal verbs were the dominant type used in every section of the entire research article. She pointed out that the writers employed modal verbs as a straightforward way to tone down their claims. Our findings are consistent with those of Doró (2014), who found that the most prevalent modal verb in linguistics research abstracts written by BA students was can as exemplified in (6).

(6) *… they feel using the strategies **can** really improve English Listening skill.*

The extensive use of modals can be a result of the negotiations involved in making claims, as highlighted by Hyland (1998a). Salager-Meyer (1994) argued that the widespread use of hedging devices reflects the level of certainty with which users express their claims. One possible reason for this phenomenon is that it was apparent that researchers in soft sciences primarily communicate knowledge with a focus on "the claim-making negotiations of the discourse community," (Hyland, 1998a, p. 361) as opposed to the same level of confidence found in the hard sciences.

Moreover, in addition to being the dominant type of hedges, the word *can* is also collocated with the word *assume* which serves as another hedging device, as shown in (7). We would like to propose this linguistic pattern as a double-hedging device.

(7) *This **can assume** that EFL learn watching movie with English subtitle will gain more effective to understanding of the movie.*

Next, the second dominant type was epistemic adverbs accounting for 29.55%. Most of them were adverbs of degree to tone down the certainty of the claim as in (8).

(8) *… the results revealed that the frequencies of the moves of Thai and native speaker authors were **almost identical**.*

According to Hyland (2005), the utilization of epistemic adverbs serves three functions: to downplay claims (e.g., fairly), to introduce indefinite statements (e.g., sometimes), and to diminish responsibility for truth (e.g., probably). In example (8), the abstract writers employed *almost* as a means of scaling down to mitigate the intensity of the adjective *identical*. In other words, they engaged in negotiating the claim-making process with their readers, as highlighted by Hyland (2005).

Epistemic lexical verbs accounted for 22.73% of the corpus. The word *feel* (*feels, felt*) was the most frequently used word, occuring 7 times. The sample is in (9).

> (9) *… they **feel** using the strategies can really improve English listening skill …*

Another type of hedging found was epistemic lexical verbs used in Move 2, Move 4 and Move 5. Hyland (1998b) pointed out that epistemic lexical verbs are prevalent in academic discourse, representing "the most transparent means of coding the subjectivity" (p. 119) as authors may mitigate their claims as they present opinions not fact. While there was only one epistemic adjective, an epistemic noun was absent from the current corpus. Apparently, evidence revealed the scant appearance of these linguistic features. One possible reason is that epistemic adjectives, such as *plausible* and *apparent*, and nouns, such as *certain amount* or *certain extent* seem to be difficult for novice writers whose academic writing skills are not yet at an advanced level to use in their abstracts. Another salient point was the limited number of available epistemic adjectives in the taxonomy for the writers to make use of compared to other types of hedging devices.

CONCLUSION AND PEDAGOGICAL IMPLICATIONS

The current research investigated the rhetorical structures of 60 Thai undergraduate EFL English-majored research paper abstracts following Pho's (2008) 5-move pattern and the use of hedging devices across each of the identified moves using Wang's (2019) taxonomy. In terms of move status, while Move 2: Presenting the research, Move 3: Describing the methodology, and Move 4: Summarizing the findings were obligatory, Move 1: Situating the research, and Move 5: Discussing the research, were optional moves that abstract writers may employ to enrich their abstracts to lure readers into reading the text.

The findings also revealed that the dominant sequence was Move 2-Move 3-Move 4. Even though the abstract writers were at the undergraduate level, they seemed to follow the rhetorical structure which is common at the graduate level and in international academic journals. The writers were aware of the obligatory moves and the move sequences, and they also had the support of supervisors. However, the lack of variation in rhetorical structures and move embedding highlighted the need for an abstract writing course for undergraduate students majoring in English. Such a course would expose them to a variety of rhetorical structures and move embedding, similar to those found in abstracts written by graduate students or professional writers in related fields. Due to the diversity of move sequences in graduate thesis abstracts or high-quality journals, English language teachers may consider

exposing undergraduate students to a variety of rhetorical structures taken from the graduate level or international journals.

It should be noted that there is no move embedding identified in the corpus. Move embedding is a combination of multiple moves in one sentence (Pho, 2008). While previous studies (e.g., Li & Pramoolsook, 2015; Yoon & Casal, 2020) revealed the heavy use of move embedding (i.e., a combination of Move 2 and Move 3 or Move 3 and Move 4), our findings pointed out a lack of this kind of rhetorical compression. This is also another area that teachers should consider teaching in classroom as the findings indicate the limited linguistic repertoire of Thai EFL English-majored undergraduate students.

As suggested by previous studies (Saeeaw & Tangkiengsirisin, 2014; Vathanalaoha & Tangkiengsirisin, 2018), the rare occurrence of Move 1 and Move 5 in the current corpus might be due to Thai cultural practices in which Thai people are encouraged to avoid criticizing others, which is the function of Move 1, and they might not feel comfortable promoting their findings or implications in Move 5. Although composing an abstract with only Move 2, Move 3, and Move 4 is sufficient in terms of communicative purposes, enriching it with background and implications can boost its overall impact and persuasiveness. Therefore, it is crucial to equip students with the rhetorical knowledge needed for abstract writing.

In terms of the hedging devices used throughout each of the moves identified, it was found that the majority of them lay in Move 4 and Move 5. This is not surprising because the function of hedging devices is to tone down the claim, and most claims typically take place in Move 4 and Move 5. However, concerning the types of hedging devices, there was no use of epistemic nouns, while there was one occurrence of an epistemic adjective. The majority of hedging devices found included modal verbs, epistemic adverbs, and lexical verbs, respectively. These findings shed light on the fact that some hedging devices were preferred over others. As a component of interactional metadiscourse, hedging devices are of importance in academic writing, as their use can be an indicator for "establishing a judicious, discipline-defined balance of tentativeness and assertion, and a suitable relationship to one's data, arguments, and audience" (Hyland, 2005, p. 54).

In light of the two-layer analysis integrating rhetorical structures and hedging devices, the findings of this study can provide pedagogical implications. Due to the lack of variation of move sequences in the current research findings, teachers can use samples from graduate-level or international journal abstracts as teaching materials to expose students to a variety of abstracts. As the findings revealed the limited types of hedging devices in the corpus, teachers should place greater emphasis on teaching a wider range of hedging expressions to enhance students' academic writing repertoire. Pedagogically, hedging devices can be formally taught using corpus-informed data, with a focus on the function of each word within each move. Students can be encouraged to use different types of hedging devices. As suggested by Salger-Mayer (1994), this could greatly benefit EFL learners because textbooks may often lack instruction on various techniques for using hedging devices. The current research findings can contribute to EFL teachers by raising their students' awareness of both rhetorical structures and how to state a claim appropriately using a variety of hedging devices because hedging devices not

only help writers meet adequacy conditions but also ensure that claims display a plausible relationship with reality through the use of epistemic conventions (Hyland, 1998b, 2005). However, it can be challenging to strike the right balance, as overusing or underusing these devices can lead to vagueness. Therefore, it is crucial to raise students' awareness of the appropriate use of hedging devices (Demir, 2018).

LIMITATIONS

Note that the current research is not without its limitations. The aim of this study was to investigate the recurrent discourse conventions in terms of moves and hedges within the specific context of a Thai university. Therefore, future research should focus on collecting samples from multiple universities or countries to enhance generalization.

Another limitation might be the revision of the abstracts. It is important to acknowledge that the abstracts analyzed in this study, composed by undergraduate students, may have undergone revision and editing by teachers or AI-based editing tools. This factor could impact the authenticity of the abstracts, potentially limiting the extent to which the findings reflect the unaided writing skills of the students. Future studies may consider implementing an abstract writing test, ensuring a more accurate representation of students' individual writing abilities.

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