

Master's Thesis and Research Article English Abstracts in Electrical Engineering: Variations of Moves and Their Linguistics Components

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Received 2024-03-12; Revised 2024-05-18; Accepted 2024-05-24;
Published online: 2024-06-28

Abstract

The objectives of this study were to compare how the Master's thesis (MA) and Research article (RA) English abstracts in Electrical Engineering are written with the exploitation of Bhatia's (1993) framework to identify the abstracts moves, and to explore the differences of three linguistics components of tenses, voices, and that-complement clauses from the two genres. The data consisted of ten MA and ten RA English abstracts in Electrical Engineering due to the limitation of MA texts availability. The findings revealed that the frequency of the abstract moves' occurrence between the two corpora was different. The distinction of the preferred move pattern among the two datasets was also found. Regarding linguistics components of the moves, MA writers tended to rely their abstract writing more on the present tense with the use of active voice than the RA writers. However, the two genres shared similarity with the employment of that-complement clauses in the Result move. It is reckoned from the study that the findings can help MA supervisors with the guidance to the teaching of abstract writing and increase the graduate students' understanding of the standardized structure and linguistics components linked to RA English abstracts when they have to reproduce their research papers to a more professional genre in the field of Electrical Engineering.

Keywords : *Bhatia's Move Analysis, Linguistics Components, Electrical Engineering, Master's Theses Abstracts, Research Abstracts.*

1. Introduction

All sources of information and references such as scientific reports and journals circulating around the world make use of the English medium. A vast volume of information is conveyed in English, particularly within academic domains such as science and technology, encompassing textbooks and journals. Over the past four decades, an approximate daily output of more than 7,000 scientific journal articles has been observed (Tardy, 2004). Given this trend, it is anticipated that the current quantity of articles is beyond comprehension.

After science and technology students graduate, the jobs they can do are mostly engineers, mechanics, technicians, or particularly in scientific areas. They have to read a lot of English instruction manuals and sometimes they also have to communicate in English at their workplaces. For higher education especially in the tertiary level, many graduate students have to write their theses in English as well. However, it has been found that the students have great difficulties in writing their theses (Pramoolsook, 2008; Shahsavari & Kourepaz, 2020; Saengsai, 2015). In addressing this issue, it has been a growing focus on investigating research genres for more than thirty years to support students in their writing endeavors. The seminal work of Swales (1990) on research articles (RAs), which led to the development of the Create A Research Space (CARS) model for Introduction sections has served as a catalyst for numerous genre analysts to explore research genres further. This has been particularly evident in subsequent studies examining the move-step structure within many sections inside RAs, especially on Abstract section (Ahmed, 2015; Bhatia, 1993; Hyland, 2000; Lorés, 2004; Pho, 2008; Zhang et al., 2012).

It is undeniable that graduate students who are nonnative English speakers (NNS) encounter a significant challenge when composing academic papers in English across various disciplines. While they may excel in their particular fields academically, expressing their ideas in a suitable academic manner proves to be a demanding effort. It is clearly that native English speakers enjoy a significant edge, acquiring the language effortlessly, whereas their counterparts (NNS) must invest considerable attempt in mastering the appropriate academic language. Moreover, they and the less experienced writers (NNS) not only find themselves in situations requiring the use of suitable academic language within their discourse community but also need to skillfully employ conventional rhetorical styles. The accepted global linguistic norms often diverge from those of their native languages, potentially contributing to the heightened challenges non-native speakers when writing in English (Hyland, 2016). To help the nonnative graduate students overcome the difficulties mentioned, genre analysis should be an effective and productive way to assist them to cope with all the challenges. Knowledge of academic writing explicitly should be given to them (Ren & Li, 2011). Proposed by Al-Zubaidi (2012), it is recommended that students should receive support in comprehending the material, along with assistance in combining language skills and constructing academic knowledge to help them taggle with the academic English writing disadvantages.

Based on a preliminary interview with a supervisor of graduate students from the Department of Electrical Engineering, the Faculty of Engineering at the researcher's workplace (Rajamangala University of Technology Isan, Khon Kaen Campus), the response was that to complete the master's degree of the students, it is optional for them to publish their research in national journals or international ones. No matter which way the students choose, they have to prepare at least an abstract section in English language. As revealed in previous studies, many graduate students have to write their master's theses or dissertations in English for higher education especially in the tertiary level. However, it has been found that the students have great difficulties in writing these types of genres (Bunton,

2002; Paltridge & Starfield, 2007; Pramoolsook, 2008; Saengsai, 2015). For inexperienced writers who are not native speakers, the task of translating their knowledge into a thesis is seen as challenging. However, crafting a research article (RA) that aligns with discourse conventions and meets the criteria for acceptance by an indexed journal poses an even greater difficulty for them (Bitchener & Basturkmen, 2006). The reason for this lies in the fact that nonnative writers face substantial challenges without a firm grasp of genre conventions and discourse expertise, making it exceedingly tough to get their RAs published in indexed journals. It can be asserted that, they encounter a distinct disadvantage compared to their native English counterparts in the realm of publication writing (Flowerdew, 2000). Hence, a thorough analysis of both RA and thesis abstracts can offer a more elucidating, understanding of how abstracts in these two genres are structured concerning rhetorical moves and linguistic patterns. As a result, before the students write their English abstracts to submit to target journals, they have to know what discipline-specific rhetorical features, styles, linguistics components, and conventional norms are accepted by members of the particular academic community. To help these writers overcome the downsides of publishing their research studies or even research abstracts in the English language, a genre-based approach called “Move analysis” will be the focus to identify and compare the structures of the Master’s thesis (MA) and research articles (RA) English abstracts in Electrical Engineering (ELE).

Move analysis stands out as a genre-based approach utilized to explore the structures of moves within research articles. According to Swales (1990; 2004), Bhatia (1993), and Hyland (2000), a genre denotes a category of communicative purposes shared and recognized by members of a discourse community. This encompasses the study of language use, linguistic features, social practices, and ideological assumptions linked to language and/or communication (Biber et al., 2007). In line with Holmes (1997) and Nwogu (1997), a move is a textual segment shaped and constrained by a specific communicative function (p.325). It comprises a cluster of linguistic features such as lexical meanings, propositional meanings, illocutionary forces, etc., providing the segment with a consistent orientation and signaling its content discourse (p.122). Furthermore, Yang & Allison (2003) note that a move is employed to categorize text chunks based on their specific communicative function. With these characteristics defining move analysis, it has evolved into a pivotal method in the study of research articles.

In addition to move analysis, investigations into linguistic features/components offer valuable insights into the construction of research article (RA) abstracts, serving to inform English for Academic Purposes (EAP) researchers and writers about how abstracts are structured with pedagogical implications in mind (Saengsai, 2021). Tseng (2011) suggests little studies have investigated the verb tense of the move in RA abstracts. This is probably because of the complexity of tense usage in RA abstracts (Swales & Feak, 2004). Another two linguistics components listed in Pho (2008), namely voice and tense in RA abstracts were also mentioned by many research studies (Amnuai, 2019a; Arsyad et al., 2021; Nurhayati, 2017; Zhang et al., 2012). Also the feature of that-complement clauses

can be expressed in RA abstracts as well (Hyland & Tse, 2005). However, the studies on the differences of how abstracts of Master's thesis and RA English abstracts are organized in terms of moves and the three linguistics components of tenses, voices and that-complement clauses in Electrical Engineering have not been explored. For this reason, it is optimal to conduct the present research. Concurrently, analyses of linguistic components in RA abstracts contribute substantially to understanding the nuances of this specific genre. Zhang et al. (2012) categorize these features into two main groups: 1) lexico-grammatical constructions (such as voice, verb tense, nominalizations, that-complement clauses, etc.), and 2) interactional metadiscursive devices (including hedges, attitudinal stance, self-references, and boosters). A comprehensive study by Pho (2008) delves into linguistic components of RA abstracts in Applied Linguistics and Educational Technology, exploring both grammatical features and interactional metadiscourse. The investigation covers aspects such as grammatical subjects, verb tense and aspect, voice, modal auxiliaries, semi-modal verbs, epistemic adjectives, adverbs and nouns, reporting verbs, that-complement clauses, self-reference words, and stance expressions. Notably, the first category of lexico-grammatical constructions, such as voice, verb tense, nominalization, and that-complement clauses has been extensively examined. For instance, Amnuai (2019a) finds variations in the use of past tense between thesis and RA corpora in the field of ICT, indicating a higher prevalence in the former and a frequent use of active voice in the latter. Cooley & Lewkowicz (2003) observe that abstracts summarizing articles by first-year university students tend to employ the present tense, while those summarizing research are more likely to use the past tense. Zhang et al. (2012) note the usage of present tense in Background, Aim, and Conclusion moves, contrasting with past tense in Method and Results moves in RA abstracts by Vietnamese Agricultural researchers. It's crucial to recognize that these linguistic features should be regarded as resources rather than rigid rules in academic writing (Huang, 2014; Hyland, 2004; Swales, 1990; 2004). Additionally, the consideration of moves and their associated linguistic features holds particular significance when crafting RA abstracts, especially for inexperienced non-native writers tasked with composing this section in English (Wannarak & Amnuai, 2016).

Research studies which focus on thesis abstracts are uncommon. Attention has been more concentrated on the rhetorical structure of RAs. This might be due to the size of the readership. That is, they are mainly read by examiners, which is much more limited than the readership of RA abstracts (Amnuai, 2019a). Until now, there have been a few studies on the Master's theses of a single section, for example, Nguyen & Pramoolsook (2015a) on Method chapters; Nguyen & Pramoolsook (2015b) on Result and Discussion; Rasmeenin (2006) on Discussion sections; Samraj (2008) on Introductions across disciplines; Chen & Kuo (2012) on Information Structure in Applied Linguistics. Another set of research has explored moves and contrastive studies between Master's theses and Dissertations, for instance, Pratiwi et al. (2020) on Abstracts in English and Indonesian, and Putri et al. (2020) on Abstracts from different disciplines. In addition, the studies on moves and steps structures inside PhD dissertations are also found either from a single section of Abstract, Conclusion or a form of a genre set of Abstract, Introduction, & Conclusion (Bunton, 2002;

Bunton, 2005; Saengsai, 2015). As learned from the previous literature, scarce are the studies on the moves and/or linguistic components of abstracts from the two genres (MAs and RAs). To the best of the researcher's knowledge, there is a similar study of how abstracts of master's thesis and RA abstracts are organized in terms of moves and linguistics realization on Information and Communication Technology (ICT) discipline (Amnuai, 2019a). There was no such research conducted with Engineering studies before. As a result, it is worth noting that the study of a similar type of research in Electrical Engineering should not be neglected. It is believed that the results will enhance understanding of the linguistic components and discourse elements presented in the compositions of MA and RA English abstracts in the field of Electrical Engineering (ELE).

2. Research Objectives

1. To compare how the Master's thesis (MA) and Research article (RA) English abstracts in Electrical Engineering are written
2. To explore the differences of three linguistics components of tenses, voices, and that complement clauses from the two genres

3. Research Methodology

3.1 Selection of MA theses and RA abstracts and Corpus Management

Electrical Engineering is the discipline concerned with the studies on design and application of equipment, devices and systems which use electricity, electronics, and electromagnetism. Moreover, it is a cutting-edge field that had made and is making great contributions to people's lives. Without the knowledge of this discipline, the fastest and easiest communication online between people would not have been possible (Gao & Pramoolsook, 2023). Inside the researcher's workplace, Electronic and Telecommunication Engineering Department has been teaching and training the students since 2006. This includes a graduate program in Electrical Engineering. With its popularity, the particular field has attracted students across northeast region of Thailand. Students enrolled in this program encounter significant challenges when writing their English abstracts. Consequently, the outcomes of the current investigation may offer them some assistance in producing accurate and confident abstracts, enabling them to effectively share their research with broader communities through presentations and publications. However, there are only a few studies that conduct move analysis in Electrical Engineering field, and their focuses were on RA abstracts only (Koutsantoni, 2006; Maswana et al., 2015; Saengsai, 2021).

The compilation of texts to be conducted was mostly intuitive and purposive, following the general identification criteria of sources from which texts to be collected by Nwogu (1997)-representativeness, reputation, and accessibility. To complete the two objectives of this present study, the two corpora from MA English abstracts and the RA

English abstracts in an international journal from the same field of Electrical Engineering were collected. Moreover, to conduct a comparative study, the number of texts from the two corpora has to be the same figure (Jabeen et al., 2011; Saengsai, 2015). However, due to the accessibility of texts, the first corpus of MA theses consisted with the limitation of 10 abstracts written during the years 2019-2022 from Department of Electrical Engineering, Rajamangala University of Technology Isan, Khon Kaen (RMUTI, KKC), Thailand. To obtain the texts from the second corpus, a supervisor of master’s theses with a PhD degree in Electrical Engineering was asked about “Which should be the suitable international journal that he mostly encouraged his graduate students to write their RA articles to get published? As a result, the second corpus consisted of another 10 RA abstracts published in an international journal named “International Journal of Electronics and Communications”. All of the RA English abstracts were printed in 2023, accumulating 5,000 words approximately from the two datasets (Mas and RAs). Then the selected English abstracts from the two corpora were designated as TEE01-TEE10 for Master’s theses and JEE01-JEE10 for research articles in Electrical Engineering.

3.2 Analysis Methods

The four-step procedures indicated by Holmes (1995) was employed to investigate the move structures of Electrical Engineering English abstracts from the two corpora of this present study. Firstly, in terms of marking the moves, the researcher looked for an organization where communicative purposes of the writers were considered. Secondly, the moves were identified by using the sentence-level analysis because some moves can be recognized by one sentence or more or by the whole paragraph to show only one move. Bhatia’s (1993) four-move framework (Purpose-Methodology-Results-Conclusions) was adopted to identify the abstracts moves, following the suggestion of Saengsai’s (2021) study on Moves of Electronics and Telecommunication Engineering English RA abstracts published in Thai Journals. Her study’s result pointed out that although Hyland’s (2000) five-move framework (Introduction-Purpose-Method-Product-Conclusion) was used to identify the study’s moves, the analyzed abstracts tended to rely more on Bhatia’s (1993) than Hyland’s (2000) model. Thirdly, all sentences to a particular move were allocated. Finally, the move classification was validated by the inter-rater analysis that involved a lecturer with a PhD degree in English Language Studies and a supervisor of MA theses in Electrical Engineering holding a PhD degree. This is to warrant the reliability of the findings. Table 1 represents Bhatia’s (1993) four-move framework for the move-based study of the present study.

Table 1: *Bhatia’s (1993) four-move framework (pp. 78-79)*

<i>Moves</i>	<i>Functions</i>
<i>Introducing the purpose</i>	<i>Outlines objectives or goals of the experiment. This move gives a precise indication of the author’s intention, thesis or hypothesis which forms the basis of the research being reported</i>

<i>Moves</i>	<i>Functions</i>
<i>Describing the methodology</i>	<i>Provides a good indication of the experiment design, including information on data, procedures and methods. The author gives a good indication of the experimental design, including information on the data, procedures or method(s) in this move.</i>
<i>Summarizing the results</i>	<i>Offers observations and findings and suggesting solutions to the problem. This is an important aspect of abstracts where the author mentions his observations and findings</i>
<i>Presenting the conclusions</i>	<i>Interprets results and draws conclusion. This move is meant to interpret results and draw inferences. It typically includes some indication of the implication and applications of the present findings.</i>

Aside from move identification of Electrical Engineering English abstracts between MA theses and RA abstracts, their linguistics components of tenses, voices, and that-complement clauses of each move inserted from the two genres were also explored. Numerous studies have effectively employed computer software to analyze linguistics components (Pho, 2008; Pho, 2010; Zhang et al., 2012); however, the researcher chose the manual approach because the dataset of this present study is comparatively limited in size. After the moves and their patterns in each individual abstract were identified, the overall linguistics components of which (tenses, voices, and that-complement clauses) were then analyzed by re-reading the entirety of the abstracts. Then frequencies and percentages of each linguistics component situated in each move from the corpora of MA and RA English abstracts were calculated (Arsyad et al., 2021).

3.3 Move Classification and Inter-rater Reliability

Following Kanoksilapatham (2005), the move frequency classification of the English RA abstracts is used to supersede the criteria. For example, if a particular move occurred in all 10 MA English abstracts and 10 RA English abstracts, the move will be accounted for 100% or entitled as “Obligatory”. The occurrence of move from 60-99% will be considered as “Conventional”. A move that is found lower than 60% will be regarded as an “Optional”. If it is not recognized 50% or more, it will not be determined as a new move (Amnuai, 2019a; Nwogu, 1997; Saengsai, 2021). Two raters work coordinatively for the inter-rater reliability. It is the extent to which a measuring method yields the same repeated results on reproduced sequences. In this action, the simple method of reporting inter-reliability, ‘Percent Agreement’ proposed by Frisby (2017) was used to ensure the reliability of abstracts in MA and RA English abstracts of the present corpus. As suggested by Kanoksilapatham (2009), the researcher with PhD in English Language Studies invited the other researcher with PhD in Electrical Engineering to help ascertain the reliability and validity of the move findings. As such methods, the outcomes from the raters who code the same units are discussed and considered until they reach 100% agreements (Saengsai & Pramoolsook, 2017; Saengsai, 2021).

4. Results and Discussion

4.1 Moves and the occurrence between MA and RA English Abstracts

To compare how the MA and RA English abstracts in Electrical Engineering are written, and to explore the differences of three linguistics components of tenses, voices, and that-complement clauses from the two genres, the intriguing points are considered and discussed in this section. Table 2 shows the findings on Move Types, Number of Move Types, and Move Occurrence between MA and RA English abstracts in Electrical Engineering of the present study.

Table 2: *Move Types, Number of Move Types, and Move Occurrence between MA and RA English Abstracts*

Move Types	MA English Abstracts										Move Occurrence (n=10)	RA English Abstracts										Move Occurrence (n=10)
	TEE 01	TEE 02	TEE 03	TEE 04	TEE 05	TEE 06	TEE 07	TEE 08	TEE 09	TEE 10		JEE 01	JEE 02	JEE 03	JEE 04	JEE 05	JEE 06	JEE 07	JEE 08	JEE 09	JEE 10	
I	✓			✓							2 (20%)		✓		✓		✓		✓	✓		5 (50%)
P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10 (100%)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10 (100%)
M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10 (100%)	✓		✓	✓	✓	✓	✓	✓	✓	✓	9 (90%)
R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10 (100%)	✓	✓	✓	✓	✓	✓	✓		✓	✓	9 (90%)
C					✓						1 (10%)	✓	✓									2 (20%)
Number of Move Types	4	3	3	4	4	3	3	3	3	3		4	4	3	4	3	4	3	3	4	3	
<i>Note: I = Introduction, P = Purpose, M = Methodology, R = Results, C = Conclusion</i>																						

The analyses of these two corpora reveal that the majority of MA and RA English abstracts in Electrical Engineering represented all four moves in Bhatia’s (1993) model. However, 2 abstracts in MA and 5 abstracts in RA showed the Introduction move in Hyland’s (2000) framework. Four moves of Purpose (P), Methodology (M), Results (R), and Conclusion (C) were found to have quite a similar mark in both two data sets. In the MA corpus, P, M, and R, were Obligatory moves (100%). In the RA corpus, the P move was found to be only an obligation, while M and R moves were Conventional (90%). The Conclusion move from the two genre sets were Optional (< 60%). As illustrated in Table 2, the dominant sequence of moves written in MA and RA English abstracts is Purpose-Methodology-Results (P-M-R). This finding corresponds to Hyland (2000) in that the majority abstracts in his study’s corpus were written with P-M-Pr(R), which included the RA abstracts in Electrical Engineering. Most abstracts in both collections typically initiated with the Purpose move, highlighting a consistent pattern observed in Berkenkotter & Huckins’ (1995) study in that the writers usually open the abstract with this move. Bhatia (1993) also states the writers see the importance of establishing context of paper; indicate purposes; provide procedures; state main finding to promote their research, and then indicate implications and applications of the findings. However, an interesting point that should not be forsaken is that the Conclusion move in 2 abstracts from MA and 4 from RA was not found in the abstracts with the Introduction move. The amount of this Introduction move in the abstracts was found to have more numbers than the Conclusion from both corpora. In addition, the MA and RA English abstracts tended to reckon more on the move

structure stated in Hyland’s (2000) than in Bhatia’s (1993). This finding can be indicated that despite the suggestions of some researchers (e.g., Bhatia, 1993; Berkenkotter & Huckin, 1995; Saengsai, 2021; Saengsai et al., 2022), these writers opted to present their work that diverge from the ‘ideal’ of universal structure (Hyland, 2000; Saengsai, 2015; Saengsai et al., 2022). Moreover, the findings on move occurrence from MA and RA revealed quite a similarity in terms of the popular move types employed by the two groups of writers (I-P-M-R). This indicates that Master’s thesis supervisors are more able than their students to see what types of information (moves/patterns) should be put into the students’ MA English abstracts as well as in RA English abstracts (Bunton, 2002; Saengsai, 2015) when the graduate students have to submit their studies to the research journals in their field. As a result, the move pattern of both MA English abstracts and RA English abstracts in Electrical Engineering of this present study was largely resemble. The move pattern between MA and RA English abstracts are displayed in Table 3 below.

Table 3: *Move Patterns between MA and RA English Abstracts*

Order	Move Pattern of MA English Abstracts in Electrical Engineering	Frequent Move Pattern (n=10)		Move Pattern of RA English Abstracts in Electrical Engineering	Frequent Move Pattern (n=10)
1	I-P-M-R	1 (10%)		I-P-M-R	3 (30%)
2	P-M-R	7 (70%)		I-P-M	1 (10%)
3	P-I-M-R	1 (10%)		P-M-R	4 (40%)
4	P-M-R-C	1 (10%)		P-M-R-C	1 (10%)
5				P-I-R-C	1 (10%)

Note: I = Introduction, P = Purpose, M = Methodology, R = Result, C = Conclusion

The subsequent pattern, such as M1-M2-M3-M4-M5, or M2-M3-M4 of the move in any sample abstract is referred to linearity of the move while the non-linear sequences show tangle in the same ordering like M2-M1-M3-M5-M4, or M3-M1-M2 (Ahmed, 2015). Although some abstracts are formed with only one or two moves like M2 or M2-M3, they can be considered as abstracts written by using the linearity of the move. The findings on Move patterns between 10 MA and 10 RA English abstracts reveal that the most linear pattern in abstract move employed by the MA writers was P-M-R structure, which is accounting for seven (70%) in the corpus; however, only one abstract followed the pattern of Bhatia’s (1993) framework (P-M-R-C). For the RA English abstract corpus, the most straightforward sequence was P-M-R structure as well, accounting for four out of ten (40%) in the data set. In like matter of MA English abstracts, P-M-R-C of Bhatia’s (1993) model was employed in an only one of RA abstract. The results of Move patterns between MA and RA groups are corresponded to Hyland (2000) and Amnuai (2019b) in that the P-M-R pattern was the most employed among Thai writers and it was also found as the most constant sequence in RA abstracts globally. Nonetheless, these findings are very different from Amnuai (2019a) in that the P-M-R abstract move pattern in her study was employed in only one Master’s thesis English abstract and in one RA English abstract on Information and Communication Technology field. This can be indicated that different disciplinary knowledge and cultures that the students subscribe to can create major and minor

differences in the English abstracts writing (Saengsai & Pramoolsook, 2017) even they create the similar genres. Excerpts 1 and 2 show the majored move pattern of P-M-R from the two corpora.

(Excerpt 1, TEE10)

“This thesis presents the synthesis of current mode quadrature sinusoidal oscillator using CFTA....” (P)

“The active element can be adjusted by electronic method.....” (M)

“The results of PSPICF simulation program found that the circuit is able to provide sinusoidal quadrature signals.....” (R)

(Excerpt 2, JEE03)

“A wide-band LC-tank CMOS voltage oscillator (VCO) employing a transformer-based variable inductance structure is presented.....” (P)

“The inductance and quality factor from variable structure were extracted from the transformer’s electromagnetic....” (M)

“The proposed VCO is simulated and shows a percentual tuning range of” ®

4.2 Linguistics Components between MA and RA English Abstracts

This section contains the results relating to the linguistics components of verb-tenses, voices, and that-complement clauses written in the MA and RA English abstracts in Electrical Engineering. This will correspond to the second objective of the present study.

4.2.1 The Verb-tenses

Table 4: *Verb-tenses between MA and RA English Abstracts*

Move Types	Introduction		Purpose		Methodology		Result		Conclusion	
Number of MA English abstracts containing Move Types (n=10)	2		10		10		10		1	
Present Tense	2	20.0%	10	100.0%	10	100.0%	10	100.0%	1	10.0%
Past Tense	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Present Perfect Tense	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Move Types	Introduction		Purpose		Methodology		Result		Conclusion	
Number of RA English abstracts containing Move Types (n=10)	5		10		9		9		2	
Present Tense	5	50.0%	9	90.0%	7	70.0%	8	80.0%	2	20.0%
Past Tense	0	0.0%	1	10.0%	2	20.0%	1	10.0%	0	0.0%
Present Perfect Tense	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

As seen in Table 4, present tense was the most outstanding of the five moves found in both MA and RA English abstracts in general. The most frequent move pattern of P-M-R in the MA corpus employed 100% of the present tense, while the same sequence contains the similar tense at 90%, 70%, and 80%, respectively in the RA corpus. In the tense distribution, both groups were influenced by the use of present tense with a slight exception

of the use of past tense in Purpose (1 abstract), Methodology (2 abstracts), and Conclusion (1 abstract) moves in RA corpus. The prevailing use of present tense in MA and RA English abstracts was persistent with the realization in linguistic features of various research studies on Information and Communication Technology MA thesis and RAs abstracts; Arts and Education MA thesis abstracts; Science and Engineering RA abstracts; (Amnuai, 2019a; Arboleda, 2022; Qurratu'aini et al., 2022). As stated by Pho (2008) and Nurhayati (2017), the use of present tense was applied in order to give an impression that the research is existent and the content of the abstract is widely accepted. However, the results from the two genres of MA and RA English abstracts in Electrical Engineering of this present study encountered different opinions with several research on Education; Law, Linguistics, Medicine, and Police; Agricultural RA abstracts (Alhuqbani, 2013; Arsyad et al., 2021; Zhang et al., 2012) in that the past tense was a dominant tense employed in the RA abstracts mentioned. This can be generalized that the situated characteristic in abstract writing takes place in disciplinary discourse communities (Flowerdew, 2013). Moreover, a noticeable difference in the use of tense between MA and RA corpora was that the first group (MA) tended to use present tense in their MA English abstracts rather than the RA English abstracts in the RA corpus. Paltridge & Starfield (2007) state if an abstract is considered as a summary of a thesis, then present tense is used in it and texts inside RAs go through a more complicated process of refereeing and peer-review before they reach publication (Koutsantoni, 2006), making these two different genres created and employed in different communicative contexts (Bhatia, 1993; Flowerdew, 2013). Therefore, variations between the use of tense chosen can be found.

4.2.2 The Voices

Table 5: *The Use of Voices between MA and RA English Abstracts*

Move Types	Introduction		Purpose		Methodology		Result		Conclusion	
Number of MA English abstracts containing Move Types (n=10)	2		10		10		10		1	
Active Voice	1	10.0%	7	70.0%	4	40.0%	5	50.0%	0	0.0%
Passive Voice	1	10.0%	3	30.0%	5	50.0%	4	40.0%	1	10.0%
Both Active + Passive	0	0.0%	0	0.0%	1	10.0%	1	10.0%	0	0.0%
Move Types	Introduction		Purpose		Methodology		Result		Conclusion	
Number of RA English abstracts containing Move Types (n=10)	5		10		9		9		2	
Active Voice	4	40.0%	4	40.0%	2	20.0%	8	80.0%	1	10.0%
Passive Voice	1	10.0%	6	60.0%	7	70.0%	1	10.0%	1	10.0%
Both Active + Passive	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

Focusing in the most preferable sequence of P-M-R move in the abstracts between MA and RA corpora, the most distinction was that active voice was used more frequently in the P move (70%) while there was not much difference between active and passive voices

employed in the M and R moves of the MA corpus. For the RA corpus, the passive voice was employed largely in the P (60%) and M (70%) moves, while it can be seen outstandingly that the R (80%) move in the RA corpus contained the active voice. The result of the use of voices between MA thesis and RA English abstracts in Electrical Engineering of this present research was in contrast with Amnuai (2019a)'s study in that the MA corpus of Information Communication Technology used passive voice more frequently than active voice and the RA corpus of the ICT discipline employed active voice more regularly than the passive voice. As Lorés (2004) and Swales (1990) state, texts are easier to understand when they are in the active voice. Nonetheless, the use of passive voice is considered as a more formal strategy when the writers describe methodology and present the results in research article abstracts (Hanidar, 2016). The information provided in the present study can give signal for MA students in Electronic Engineering on how to organize both their English and RA abstracts as a requirement for the graduation in their field. Excerpts 3 and 4 show Purpose and Method moves with active voice in the MA corpus, and the same moves with passive voice in the RA corpus.

(Excerpt 3, TEE02)

“This article presents the Development and design of digital amplifier (Class-D) with PCM techniques on..... (P)

“PCM technique to transform into 16 bit digital audio data and then use decoded data to create a PWM signal with different values.....Enter the extension section of the Class D amplifier..... (M)

(Excerpt 4, JEE09)

“In this paper, a design for standard ternary inverter (STI)is proposed..... “ (P)

“The proposed designs are simulated in HSPICE using a 32 nm CNTFET model With respect to variation in, the proposed STI circuit is examined.....” (M)

4.2.3 That-complement clauses

Table 6: *The Use of That-complement clauses between MA and RA English Abstracts*

Move Types	Introduction		Purpose		Methodology		Result		Conclusion	
Number of MA English abstracts containing Move Types (n=10)	2		10		10		10		1	
That-complement clauses	1	10.0%	0	0.0%	1	10.0%	4	40.0%	0	0.0%
Move Types	Introduction		Purpose		Methodology		Result		Conclusion	
Number of RA English abstracts containing Move Types (n=10)	5		10		9		9		2	
That-complement clauses	0	50.0%	0	0.0%	0	0.0%	7	70.0%	0	0.0%

As revealed in Table 6, that-complement clauses were the most dominant feature to see in the Result move of English abstracts from the two datasets. However, a slight number of this element can be found situating in the Introduction (10%), Methodology (10%), and Result (40%) moves in the MA corpus. This can be pointing out that novice writers at this graduate studies level might have less experience in writing their research in English, so difficulty in distinguishing between content and structure can also be found (Shah et al., 2009). The feature of that-complement clauses was found only in the Result (70%) move of the RA corpus. The objective of this linguistics component is to mark the main argument, summarize the purpose of the research, form an assessment of the validity of information presented, and comment on the writer's own work (Hyland & Tse, 2005). Moreover, its semantic denotations are subjectivity, refereeing to speaker's comments, which could be divided into different layers of evaluative source of information (Kim & Crosthwaite, 2019). The writers use this feature to indicate their research findings if they are useful and applicable to the field. Moreover, they can use that-complement clauses to signal the readers that the results are about to be presented and evaluated (Amnuai, 2019a). As indicated in Table 6, it can be wrapped up from this study that the that-complement clauses were mostly situated in the Result move from both MA and RA datasets. This finding was also sharing a conformity with many previous studies (Amnuai, 2019a; Suntara & Usaha, 2013; Zhang et al., 2012) as they asserted that the feature of that-complement clauses was an important representative of the Result move. Excerpts 5 and 6 demonstrate examples of the use of that-complement clauses from both MA and RA English abstracts of MA and RA corpora.

(Excerpt 5, TEE01,02)

*"Additionally, it is found that the experimental and the simulation one are well Matched".
"The experimental results of show that the results are consistent with....."*

(Excerpt 6, JEE01,08)

*"The simulation results demonstrated that the absorbance can achieve more than..."
"Based on these results, it has been shown that those designs....."*

5. Conclusions and Recommendations

The contrastive study of 10 MA theses and 10 RA English abstracts in Electrical Engineering has shown some useful information in relation to the writing styles among those abstract writers. The aims of this study were to compare how the Master's thesis and RA English abstracts in Electrical Engineering are written with the exploitation of Bhatia's (1993) model to identify the abstracts moves, and to explore the differences of three linguistics components of tenses, voices, and that-complement clauses written inside the English abstracts based on the two different genres. In the MA corpus, Purpose (P), Methodology (M), and Result (R) were obligatory. However, the P move was obligatory, while the M and R moves were conventional in the RA corpus. The Conclusion (C) move found from the two datasets was considered optional. Apart from Bhatia's (1993) four-move framework (P-M-R-C), the Introduction (I) move from Hyland's (2000) study was also identified from 5 out of 10 abstracts in the RA corpus, while this move was found from

2 out of 10 in the MA corpus making this move to have more numbers than the Conclusion from both corpora. The most favorite English abstracts pattern among MA and RA collections was P-M-R structure. The MA writers tended to use this linear sequence of P-M-R in their abstracts while the RA writers tended to use the sequence of I-P-M-R. In terms of three linguistics components, both groups were influenced by the use of present tense in the P, M, and R moves. The present tense was employed 100% in the MA corpus, while it was used less in the P, M, and R moves than in the RA corpus. Active voice was exploited more frequently in the P move while there was not much difference between active and passive voices employed in the M and R moves of the MA corpus. Nonetheless, the passive voice was used largely in P, and M moves while the R move was written with the active voice outstandingly in the RA corpus. Lastly, that-complement clause was the impressive form of writing in the Result move from the two datasets of MA and RA corpora.

It is hoped from the study that despite the small scale of its samples, a number of research's findings can be applied to graduate students who wish to publish their studies to both national or international journals in Electrical Engineering, especially on English abstract section. To set out that their abstracts are generally readable and acceptable, promising graduates should be aware of structural and some linguistics components to be used in the writing. Prior to the submission of research articles to journals in their field, supervisors could apply the genre-based approach methods in the teaching of writing to enlighten the direction of publishing their research successfully. The more familiar the graduates are with structural and linguistics components of abstracts, the more effective of writing their research papers can be achieved. Furthermore, it is recommended to undertake discourse-based interviews within the field of Electrical Engineering or across various disciplines to gain deeper understanding and qualitative information regarding the variations on the writing process and various perspectives outlined in the abstracts from MA and RA corpora (Saengsai & Pramoolsook, 2017; Saengsai, 2021). Nonetheless, the sample size, types of journals, years of publication, requirements of MA theses or the journal, and the insignificant phenomena of moves may have an impact on the principle of the study's findings. As a result, these obstructions should be considered when conducting more of MA theses and RA English abstracts' move studies with larger corpora in the course of time.

6. Acknowledgment

As a mother of two, a teacher for thousands, I owed my deepest appreciation to my beloved family for their whole-hearted encouragement and unconditional love. My appreciation also extends to my husband who always helped me take care of our children when I was away conducting and writing my research. And my special thanks also go to Rajamangala University of Technology Isan, Khon Kaen Campus, Thailand for the positive guidance to advance in my career.

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