Investigating Move Structure of English Applied Linguistics Research Article Discussions Published in International and Thai Journals

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Abstract

This study investigates the rhetorical move structure of English applied linguistic research article Discussions published in Thai and international journals. Two corpora comprising of 30 Thai Discussions and 30 international Discussions were analyzed using Yang & Allison's (2003) move model. Based on the analysis, both similarities and differences regarding the move occurrence, move-ordering patterns, and move cyclicity were found. The marked differences of the two corpora were in the step employment. The findings obtained in the current study are useful particularly for novice non-native writers by facilitating them to better understand the rhetorical structure of research article Discussions in the different publication contexts. In addition, they may provide L2 teachers with insight into effective instructional strategies to help EFL/ESL learners acquire pragmatic knowledge of the rhetorical structure of research article Discussions.

Keywords: move analysis, discussion section, research article, genre

1. Introduction

In recent years, there has been considerable work on genre-based language studies. Particularly in the field of English for Specific Purposes, genre analysis has become an important approach for text analysis (Dudley-Evans, 1994). The term 'genre analysis' was initially used in the ESP context in Swales' (1981, 1990) pioneering work on the Introduction to an academic article (Connor, Upton & Kanoksilapatham, 2007; Dudley-Evans & St John, 1998). Genre analysis is the analysis of language use in a broader sense in order to account for not only the way text is constructed but also for the way it is likely to be interpreted, used and exploited in specific contexts to achieve specific goals (Bhatia, 2002). In the field of applied linguistics, such analysis is used to research and describe structure and stylistic features of texts (Coffin, 2001).

One of the genre-based approaches used to identify the structure of research articles (RAs) is 'move analysis', which has recently become an important area of research. Some influential research on this particular form of analysis has been conducted in Swales' (1981, 1990) studies. Swales' Create a Research Space (CARS) model has been used to analyze research articles in different disciplines. A 'move' means a discoursal segment that performs a particular communicative function (Swales, 2004). It represents semantic and functional units of texts that have specific purposes (Connor, Upton & Kanoksilapatham, 2007). The focus of move-based analysis is on the hierarchical schematic structures of texts (Nwogu, 1997). With this in mind, it can be said that a move is a semantic unit that associates with the writer's purpose.

Research articles are one genre which has been extensively investigated using the move-based approach. The different conventional sections, Introduction, Methods, Results and Discussions (IMRD), of research articles have been investigated by several researchers. Some studies focus on specific research sections such as the Introduction (e.g. Jogthong, 2001; Samraj, 2002; Swales, 1990), Methods (Lim, 2006, Peacock, 2011), Results (e.g. Brett, 1994; Thompson, 1993; Williams, 1999), and Discussion (e.g. Holmes, 1997; Peacock, 2002; Yang & Allison, 2003), whereas other studies analyze all four sections or "IMRD" patterns (e.g Kanoksilapatham, 2005, 2007; Nwogu, 1997; Posteguillo, 1999). Also, studies on move-based analyses have been extended to compare the rhetorical moves used in English RAs with those of RAs written in other languages such as Chinese (Loi & Evan, 2010), and Slavic (Yakhontova, 2006). It can be seen that analyzing RA sections using the move-based

approach has attracted many researchers.

The present study focuses on the Discussion section because it plays an important role in the research article (e.g. Basturkmen, 2012; Holmes, 1997; Lim, 2010; Peacock, 2002; Yang & Allison, 2003). In the Discussion section, the authors stake claims about how their results integrate with and contribute to disciplinary knowledge (Basturkmen, 2012). As Weissberg and Buker (1990) stated, when writing the Discussion section, the author steps back and takes a broad look at the findings as a whole, trying to move the readers back from the specific information presented in the results section to a more general view of how the findings should be interpreted. However, it is widely recognized that the Discussion section is difficult to write and troublesome for both native and non-native speakers (e.g. Flowerdew, 1999, 2001; Jaroongkhongdach et al., 2012; Swales, 1990; Swales & Feak, 2004). This may be because writers need to meet the cognitive demands of the discussions and have skills for writing in the persuasive and argumentative styles (Pojanapunya & Todd, 2011).

Previous research studies have shown that there are some significant variations in the structural organization in corpora of RA Discussions. For example, Holmes (1999) revealed that the rhetorical structure of social science Discussion sections displayed some distinctive features, such as the result that there is no obligatory move. Also, in a study carried out by Peacock (2002), it was found that there was no compulsory move in 252 Discussions from seven disciplines. In addition, there were some differences in terms of move employment and cyclicity in the Discussions written by native and non-native writers. In three different corpora (Persian, English, and English as L2), Amirian, Kassaian, and Tavakoli (2008) found that although there was a kind of universality in moves across English and Persian texts, there were some discrepancies in the frequency and sequence of moves, such as the lack of a logical sequence of different moves in the English Discussions written by Persian writers. The marked difference was the pervasive use of 'Reference to previously mentioned statement' and 'Expressing wish for further research' moves in the Persian corpus that were not found in the English corpus. Results showed that Persian writers tended to make strong claims when explaining and justifying their findings and tried to validate their findings by repetitively referring to past literature.

Although some studies have identified the schematic structure of research articles written by Thai writers, their focus was on other sections, such as the Abstract (e.g. Phanthama, 2000; Promsin, 2006) or Introduction (e.g. Im-O-Cha, Kittidhaworn, Broughton, & Panproegsa, 2004; Jogthong, 2001). To the best of our knowledge, there has been no research published comparing the structural organization of RA Discussions published in local Thai journals with those in international journals. Therefore, this study aims to investigate whether there are similarities and/or differences between the rhetorical move structure of English research article Discussions published in these two different contexts (Thai journals and international journals) in the hope that our findings may, to a certain extent, be valuable to inexperienced writers when writing RA Discussion. In addition, the differences found between the two corpora may raise practitioners' awareness about the rhetorical move structure of RA Discussions, which will assist them to write this particular section in an acceptable form.

2. Method

2.1 Data Collection

Two corpora were used in the present study: an international corpus and a Thai corpus. The international corpus consisted of 30 English RA Discussions in the field of Applied Linguistics taken from ten international journals published during the period 2003-2010. The selection of the journals is based on the ranking of journals in the Journal Citation Reports and their impact factor for the year 2009. The samples used in the Thai corpus were thirty English-language applied linguistic RA Discussions drawn from ten peer reviewed journals published by universities in Thailand. The Discussion sections selected for the Thai corpus were written by Thai writers. Due to the limited number of English RAs in the field of Applied Linguistics, the Thai corpus was chosen based on purposive sampling. For the purpose of identification and easier access, RA Discussions from each corpus were separately codified (T1-T30 for the Thai corpus, and I1-I30 for the international corpus).

2.2 Data Analysis

The move model proposed by Yang and Allison (2003) is used as the framework for the move identification because it was developed from the analysis of RAs in Applied Linguistics which is also the focus of the present study. Also, some moves in their model contain a wide coverage of the constituent steps which are used to realize the moves explicitly. The model consists of seven moves as shown in Figure 1.

Move 1: Background information
Move 2: Reporting results
Move 3: Summarizing results
Move 4: Commenting on results
    Step 1: Interpreting results
    Step 2: Comparing results with literature
    Step 3: Accounting   for results
    Step 4: Evaluating results
Move 5: Summarizing the study
Move 6: Evaluating the study
    Step 1: Indicating limitations
    Step 2: Indicating significance/advantage
    Step 3: Evaluating methodology
Move 7: Deductions from the research
    Step 1: Making suggestions
    Step 2: Recommending further research
    Step 3: Drawing pedagogic implication

Figure1. Yang and Allison's model for research article Discussions

In the process of move identification, the notion of communicative purpose was central for the analysis of RA Discussions. Therefore, if there were cases where the communicative purpose of a unit of text was not self-evident, where multiple functions were served in the context, or where one sentence contained two or more moves, they were assigned to the move and step that appeared to be most salient (e.g. Del Saz-Rubio, 2011; Holmes, 1997; Ozturk, 2007). To ensure the reliability of the move analysis, another coder who had expertise in coding move analysis was employed in addition to the principal researcher. Intra-rater reliability, as suggested in previous literature (Jalilifa, 2010; Mahzari & Maftoon, 2007), was also executed by re-analyzing a sample of 20 pieces (10 from each corpus) a month after the first rating. The frequency of each move in each RA Discussion was recorded in order to verify the extent to which a particular move was used. The criteria for justifying and classifying the frequency of each move are defined according to Kanoksilapatham (2005). If a particular move occurs in every RA (100%), it is regarded as 'obligatory', if the occurrence of a move is below 60 %, it is 'optional', and if the occurrence ranges from 60-99%, the move will be classified as 'conventional'.

3. Results

3.1 The Rhetorical Moves of Research Article Discussions in the Two Corpora

As shown in Table 1, the most frequent move of both datasets was Move 4 (Commenting on results), followed by Move 2 (Reporting results). The frequent occurrence of Move 4 in the present study confirms Yang and Allison's findings that in the Discussion section, 'Commenting on results' was the most substantial and frequent move. The remaining five moves were less frequent, and they were optional in the two corpora. This agrees with Yang and Allison's (2003) study, which showed a low frequency of these five moves.

Table1. Frequency of moves and steps found in the Discussion sections in the two corpora

Moves/Steps	Thai corpus (N=30)	International corpus (N=30)
M1: Background Information	13 (46.66%)*	15 (50%)*
M2: Reporting Results	26 (86.66%)**	28 (93.33%)**
M3: Summarizing Results	7 (23.33%)*	7 (23.33%)*
M4: Commenting on Results	29 (96.66%)**	30 (100%)***
S1: Interpreting Results	22	29
S2:Comparing Results with Literature	22	27
S3: Accounting for Results	15	21
S4: Evaluating Results	1	-
M5: Summarizing the Study	4 (13.33%)*	-
M 6: Evaluating the Study	5 (16.66%)*	10 (33.33%)*
S1: Indicating Limitations	3	5
S2: Indicating Significance/Advantage	1	3
S3: Evaluating Methodology	2	3
M 7: Deductions from the Research	15 (50%)*	10 (33.33%)*
S1: Making Suggestions	8	4
S2: Recommending Further Research	6	7
S3: Drawing Pedagogic Implications	8	3

Note: *** = obligatory, **= conventional, and * = optional

The function and realizations of each move/step found in the present study are presented below. Within the typical examples presented in this paper, citations used in original texts were replaced by (R). The distinct lexical clues that are regarded as the key words for each example are given in bold text.

Move 1: Background information

This move is used to prepare the readers for the report or discussion of results that follows. This includes some main statements such as research questions, the aims and purposes of the study, theoretical background or established knowledge and the study's research methodology. Move 1 was an optional move in both corpora, occurring at a frequency of 46.66% in the Thai corpus and 50% in the international corpus. To realize this move, both present and past simple tenses in the form of active or passive voices were used. Realizations of this move are as follows.

Examples:

1) **The following sections presents** *the discussion based on the three research questions.* (T1)

2) **This study was set up to** *collect empirical evidence of the purported problem-solving nature of L2 formulation process.* (I2)

Move 2: Reporting results

The function of this move is to present the results of the study. Move 2 was the second most frequent move in both corpora. Its frequencies in the Thai and international corpora were 86.66% and 93.33 % respectively. Noticeably, Move 2 co-occurred with Move 4 (Commenting on results), that is, the results being presented were also likely to be commented upon. To indicate this move, some linguistic signals or expressions associated with numerical values, reporting verbs, and statements about upcoming outcomes involving graphs, figures, examples, and tables were employed extensively. Both past and present simple tenses were used in this move.

Examples:

1) **From the example, it** *is found that both of High and Low Exposure Groups do not seem to know the expected stress pattern of the word 'fascinating ' since the percentage of this expected pattern is lower (27%) in High Exposure Group and 0% in Low Exposure Group).* (T19)

2) Further examination of **the results in Table 3 revealed** *no evidence for (R)'s processing efficiency theory.* (I3)

Move 3: Summarizing results

The function of this move is to sum up the results. This move was found infrequently in the two datasets (7 from each corpus). Linguistic clues used to identify this move were summarizing verbs/nouns/phrases such as *to sum up, to summarize, in summary, and in brief*. The use of passive voice was found in the two corpora, particularly in the Thai corpus.

Examples:

1) **To sum up,** *the height and tenseness qualities of American English vowels were the areas of perceptual confusion for Standard Thai speakers.* (T5)

2) **In summary***, the effects of L1 background and experience with a particular type of accent were relatively minor factors in the ability to understand the L2 speech.* (I17)

Move 4: Commenting on results

The objective of this move is to establish the meaning and significance of the research results in relation to the relevant field. Move 4 is considered as a central move in which the results of the study are commented on through four different   steps, including 'Interpreting results', 'Comparing results with literature', 'Accounting for results', and 'Evaluating results'. Based on the analysis, Move 4 was the most frequent move in both datasets, occurring at a frequency of 100% in the international corpus and 96.66 % in the Thai corpus. Therefore, this move was considered as an obligatory move and as a conventional move in the international corpus and Thai corpus respectively. The finding conforms to Yang and Allison's (2003) study in which the occurrence of this move was obligatory, and it could occur repeatedly in the Discussion sections. Among the four steps, Step 1

(Interpreting results) and Step 2 (Comparing results with literature) were relatively frequent. The characteristics of each step and their realizations are presented below.

Move 4 Step 1: Interpreting results

This is the step where the authors make claims or generalizations based on the results of the study. This step was considered conventional for both sets of Discussions. This means that authors from both corpora not only present results but also expound their idea on the results accordingly. To interpret the results, the authors preferred using some words indicating either certainty or tentativeness such as *seem, suggest, indicate, appear* and modal verbs such as *may, might, would, could, and likely to*. These linguistics signals were likely to be used in the form of present simple tense either in active or passive voices. The first person pronoun 'we' was sometimes found to present the author(s)'s comments, particularly in the international corpus. The realizations of this step are as follows.

Examples:

*1) **This suggests that** the test takers did not take full advantage of the remaining facilitative features, like the dictionary, the thesaurus or the Self-reflective Reminder Questions.* (T11)

*2) In view of the results reported above**, it can be tentatively suggested that** there are differences in the structural organization of RA introductions in second language acquisition research and second language writing research.* (I 11)

*3) However, **we would suggest that** a measurement of the effect of particular types of feedback on a single grouping of several error categories is not helpful.* (I8)

Move 4 Step 2: Comparing results with literature

This step allows the authors to compare their study's findings with those of previous works. The high frequency of this step indicated that Move 4 Step 2 was one of the preferred options to comment on the results. Some distinct linguistic features were used to realize this step, particularly in the forms of 'be' plus some adjectives (e.g. *be consistent with, be similar to*) or certain words or phrases such as *agree with, reported in, run counter to, supported those of*. Noticeably, these linguistic signals coexisted with citations. Present simple tense was used extensively. Surprisingly, there was a case in the Thai corpus where the first person pronoun 'I' was used. Such usage did not found in any international Conclusions.

Examples:

*1) As a result, **I certainly agree with** (R) pointing out that teaching grammar in a writing class may not be enough for the…* (T25)

*2) This finding **is similar to** that of (R), in which it was concluded that…* (I17)

Move 4 Step 3: Accounting for results

In this step, the authors provide the readers with further explanation or give the reasons for the observed differences in findings or unexpected outcomes. Move 4 Step 3 occurred with notably different frequency between the two datasets. That is, it was an optional step in the Thai corpus, while it was conventional in the international corpus. This result can be used to infer that the international authors tend to clarify or explain the marked differences found in their findings. The rational explanations used to realize this particular communicative purpose were highlighted by the use of words or phrases such as *because*, *possible explanation for*, *it is possible, may be caused from, can be explained by*. Present simple tense in the passive form was found. The first person singular pronoun 'I' was also used in the international corpus.

Examples:

*1) **This can be explained by** the Thai students' cultural background. **Because** the participants would have participated in the preparation program before coming to the U.S., they most likely were familiar with academic texts and could use that knowledge to assist their reading of the Academic Text condition.* (T26)

*2) **A possible explanation for this difference could be** linked to the way in which different communities view and construct their argumentation.* (I20)

*3) At this point, **I** would like to raise another possibility, namely the avoidance of ellipsis **may also be due to the** …*(I19)

Move 4 Step 4: Evaluating results

This is the step where authors evaluate their results by stating the strengths and weaknesses of the results. Move

4 Step 4 was an optional step for both sets of Discussions, as shown in Yang and Allison's (2003) study. Only one Thai Discussion contained this step.

Example:

1) Despite the two low levels found in this study, which were due to the limitations of the subjects' proficiency, ***this information is useful for*** *the institution*. (T1)

Move 5: Summarizing the study

The function of this move is to provide the readers with the main findings of the research study. Move 5 was an optional move in the present study because it occurred only in 4 out of 30 Thai Discussions. The key words used to signal this move were similar to those found in Move 3; however, some differences were observed. The major difference is that summary or conclusive words or phrases, such as *in sum, in conclusion* were commonly followed by particular statements related to overall results, while those in Move 3 were followed by specific results.

Examples:

1) ***In sum****, hedging in academic writing is commonly and frequently found in native authors' RAs, especially in the D and I sections whereas hedging is mostly found in the D and R sections of Thai authors' RAs. (I13)*

2) ***To conclude, this present study*** *investigates, which sought to test the effectiveness of a pedagogical intervention in promoting listening development through consciousness-raising theory and the use of computer-assisted program which was newly introduced to English teaching in this university, found some obvious implications mentioned below*. (T28)

Move 6: Evaluating the study

The objective of this move is to evaluate the overall study by pointing out the limitations, indicating the contributions or evaluating the methodology. The results of the present analysis revealed that this move occurred with notably different frequency. That is, this move appeared in 5 Discussions in the Thai corpus, while it occurred at twice that frequency in the international corpus. However, Move 6 was optional in both sets of data because its frequency was below 60 %. Both present and past simple tenses were used to express this move.

Move 6 Step 1: Indicating limitations

The objective of this step is to describe the limitations of the research being conducted. Move 6 Step 1 commonly coexisted with Move 7 Step 1 (Making suggestions) or Move 7 Step 2 (Recommending further study), occurring in 6 out of 8 of the coexistence occurrences. Present simple tense was the preferred tense used to present this communicative unit. The realizations and linguistic signals used to identify this step are shown in the following examples.

Examples:

1) *The finding* ***is relatively obscure*** *when considering the descriptive statistics (the means and standard deviations) of the three variables of the three groups of students which are more or less the same.* (T12)

2) *It should be noted****, however,*** *that this is an exploratory study, and that the size of* ***the corpus is quite small****, being limited to 10 RA introductions from each subfield.* (I11)

Move 6 Step 2: Indicating significance/ advantage

The function of this step is to allow the authors to point out the strengths of the study which may be significant for applications or implications. Move 6 Step 2 was found relatively rarely in both datasets, with only one in the Thai corpus and three in the international corpus. Statements in present simple tense, relating to the significance of research conducted, such as *value, benefit, advantage, essential* were commonly used. The realizations of this step are shown in the following examples.

Examples:

1) Recognising the significance of the social interactions Thai students experienced in their daily lives ***offers valuable insights into*** *the interrelationship between the informal social interactions and formal language learning that enhanced Thai students' confidence in classroom participation*. (T14)

2) ***The significance of the present study lies in the fact that*** *it was able to compare the effectiveness of narrow*

reading and reading plus vocabulary-enhancement activities on the types of lexical knowledge acquisition and retention in a single study by suing a more careful control (see discussion in (R)) and stringent assessment standard (R). (I22)

Move 6 Step 3: Evaluating methodology

This step is used in realizing Move 6, and is used to comment on the strengths or weaknesses of the research methodology. Move 6 Step 3 was considered as optional because it was found only in two Thai and three international Discussions. Lexical items used as a clue to identify this step were some words related to *design, model, approach*, which were used in the form of tentative statements.

Examples:

*1) According to the finding which indicated that **the design of the program should be more** creative to match learner age and preference, this issue had been raised significantly.* **(T7)**

*2) **This model, however, seems less capable** of explaining L2 learners' insensitivity to the number errors involved in the present study, such as "several of the board member."* (I23)

Move 7: Deductions from the research

This is the move where authors draw inference about the results by suggesting what can be done to solve the problems identified by the research, proposing areas for further study or drawing pedagogical implication. The Discussions from the Thai corpus seem to include this move more frequently than those from the international corpus. To realize this move, present simple tense and modal verbs were frequently employed.

Move 7 Step 1: Making suggestions

This step allows authors to highlight how the research contributes to the existing knowledge in the field. Also, the authors provide some guidelines from the research findings for the readers in order to solve the problems identified by the research. Modal verbs were found in this in step.

Examples:

*1) Moreover, **it would be highly recommended that**, if possible, the university supports teachers to develop more self-access grammar materials, preferably in the university websites.* (T23)

*2) Although language proficiency might play a role here, **it must be remembered, too, that it is not necessarily** an advantage to hear speech from…*(I17)

Move 7 Step 2: Recommending further research

This step states some possible areas for future studies. Its frequency suggests that it was optional in both datasets contrasting with that found in Yang and Allison's (2003) study. This step can be signaled by words/phrases such as '*further studies/research* ', '*future studies/research*', '*more studies are needed'*.

Examples:

*1) In addition, since there should be other predictors that account for the remaining unexplained portion of the variation in the CBT scores of all groups**, more studies are needed** to explore other potential independent variables.* (T12)

*2) **Further research is necessary** to identify the interactional contexts that push learners to produce modified output in the absence of negative feedback and to determine whether self-initiated modified output is also predictive of ESL question development.* (I18)

Move 7 Step 3: Drawing pedagogical implication

This step allows authors to state the pedagogical significance of the study or indicate necessity for pedagogic changes. The frequency of Move 7 Step 3 in the Thai corpus was more than twice that of the international corpus. This may be due to the fact that there is a need to enhance Thai students' English proficiency. Research findings may serve this particular need. Therefore, Thai authors are likely to generalize their findings to English language pedagogy. Statements relating to application of the results to learning and teaching contexts were used to address this step.

Examples:

*1) The findings of this study **suggest a number of pedagogical implications**, most of which rest on the teachers' accountability. First of all, the students' L1 rhetorical conventions were helpful for paragraph writing.* (T25)

*2) These findings also **have practical implications for EFL vocabulary instruction.** (I22)*

3.2 Move Structure of the Discussion Sections from the Two Corpora

Based on the analysis, there was no straightforward linear structure (M1-M2-M3-M4-M5-M6-M7) appearing in either set of data. All Discussions in both corpora were constructed in various move structures. Of these, only two patterns of move structure (M2-M4, M2-M4-M2-M4) were shared by at least three different Discussions. With these two structures, only one move structure (M2-M4-M2-M4) was found in each corpus (one in the Thai corpus and 5 in the international corpus). This means the individual results and comments occurred alternatively. The M2-M4 structure was found in three Thai Discussions. From the findings, the large variation in move structures that was found in the two datasets may be due to the fact that the Discussion section is where the author presents his/her point based on the research findings. The author has greater freedom in generating the ideas which are relevant to the research conducted. This may lead to the presence of the various deviations of move structures in the Discussion sections of both sets of data.

Most Discussions in both sets of data were constructed cyclically (86.66 % of the international corpus and 76.66 % in the Thai corpus). Move 4 (Commenting on results) and Move 2 (Reporting results) were the most cyclical moves in both datasets. Three moves, including Move 3 (Summarizing results), Move 5 (Summarizing the study), and Move 6 (Evaluating the study) were non-cyclical moves in the Thai corpus, whereas only Move 3 was a stable move in the international corpus. Move 7 was also of a cyclical nature, particularly in the Thai corpus. It always re-occurred in a sequence with either Move 4 or Move 6.

4. Discussion

4.1 Rhetorical Moves of the International and the Thai Corpora

It was found that there were both similarities and differences in terms of move occurrence and move structure of the Discussions in the two corpora. Three main points are focused on here. First, in regard to move occurrence, the most frequent move in both sets of data was Move 4 (Commenting on results). This may be due to the fact that the main function of the Discussion section of a RA is to comment on the results by interpreting, accounting, and comparing with previous work. Move 2 (Reporting results) was the second most frequent move in the two corpora appearing slightly less frequently than Move 4. However, the third most frequent move in the two datasets was different; Move 1 (Background information) for the international corpus, and Move 7 (Deduction from the research) for the Thai corpus.

Second, Move 7 (Deduction from the research) is an important move in the Thai corpus. The frequency of Move 7 in the Thai corpus (50 %) was far greater than in the international corpus (33%). Also, this move was the third most frequent move in the Thai corpus. The reason for this may be an awareness of the importance of research article publication among Thai researchers. In general, members of educational communities as well as students at advanced levels are required to write and publish research articles. In order to attract attention to the publication, stating the value of the research conducted and/or providing practical implications for pedagogy or community are likely to be found in the Thai RAs. In addition, English is the most learnt and taught foreign language in Thailand. A variety of topics concerning English language learning and teaching are being investigated in the field of applied linguistics. Therefore, it is possible that the findings of RAs that can contribute to English language pedagogy are stated in the Discussion RAs. Likewise, some practical suggestions based on the research findings are usually made in the Discussion in order to guide or encourage Thai writers to conduct future research more effectively. These may be the reasons why Move 7 is prominent in the Thai corpus.

Third, the results showed that Move 2 (Reporting results) was used to open the section in most Thai Discussions (14 out of 30) whereas Move 1 (Background information) was the initial move in most Discussions in the international corpus (13 out of 30 Discussions). This demonstrates that Thai writers preferred starting with results, as opposed to offering background information. On the other hand, Thai Discussion sections were likely to be closed by either Move 7 (Deduction from the research) or Move 4 (Commenting on results); that is, twelve Discussions and eleven Discussions were ended by Move 7 and Move 4 respectively. This is significantly different from the international Discussions, where Move 4 was by far the most frequent choice to end the section.

4.2 Rhetorical Moves of both Corpora in Relation to Previous Studies

Findings from previous literature showed various degrees for the frequency of move occurrence. Based on the frequency analysis, Move 4 (Commenting on results) stands out in the two corpora. This finding is consistent with some past research. For example, this move occurred at 100 % frequency in the biochemistry RAs analyzed

by Kanoksilapatham (2005). Although she referred to this move as 'Consolidating results', its function resembled Move 4. In addition, the commenting on the results move was an obligatory move in a study carried out by Basturkmen (2012) who found that the authors of dentistry Discussions preferred to make comments on the results through two prominent steps (Explaining result and Comparing with results in literature). The second most frequent move was Move 2 (Reporting results). It was a common move in Swales (1990) and Holmes (1997). Also, in a study conducted by Amirian et al. (2008), the move called 'Finding' was obligatory. With the high frequency of Move 2 and Move 4, it can be said that these two moves are the substantial rhetorical moves for applied linguistics RA Discussions.

The occurrence of Move 7 Step 2 (Recommending further research) in the international corpus was interesting. Compared to the other two steps (Move 7 Step 1: Making suggestions and Move 7 Step 3: Drawing pedagogic implications), Move 7 Step 2 was the most frequent step, occurring in 7 out of 10 of the Discussions (70 %). The employment of such a step in previous research studies varied in its frequency. For example, in hard science, its frequency was 53.33% in the biochemistry corpus (Kanoksilapatham, 2005) and 46.15 % in her subsequent study (Kanoksilapatham, 2007). It occurred at a frequency of 58.82 % in a computer science corpus (Posteguillo, 1999) and 40 % in English Medical Discussions in ElMalik and Nesis's (2008) study. On the other hand, in soft science, the frequency of this step in applied linguistics Discussions was 70 % in an English corpus (Amirian et al., 2008) and 73 % in Language and Linguistics Discussions in Peacock's (2002) study. In brief, the results of previous research indicate that authors in the social sciences are more likely to recommend potential research directions more frequently than those in the hard sciences. This reflects the existence of disciplinary variation.

As mentioned earlier, there was no move pattern that was linearly ordered. A very significant observation concerning the move sequence was the position of Move 1 (Background information) and Move 4 (Commenting on results). That is, after opening the section with Move 1, the second move unit in the sequence was Move 4 as found in T5, T9, T17, T26, and I3. Examples of such move sequences include the M1-M4-M5, M1-M4-M2-M4-M3-M4 patterns. Generally, in such cases, Move 2 (Reporting results) should intervene between Move 1 and Move 4 in the sequence, that is, a brief result should be stated before commenting on the results, as shown in most examples of move sequences where Move 2 was followed by Move 4. Such a peculiar ordering pattern was found in five Thai Discussions and one international Discussion. Consider the following examples. Note that 'S' in the bracket refers to sentence number, for example, 'S1' means sentence 1.

Example	Move-step	
1	M1	[S1]*This section discusses one empirical reason why the tenseness quality of the AE vowels was the hard to identify.*
	M4S2	[S2]*Like (R), this study found that the vowel lengthening rule in English caused the confusion of the tenseness perception.* (T5)
2	M1	[S1]*The results obtained by means of the descriptive statistics and the multiple regression analyses are synthesized and interpreted for each research question, accompanied by limitations of the present study and implications for future research.*
		Research Question 1
		[S2]*Are students' levels of computer anxiety related to the feedback methods that they select during the revision stage of an essay writing assignment?*
	M4S2	[S3]*The results of this study were consistent with previous research showing that highly computer anxious individuals report a greater tendency toward exhibiting behaviors associated with avoiding computers if circumstances permit (R).* (I3)

In example 1, sentence 1 is identified as Move 1 and sentence 2 is labeled as Move 4 Step 2. Likewise, in example 2, the first two sentences are demarcated as Move 1, while sentence 3 is Move 4 Step 2. This means that after providing background information, the author continues to comment on the results by comparing with previous literature instead of providing a concise result. Such occurrence was also found in Holmes' (1997) study. That is, within three disciplines (history, political science, and sociology), he found that there were two political science Discussions which were organized in this manner. To explain this result, it is possible that the authors presupposed that the readers understood the results of the study clearly. Accordingly, Move 2 may be unnecessary.

The two sets of Discussions mostly showed cyclical structure. That is, they were characterized by the recurrence of one or more move(s). This finding supports a study performed by Peacock (2002) who found that move cycles were frequent in Language & Linguistics Discussions, particularly in the Discussions written by non-native

writers. The moves involved in the cyclic structure in both corpora were Move 2 and Move 4. These two important moves were repeated in many move sequences, for example, M2-M4-M1-M2-M4; M1-M2-M4-M2-M4-M7. The use of these sequences implies a style of presenting results. As Li and Ge (2009) pointed out, rather than presenting the overall findings (deduction), the authors preferred to use induction to develop their discussion. The induction method means writers first state the specific findings and then derives some principles from these particular findings. This indicates that Discussions from both sets of data tend to be constructed in a series of results and comments.

The sequence of results and comments which was the most prevalent pattern in both datasets was in the form of either Reporting results-Interpreting the results (M2-M4S1) or Reporting results-Comparing to previous studies (M2-M4S2). The example below is taken from I 29 showing the cyclicity of Move 2 and Move 4 Step 2.

Example:

[M2]   *The results of analysis* **revealed that***…*

[M4 Step 2]   *However,* **studies on** *the use of …***showed that***…*

[M2]   **The results also show that** *the number of …*

[M4 Step 2]   *Although we cannot…, it should be noted that* **they are in line**

                       with *results found in studies conducted in…*

In a study conducted by Posteguillo (1999), the preferred cyclical pattern found in computer science was 'the structure of result' move alternated with 'deduction' or 'recommendation' moves. The cyclicity of Move 4 (Commenting on results) in the present study may be due to the fact that applied linguistics is an established field where much previous research has been carried out. Consequently, previous works are likely to be referred to. This may be a reason why it is different from computer science Discussions in Posteguillo's (1999) study, since computer science is a new and dynamic field.

The last issue of discussion here was the use of 'we' in commenting on results in the two corpora. 'We' was found nearly half of the international Discussions; however, it was used in only three Thai Discussions. In previous research, on personal pronouns, 'we' was pervasively used in medical Discussions (Li & Ge, 2009) which suggested that the use of personal pronouns in research studies can be viewed in two different ways. First, the high use of the plural form of the first person pronoun may increase the sense of the reliability of the RAs. That is, more than one person endorsed the accuracy, quality and meaning of the results. Second, the use of this personal pronoun can be viewed in the sense of including the expected readers and disciplines, which may help shorten the distance between researchers and readers and stress solidarity with the readers. Although the two reasons for using 'we' when commenting on the results are important as suggested by Li and Ge (2009), it seems that such usage is not a major concern for the Thai authors.

5. Conclusion

The finding showed that the Discussions in both corpora conformed to the proposed model in terms of the presence of the moves as stipulated by Yang and Allison (2003). There was no linear ordering of the moves found in any Discussion. The most cyclical move in both datasets was Move 4. The noticeable differences between the two corpora were the use of Move 6 and Move 7. That is, the Thai authors tend to generalize their study (Move 7) to academic discourse communities more than the international authors; conversely, the international authors appear to evaluate their study (Move 6) more than the Thai authors.

Based on the results of the study, important implications can be drawn. Pedagogically, integrating the research article genre in the curriculum would be a practical option for second language teachers. For example, to accomplish academic writing, learners need to be made aware of the conventions set by the discourse community and they should be encouraged or instructed to see the structural complexities and relationships among functions and language usage. It is expected that the findings will assist L2 non-native learners, particular those who are increasingly pressured to publish in international journals, to generate their RA effectively. As Sheldon (2011) pointed out, when writing a research article, writers need to contextualize their studies to wider audiences and cultural contexts. Therefore, understanding the rhetorical move structure of research articles, particularly the discussion section which functions mainly to highlight and generalize research findings to the public, will enable novice writers to organize their work in a form which leads to increased chances of being accepted.

In the present study, only the rhetorical move structures of RA Discussions written by different authors are analyzed. Therefore, further research should compare the rhetorical move structure of RA Discussion sections written by the same non-native writers but published in both local and international contexts. With this

suggestion, we may obtain explicit evidence on what are the influential factors that might contribute to the variant rhetorical strategies adopted by a particular person when writing and publishing in different published environments. In addition, personal factors and other relevant variables such as authors' background, writing and publishing experiences, native speaker involvement, culture, and the reasoning for the journal selection for publication are beyond the scope of this present study. Particularly, interviewing the article writers or those who are prolific article writers would make the results more reliable (Basturkmen, 2012; Flowerdew & Wan, 2010; Kanoksilapatham, 2007) because interviewing can contribute to a better understanding of the writers' intention and the conventional structure of the writing in this particular genre. Hence, all factors presented here should be taken into consideration when conducting move-based studies.

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