

A Genre Analysis of Research Article Discussions in Applied Linguistics*

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This study adopts Peacock's (2002) revised model of move analysis to address questions related to the rhetorical structure of research article discussions and intra-disciplinary variations within the field of applied linguistics. Data were compiled from a corpus of 50 research articles published in five major peer-reviewed journals in applied linguistics. The results indicated that Moves 2 (Finding) and 4 (Reference to previous research) were obligatory; Moves 1 (Information move), 5 (Explanation for expected or unexpected results), 6 (Claim) and 8 (Recommendation) were conventional whereas Moves 3 (Expected or unexpected outcome) and 7 (Limitation) were optional. The four most common moves included Moves 1, 2, 4, and 5 whereas the least common move was Move 7. The results also suggest some intra-disciplinary differences in terms of the number and type of moves and move cycles in Studies in Second Language Acquisition. This study's findings will benefit teachers, graduate students, and less-experienced research writers in teaching and writing RA discussions that meet the expectation of their research discourse community.

Keywords: Genre analysis, rhetorical structure, research articles, discussions, applied linguistics

1. Introduction

Recent years have witnessed an increasing number of non-native speakers (NNS) of English pursuing graduate studies in applied linguistics either in their homelands or countries where English is used as medium of instruction, such as the United States of America, the

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United Kingdom, Canada, and Australia, to name just a few. These students are educated to conduct research and encouraged to write research articles for publication. After graduation, many of them are under increasing pressure to publish their work in peer-reviewed journals, preferably prestigious ones, to develop or further a career in academia. To write a research article in English is already challenging for many young international scholars, but to get their work published in major peer-reviewed journals is even more daunting due to high competition among researchers and the demanding criteria of the journals. Some researchers (Flowerdew 2000, Flowerdew 2001, Wood 2001) have noted that it is much more challenging for NNS scholars to get their work published in refereed journals than their native speakers of English colleagues. Flowerdew (2000) cites NNS scholars' English language problems, isolation from the discourse community, and peripheral participation as the main difficulties in getting their work published in international referred journals. Further, Flowerdew (2001) points out that the inappropriate structure of introduction and discussion sections of research articles written by NNS researchers is also the main problem causing their articles to be rejected for publication. Although a considerable amount of research has focused on the introduction sections of research articles (RAs) in various disciplines, much less research has analyzed the discussion sections of RAs in applied linguistics. According to Dudley-Evans (1994), students have experienced the greatest difficulty writing the discussion section. For these reasons, it is important to conduct genre analysis on the discussion features of applied linguistics RAs.

2. Literature Review

Genre analysis was initiated by Swales (1981) to analyze the rhetorical structure of text in terms of move-step model. According to Swales (1990), a genre consists of communicative discourse and purposes which are recognized by expert members of a discourse community. As such the ability to use genre would support students in their learning and communication in academic contexts. In his earlier model, Swales (1981) reviewed 40 RAs and listed four moves for analyzing article introductions; but later revised it to be a three-move

model, popularly known as Create a Research Space (CARS). The revised model including moves and a series of steps within each move consists of Move 1: Establishing a territory (establishing a topic), Move 2: Establishing a niche (justifying the present study), and Move 3: Occupying a niche (describing the present study). There are three steps in Move 1: claiming the centrality of the topic → making topic generalizations → reviewing previous research; two steps in Move 2: indicating a gap → raising a question; and three steps in Move 3: stating purposes → describing procedures, and presenting findings (Swales 1990). His revised model is the most influential and has motivated a number of researchers to investigate the rhetorical structure of conventional sections: Introduction, Methods, Result, and Discussion (IMRD) of research articles in various disciplines. For example, the introduction features have received the most attention and been investigated in different academic fields, such as computer science (Posteguillo 1999), biology (Samraj 2002), applied linguistics (Ozturk 2007, Atai & Samani 2012), philosophy (Samraj 2008), and etc. The results of these studies confirm Swales' CARs model of three moves and reveal some intra- and inter-disciplinary variations. Less attention has been paid to investigate the methods (Wood 1982, Lim 2006, Peacock 2011) and the results sections (Brett 1994, Williams 1999, Bruce 2009, Lim 2010). This may be due to the straight forward nature of these two sections which generally describe data collection and data analysis procedure and report research findings respectively.

Like the introduction section, the discussion section is perceived as one of the most important sections in a research article and thus plays an important role for the article to be accepted for publication (Flowerdew 2001). However, it is under-researched when compared to the analysis of Introductions despite the difficulty both sections cause research writers. Earlier studies were conducted in the 1980s by Peng (1987) and Hopkins and Dudley-Evans (1988).

Peng's (1987) study of 10 Chemical Engineering Discussion Sections found that four (out of eleven) moves: Move 1--Background information, Move 2--Statement of Result, Move 4--Comparison with Previous Result and Move 7--Deduction, were present in all of the texts studied. Additionally, a cyclical pattern of comparison, deduction, and hypothesis was detected.

On the contrary, Hopkins and Dudley-Evans (1988) found only one

obligatory move, Statement of results, in Biology and Irrigation and Drainage articles. They identified 11 moves including Background information → Statement of results → (Un) expected outcome → Reference to previous research (comparison) → Explanation of unsatisfactory result → Exemplification → Deduction → Hypothesis → Reference to previous research (support) → Recommendation → Justification (Hopkins and Dudley-Evans 1988: 118).

Swales (1990) outlines three moves in RA discussions as Move 1: Consolidating research space; Move 2: Stating limitations; Move 3: Suggesting further research. Within these moves, there is a series of eight steps Background information → Statement of results → (Un) expected outcome → Reference to previous research → Explanation → Exemplification → Deduction and hypothesis → Recommendation.

Dudley-Evans' (1994), on the other hand, proposed the three-part framework of the discussions as Introduction, Evaluation, and Conclusion which included nine moves: Information move → Statement of result → Finding → (Un) expected outcome → Reference to previous research → Explanation → Claim → Limitation → Recommendation. Dudley-Evans also suggested moves/cycles associated with each part of the framework as: Introduction (moves 1, or 1+5, or 2/3), Evaluation (the "key move cycles" here are 2/3+5, 7+5, or 5+7), and Conclusion (moves 3+7, or 9).

Nwogu (1997) analyzed the discussion sections of 15 RAs from medical journals in terms of Swales' (1990) model and identified three moves: highlighting overall research outcome, explaining specific research outcome, and stating research conclusions. An eleven-move schema was identified, out of which nine were found to be "normally required" and two "optional".

Using Dudley-Evans' (1994) model, Peacock (2002) analyzed the corpus of 252 RAs, 36 each from seven disciplines – Physics, Biology, Environmental Science, Business, Language and Linguistics, Public and Social Administration, and Law. He reported that no move was obligatory, but Claim (90%), Finding (84%), Reference to previous research (73%), and Recommendation (59%) occurred most frequently. The least common move, however, was found to be explanation with 33% in his corpus. Peacock also detected inter-disciplinary and native and non-native speaker differences regarding the type and number of moves and move cycles. He put forward a revised model which was

consisted of a three-part framework with eight moves for the discussion sections. Peacock claimed that his revised model was generally accurate to all of the investigated fields except Public and Social Administration.

To summarize, genre-based researchers have pointed out that writing RA discussion sections is challenging to NNS novice researchers. The method and results features, on the other hand, are more straightforward and easier to write. Several studies have also indicated inter-disciplinary and intra-disciplinary variations in terms of moves and steps used in the organization of RAs. Considering the great difficulty of writing RA discussion sections suggested by previous studies, this investigation focused on the analysis of the discussion sections of research articles in the field of applied linguistics, the area that deserves more attention.

3. Purpose of the Study

Following Peacock's (2002) model, the present study aimed to 1) identify the rhetorical structure of discussion sections in major applied linguistics journal articles and 2) examine intra-disciplinary variations within the field of applied linguistics.

3.1. Methods

3.1.1. Compilation of the Corpus

Fifty research articles (RAs) were randomly selected for analysis, ten each from five major journals in applied linguistics with a focus on (English) language teaching. The articles with an individual discussion section were chosen. Those that contained a combination of results and discussion, discussion and conclusion, or discussion and limitations were excluded from the corpus. These major journals were chosen based on the impact factors released in 2010 Journal Citation Reports as follows: *Applied Linguistics* (1.340), *Journal of Second Language Writing* (1.844), *Language Learning* (1.494), *Language Learning and Technology* (1.692), and *Studies in Second Language Acquisition* (1.571). To control for rapid changes, the corpus was restricted to a period of two years (2010 and 2011). Each research article was

referred to by an abbreviation that represents a particular journal and a number (1-10). The following are the abbreviations for the five journals in the corpus: AP = Applied Linguistics, LL = Language Learning, LLT = Language Learning & Technology, JSLW = Journal of Second Language Writing, and SSLA = Studies in Second Language Acquisition. The list of articles in the corpus is presented in the appendix.

3.1.2. Analysis of the Corpus

The current study employed Dudley-Evans' (1994) analysis method with the following procedure:

- 1) Look for organization and patterns. Identify moves by a combination of linguistics evidence and text combination.
- 2) Work from a sentence-level analysis.
- 3) Assign all sentences to a move.
- 4) Validate the classification by testing inter-rater agreement.

Additionally, the move structure was examined in terms of Peacock's (2002) revised model consisting of eight moves as follows:

1. Information move (background about the theory/research aims/methodology)
2. Finding (with or without a reference to a graph or table)
3. Expected or unexpected outcome (comment on whether the result is expected or not)
4. Reference to previous research
5. Explanation (reasons for expected or unexpected results)
6. Claim [contribution to research (sometimes with recommendations for action)]
7. Limitation
8. Recommendation (suggestions for future research)

3.2. Reliability of Move Identification

The following excerpt from the discussion section of one article in *Journal of Second Language Writing* (JSLW9) demonstrates how the text is segmented into moves in this study. The abbreviation *S* stands for sentence and is followed by a number in order from 1-7; therefore, S1 refers to Sentence #1, S2 refers to Sentence #2, and so on.

(S1) Our data reveal that all writers, in spite of their advanced level of L2 competence, had to work hard at some point in their compositions to find the words with which they could express their intended meanings. **(S2)** The mere existence of a lexical search indicates that in the initial state of that problem-space some links have already been primed in the writer's mind between some conceptual content and the lexical forms intended to express that content. **(S3)** This initial priming may speed up the recovery of further links and enhance the capacity to produce further lexical alternatives that may improve on previous ones, as well as to monitor those already produced more thoroughly. **(S4)** In short, the impact of lexical searching in formulation can be interpreted, in line with suggestions by Bygate and Samuda (2005), as one of "integration of potential resources into the actual performance of task" (p. 45), an integration which is reflected in the detail of content expressed and the accuracy and appropriateness of the lexical items selected. **(S5)** In fact, and in spite of their individual differences, the participants in this study were found to process a homogeneous set of cognitive structures that allowed them to (i) pay attention, within a larger stretch of discourse being produced, to a narrow range of relevant information consisting of lexical and/or ideational categories; (ii) produce ideationally and/or linguistically related alternatives; and (iii) analyze, evaluate, and make decisions about the accuracy or the appropriateness of the different alternatives produced. **(S6)** These cognitive structures seem to operate in similar ways to those reported for L2 learners when correcting their oral production. **(S7)** In fact, our results coincide with those of some studies in which it has consistently been found that among advanced L2 proficiency learners simple L2 linguistics repairs go hand in hand with complex discourse-level repairs (Kormos 1999, O'Connor 1988, van Hest 1996).

The excerpt above consists of seven sentences. Sentences 1 and 5 report the findings (Move 2). Sentences 2, 3 and 6 explain the reasons for expected results (Move 5). Sentence 4 refers to previous research and discusses the reason for expected results, a combination of Moves 4 and 5. The last sentence denotes previous research (Move 4). As such, the move cycles appeared as Moves 2 → 5 → 4 → 2 → 5 → 4 in which the same cycle repeats itself.

3.3. Inter-coder Reliability Analysis

In this study, two experts in applied linguistics served as coders to verify that move boundaries could be agreed upon across individuals. The two coders were native speakers of English. One had a master's degree (MA) in applied linguistics, and the other had an MA in education. Both coders have had over thirty-year experience working as

English instructors and administrators. At the time of the study, they were faculty members in the Faculty of Liberal Arts at a private university in Thailand.

The two coders were trained how to use the coding procedure to perform move analysis from the sentence level considering both linguistic clues and content. Prior to the training, the coders read the proposal of this study to familiarize themselves with the purpose of the study and the data analysis procedure. During the two-hour training, first, the researcher first explained the purpose of the current study and Peacock's model which would be used to guide the move analysis of the corpus. The coders were asked to code one article consisting of 41 sentences and noted any problem that might occur during coding. They found 43 moves, agreed upon 41 moves but disagreed on 2 moves. They also found two sentences that had a combination of moves (Moves 6+4 and Moves 2+4), and a speculative statement which, after our discussion, we decided to code as Move 6. The researcher and two coders discussed the disagreement and made adjustments. After that, the coders continued to independently code two more articles. The total number of sentences of both articles was 70 with 81 moves. The analysis revealed the agreement of 66 moves and disagreement of 4 moves. Upon completion of the coding, the inter-coder reliability was calculated and revealed 91% rate of agreement. In other words, the agreement level between the two coders was satisfactory.

4. Results

The present study aimed at identifying the rhetorical organization of discussion sections in major applied linguistics journal articles and examining intra-disciplinary variations within the field of applied linguistics in terms of Peacock's (2002) model outlining eight moves.

Generally speaking, the function of the discussion section is to present and interpret important findings. It was found that the discussion sections in this corpus were organized in two ways – one with an entire section under Discussion and the other with labeled subsections under Discussion. The labels of the subsections usually included keywords selected from key findings or hypotheses. A few discussions in this study, though, were organized by research questions. Peacock's

(2002) model was able to successfully capture the moves in this applied linguistics corpus. Results are presented in three sections: individual moves, move cycles, and intra-disciplinary variations.

4.1. Individual Moves

The results revealed a total of 2,789 moves with an average of 56 moves per article. Overall, the four most common moves included Move 2: Finding (37%), Move 4: Reference to previous research (19%), Move 5: Explanation (18%), and Move 1: Information move (13%). Move 6: Claim occurred 5%, Move 8: Recommendation occurred 4%, and Move 3: Expected or unexpected outcome occurred 2%. The move that occurred least was Limitation (2%).

Regarding the frequency of individual moves appeared in individual articles, it was found as follows: Move 1 (98%), Move 2 (100%), Move 3 (44%), Move 4 (100%), Move 5 (94%), Move 6 (86%), Move 7 (32%), and Move 8 (66%). Table 1 presents the frequency of individual moves appeared in Applied Linguistics RAs.

Table 1. The Frequency of Individual Moves in Applied Linguistics RAs

Moves	Frequency of appearance (%)	Obligatory/Conventional/Optional
1. Information move	98	Conventional
2. Finding	100	Obligatory
3. Expected or unexpected outcome	44	Optional
4. Reference to previous research	100	Obligatory
5. Explanation	94	Conventional
6. Claim	86	Conventional
7. Limitation	32	Optional
8. Recommendation	66	Conventional

Following Kanoksilapatham's (2005) 60% cut-off occurrence rate, moves which occurred 100% were considered obligatory, those that occurred 60-99% were considered conventional whereas moves which occurred

less than 60% were considered optional. As a result, Moves 2 and 4 were obligatory; Moves 1, 5, 6 and 8 were conventional whereas Moves 3 and 7 were optional. The following sections provide the description of individual moves followed by sample excerpts drawn from the corpus.

Move 1: Information move provides background information regarding theory, research aims and/or methodology. This move occurred in 49 (98% of the corpus) out of 50 articles. Applying Kanoksilapatham's (2005) criterion for a conventional/obligatory move with the cut-off of a 60% appearance rate, Move 1 was considered a conventional move in this applied linguistics corpus. The examples of the Information move are presented below.

- (1) We *set out* to learn how the writing of newcomer adolescent students reflects their growing mastery of English literacy and historical thinking. [JSLW7]
- (2) The primary *goal* of this study was to investigate how Korean EFL learners attribute successes and failures in their language classes. [LL1]

Based on the examples above, the authors of applied linguistic RAs used the Information move to restate research aims. Words or phrases associated with this move as *set out*, *goal*, and *research questions*. The 98% appearance of Move 1 in this corpus contrasts that of Peacock's (2002) findings which showed the frequency of move appearance as 42%. In Dudley-Evans's (1994) view, Move 1 functions as an introduction to the discussion prior to presenting the research results; however, Kanoksilapatham (2005) stated that biochemistry authors restated methodology in this section to communicate to the readers that the research had a specific aim which guided its research design.

Move 2: Finding highlights key findings of the conducted study. This move appeared in all of the articles in the corpus and was found to be an obligatory move. Excerpts 3 and 4 below illustrate Move 2.

- (3) This study also *showed* that this asymmetry in favor of subject questions was not restricted to advanced learners. [AP1]

- (4) By presenting captioned and noncaptioned video to groups of Arabic, Chinese, Russian, and Spanish learners, we *found* that, in response to the first research question, captioned rather than noncaptioned videos aid novel vocabulary recognition. [LLT7]

All of the authors in this corpus used Move 2 to report their main findings, making it 100% of appearance. This finding is consistent with Holmes (2001) who reported 100% appearance of this move in his agricultural economics corpus and with Peacock (2002) who reported 84% appearance. Similarly, Hopkins and Dudely-Evans (1988) found that Move 2 was an obligatory move that occurred several times in articles on irrigation and drainage and MSc dissertations in biology. When it occurred, it was usually followed by a series of moves that comment on the findings. Common linguistics exponents signaling this move included *show*, *indicate*, *find*, *confirm*, and *findings*. The four previously mentioned verbs were also found in the past simple tense, but more so with active voice.

Move 3: Expected or unexpected outcome comments on whether the result is expected, unexpected, or surprising. This move occurred in 22 (or 44%) out of 50 articles in this corpus, so it was considered an optional move. The examples below represent Move 3.

- (5) Another *unanticipated* finding concerns the ratings of the content (CA ratings) of the responses in the speaking tasks. [AP5]
- (6) This would not be an entirely *unexpected* finding, given that the Michigan Test takes many factors into account (such as vocabulary and listening skills) that are not included in the OGPS and RPS. [SSLA4]

The finding regarding Move 3 in the current study is similar to that of Peacock (2002) who reported 52% appearance rate of the (Un) expected outcome move. This move, however, was rare in Peng's (1987) chemical engineering discussions as only four occurrences were identified. Typical words or phrases were *unanticipated*, *unexpected*, *not surprising*, and *surprisingly*.

Move 4: Reference to previous research allows the authors of ap-

plied linguistics articles to compare and contrast their findings with those of previous research. This move was present 100% in the corpus of this study; therefore, it was an obligatory move. The following excerpts depict Move 4.

- (7) Another approach measures the structural distance, that is, the filler and the gap (Collins 1994, O'Grady 1997). [AP1]
- (8) As Bandura (1997) stated, self-efficacy, expectations of success, and achievement are related. [LL1]

The applied linguistics authors in this corpus established the significance of their studies by means of comparing and/or contrasting their findings with those of past research. So, it is not surprising to see the 100% occurrence rate of this move in the present study. This move normally incorporated in-text citations of authors' names and dates of publication into the text. As Peacock (2002) noted, Move 4 was used more widely in Language and Linguistics than in other disciplines (e.g. Biology, Physics, Environmental science) and appeared in 73% of his corpus.

Move 5: Explanation provides reasons for unexpected results or one that differs significantly from previous research. Because of its 94% appearance in this corpus, Move 5 was a conventional move in this corpus. Move 5 was realized in the examples below.

- (9) The proposed interactive model of motivation is also *different* from that of Tremblay and Gardner (1995) in that it allows for reciprocal relations between motivational constructs, and it places goals and attitudes at separate levels of the motivational system. [AP9]
- (10) This *difference* in the correction pattern could be due to the fact that in collaborative mode the learner has a reader, and this encourages him/her to pay attention to grammatical accuracy as when composing multiple drafts. [LLT1]

The finding with respect to the Explanation move in this study contrasts with that of Peacock's (2002) study, in which 33% of appearance was found. In other words, Move 5 was a conventional move in

this study while it was an optional move in Peacock's. This move was found to typically follow Move 2 and frequently co-occur with Moves 1, 2, and 4. When Move 5 occurred together with Move 4, it explained the differences in findings and Move 4 was used to validate the explanation or reasons. Key exponents used to realize Move 5 consisted of, but were not limited to, *difference*, *possible*, *it is possible that*, etc.

Move 6: Claim highlights contributions of the reported study, including theoretical and practical implications. This move appeared in 43 (86% of the corpus) articles and was considered conventional. The excerpts representing the claim move are presented below.

- (11) This finding *contributes* to the literature of shared space of joint activities from a learner's perspective. [LLT3]
- (12) These findings *contribute* to this special issue's goal of exploring the complex writing practices and experiences of adolescent L2 writers by demonstrating the variety of linguistic, social, and personal factors influencing how students and teachers understand the written genre expected in content area texts. [JSLW5]

Eighty-six percent of RAs in this corpus used Move 6 to make claims about the contributions of their studies and the generalization of the findings. Words commonly associated with this move included *contribute*, *contribution*, and *importance*. This move appeared almost as frequently as that appeared in Peacock's (90%) corpus, suggesting that Claim was normally required in the applied linguistics field.

Move 7: Limitation discusses caveats of the study's findings. This move appeared in 16 (32%) articles, making it an optional move. Examples 13 and 14 depict Move 5.

- (13) Another *limitation* was that precisely what experience learners had with technology for language learning prior to the study was not known. [LLT9]
- (14) However, the small sample of blogs from each discipline in the corpus does not allow for conclusions regarding the influence of disciplinary culture on markets of relational behavior. [AP7]

Move 7 was found to be the least common move as it appeared in 32% of this corpus, resulting in it being one of the two optional moves for applied linguistics articles. This Limitation move also appeared less frequently in Peacock's (2002) study, at the rate of 43%.

Its most common exponent was *limitation* or *limitations*. Sometimes, a limitation was communicated by means of words such as *the small sample, does not allow*, and the content of the entire move as illustrated in Example 14.

Move 8: Recommendation suggests future research and pedagogical implications. Thirty-three (66%) out of 50 RAs included this move; hence, it was a conventional move in this corpus. This move is illustrated in excerpts 15 and 16.

- (15) *Further investigation* in the future is necessary to explain this trend, as it has the potential to mark mobile phone use not as something that detracts from time that might be spent on the computer. [LLT9]
- (16) Therefore, *more research* with yet more advanced learners is necessary to resolve the question of whether L1 influence in L2 processing may be overcome. [SSLA2]

The recommendation move appeared 66% in this corpus compared to 59% reported by Peacock (2002). The excerpts above offered directions for further research. The linguistics exponents that signal further research comprised *future/further research, more research, further investigation, and necessary*.

To conclude, findings showed that the authors of applied linguistics research articles in this corpus always used the Finding and Reference to previous research moves; therefore, these two moves must occur in the journals analyzed in this corpus. Additionally, the authors frequently used the Information move, Explanation, Claim, and Recommendation. Thus, these four moves are considered normally required in applied linguistics articles. On the other hand, the two remaining moves consisting of Expected or unexpected outcome and Limitation are found to be optional, suggesting that they can be used voluntarily.

4.2. Move Cycles

The internal organization of the discussion sections in this corpus reflected Peacock's (2002) three-part framework: Introduction, Evaluation, and Conclusion. The first paragraph of each article in the corpus serves as an introduction, subsequent paragraphs as evaluation, and the last paragraph as a conclusion. Findings indicated a total of 411 cycles or 8 cycles per article. More specifically, the average number of move cycles (in parentheses) per journal was as follows: Applied Linguistics (8.3), Language Learning (7.9), Language Learning & Technology (7.9), Journal of Second Language Writing (7.8), and Studies in Second Language Acquisition (9.3). Details of the move cycles are reported in the three subsections below.

I. Introduction

Moves that generally appeared in the introductory part of discussions in the present corpus included Moves 1, 2, 4 and 5. In particular, 26% of RAs began with Moves 1 or 2, the moves that were predicted by Peacock (2002). Moves 1+2 and 1+4 were also found to appear frequently in this study. Peacock also predicted that Move 6 would begin the introductory cycle; however, the study found this to be rare as it occurred in only three instances and together with other moves (e.g., 2+5+6, 2+4+6, and 1+4+6). These cycles appeared in articles published in Applied Linguistics, Language Learning, and Studies in Second Language Acquisition respectively. This study also found the move cycles in the introduction to discussion appeared to be complex as each cycle usually consisted of a combination of moves as opposed to an extension of one single move.

II. Evaluation

Move cycles associated with evaluation included Moves 2+4, 2+4+5, and 4+5/5+4. Seventy-six percent of the RAs under study evaluated or interpreted findings using Moves 2+4, 4+2 or 2+4+5. Eighteen percent used the move cycle of 4+5 or 5+4. Other cycles occurring less frequently were 2+6, 3+4, 3+5, 2+4+8, 2+5+6, and/or 2+4+5+7. These move cycles were found to be extensive and cyclical. In other words, they appeared to be repetitive within the same paragraph. The findings regarding the move cycles of 2+4 and 2+6 are in

line with those of Peacock's (2002). With respect to the move cycles of 2+4+8, 2+5+6, 2+4+5+7, these findings are in accord with Hopkins and Dudley-Evans's (1988) investigation of RA discussions in irrigation and drainage.

III. Conclusion

Seventy-eight percent of RAs in the present study closed with Move 6: Claim, Moves 7 (Limitation) + 8 (Recommendation), Moves 2 (Finding) + 6, Moves 8+6, or Moves 7+6. These move cycles are consistent with Peacock's (2002). The remaining articles, however, ended with Move 4: Reference to previous research, Move 5: Explanation, or a combination of Moves 4+5. The possible reason for the absence of Moves 6, 7 and 8 (which were predicted by Peacock) in this section might be that these moves might appear in conclusion/ conclusions or implications, the individual section which immediately followed the discussion section.

4.3. Intra-disciplinary Variations: Moves and Move Cycles

Some differences were found in the number of moves, type of moves, and move cycles used among the five major applied linguistics journals in this corpus. Regarding the number of moves, *Studies in Second Language Acquisition Journal* used 63 moves per article on average. The average number of moves per article of the other four journals included *Journal of Second Language Writing* (51), *Language Learning* (54), *Language Learning & Technology* (54), and *Applied Linguistics* (56). Thus, *Studies in Second Language Acquisition Journal* used the most moves in this corpus.

The move that appeared most frequently and extensively is Move 2: Finding (1028) in all of the five journals. In particular, it appeared most with 238 times in *Language Learning and Technology* but least in *Language Learning* (158). Move 5 was much more frequent in *Studies in Second Language Acquisition* (199) but less frequent in *Language Learning & Technology* (50). On the other hand, Move 1 was less frequent in *Studies in Second Language Acquisition* (58) while it was more frequent in *Language Learning & Technology* (83). Move 6 was most frequent in *Applied Linguistics* and least frequent in *Studies in Second Language Acquisition*. The Limitation move was

found least in Applied Linguistics (2) and most in Language Learning (12). Move 8 was most frequent in Language Learning and least frequent in Studies in Second Language Acquisition. Table 2 presents the frequency of individual moves in the corpus.

Table 2. The Frequency of Individual Moves in Five Journals

Move	AP	LL	LLT	JSLW	SSLA	Total	Mean
1	69	75	83	78	58	363	73
2	216	158	238	187	229	1028	206
3	9	20	11	8	8	56	11
4	115	129	107	95	93	539	108
5	99	87	50	70	199	505	101
6	34	29	33	31	18	145	29
7	2	12	7	10	10	41	8
8	17	34	16	30	15	112	22

Regarding the number of move cycles, it was found that articles published in Applied Linguistics had an average of 8.3 which was close to the overall average of 8.2. The number of move cycles was higher than the overall average in Studies in Second Language Acquisition (9.3). However, the number of move cycles used in articles published in Language Learning (7.9), Language Learning & Technology (7.9), and Journal of Second Language Writing (7.8) were lower than the overall average of 8.2. These cycles reflected the length of the discussion sections in Studies in Second Language Acquisition which was generally longer than those of other journals. However, no major variability was found among the journals regarding the sequence of the move cycles.

5. Discussion

The move structure of applied linguistics RAs in this study is similar to that of medical RAs, with the exception of the (un) expected outcome move (Nwogu 1997). The findings regarding Moves 2 and 4 being obligatory moves in the corpus understudy are in line with Yang and Allison's (2003). Additionally, Moves 1, 5, 6, and 8 are deemed

conventional occurring between 60-99% in this corpus. Based on these findings, it is recommended that authors include Moves 1, 2, 4, 5, 6, and 8 in their RAs when writing for publication, especially for those particular journals included in the current corpus. The findings concerning Moves 2 and 5 are similar to Peacock (2002) who reported that the Finding, Reference to previous research, and Claim moves were most widely used. The Claim move, in particular, appeared in 90% of his diverse corpus while it appeared in 86 % of the corpus in the present study. Similarly, Holmes (2001) reported the statement of result (or the finding move in this study), background information, and recommendation moves occurred 100%, 60% and 79% respectively in his agricultural economics corpus. The results of this study; however, differ from those of Peacock (2002) with respect to Moves 1 and 5 which he reported much lower frequency (42% and 33% respectively) than that found in this study (98% and 96% respectively), suggesting some flexibility of move appearance in his corpus. This difference may reflect intra-disciplinary variations between the journals in this corpus and those in Peacock's which consisted of English for Specific Purposes, Journal of Neurolinguistics, Language and Communication, Language Sciences, Speech Communication, and System. That is, these journals have different scopes and address different audiences. For example, Ozturk (2007) noted the differences between the established (Studies in Second Language Acquisition) and the emerging (Journal of Second Language Writing) fields.

This study found the average number of move cycles as 8 per article, which is higher than 3.4 on average reported by Peacock (2002) and 3.2 in Dentistry discussions reported by Basturkmen (2012). Peacock's model was less accurate in predicting the moves cycles in the introduction and evaluation parts of the framework. For example, he predicted that move cycles of 1, 2 or 6 would appear in the introduction to the discussions; however, this study found Move 6 to rarely occur in this part of the section. What was not predicted were Moves 4, 5, 1+2 and 1+4. Similar to Peacock (2002), the author of this study found the evaluation part of the framework to contain the key move cycles as Moves 2+4, 2+6, 3+4 and 3+5. Additional findings which were not predicted by Peacock were 2+4+5, 4+5/5+4, 2+4+8, and 2+5+6, particularly a series of three moves. His model, on the other hand, accurately predicted the move cycles of 2+6, 8,

8+6, and 7+6.

5.1. Pedagogical Implications

The current study contributes to an understanding of the rhetorical structure of RA discussions in applied linguistics and the existing intra-disciplinary variation within this field. The knowledge of this organization, move cycles, and intra-disciplinary differences is important to teachers and students of research writing as well as writers who perceive themselves as having difficulty writing this section for publication. The findings of this study can provide guidelines for the teaching of research writing in applied linguistics and facilitate writers in producing RAs that conform to the expectations of their academic discourse community.

5.2. Further Research

Future research may analyze the discussion sections in other journals in applied linguistics to find out common moves, move cycles and intra-disciplinary variations. Further work could also examine the rhetorical structure of the discussion sections, intra- and inter-disciplinary differences in other disciplines which are reported as being under-explored, such as business, economics, accountancy, and law.

6. Conclusion

This study aimed at identifying the rhetorical organization of the discussion sections in major applied linguistics journal articles. Based on the corpus of this study, all but two moves (3 and 7) were found to be obligatory/conventional, occurring more than 60% of the corpus. The study also found common move cycles that appeared in the introduction, evaluation, and conclusion of Discussion. Furthermore, an intra-disciplinary was found in the articles published in *Studies in Second Language Acquisition* which exhibit the most moves and move cycles. The articles in this journal tend to use Move 5 more frequently than those in other journals.

The author hopes that this study has contributed to the genre analy-

sis literature with relation to RA discussions. She believes that the findings in this study can facilitate teachers, graduate students, and international scholars in teaching and/or writing RA discussions that meet the expectation of their disciplinary community.

Appendix: List of Articles in the Corpus

I Applied Linguistics (AP)

- AP1 Lee, J. (2010). A subject-object asymmetry in the comprehension of wh-questions by Korean learners of English. *Applied Linguistics* 31.1, 136-155.
- AP2 Lam, P. W. Y. (2010). Discourse particles in corpus data and textbooks: The case of well. *Applied Linguistics* 31.2, 260-281.
- AP3 Kuppens, A. H. (2010). English in advertising: Generic intertextuality in a globalizing media environment. *Applied Linguistics* 32.5, 541-565.
- AP4 Bitchener, J. & Knoch, U. (2010). The contribution of written corrective feedback to language development: A ten month investigation. *Applied Linguistics* 31.2, 193-214.
- AP5 Mulder, K. & Hulstijn, J. H. (2011). Linguistic skills of adult native speakers as a function of age and level of education. *Applied Linguistics* 32.5, 475-494.
- AP6 Forman, R. (2011). Humorous language play in a Thai EFL classroom. *Applied Linguistics* 32.5, 541-565.
- AP7 Luzon, M. J. (2011). Interesting post, but I disagree: Social presence and antisocial behavior in academic blogs. *Applied Linguistics* 32.5, 517-540.
- AP8 Web, S. & Kagimoto, E. (2011). Learning collocations: Do the number of collocates, position of the node word, and synonym affect learning? *Applied Linguistics* 32.3, 259-276.
- AP9 Kormos, J., Kiddle, T., & Csizer, K. (2011). Systems of goals, attitudes, and self-related beliefs in second language learning motivation. *Applied Linguistics* 32.5, 495-516.
- AP10 Hamada, M. & Koda, K. (2010). The role of phonological decoding in second language word-meaning inference. *Applied Linguistics* 31.4, 513-531.

I Language Learning (LL)

- LL1 Hsieh, P. P. & Kang, H. (2010). Attribution and self-efficacy and their

- in the Korean EFL context. *Language Learning* 60.3, 606-627.
- LL2 Paradis, J. (2010). Bilingual children's acquisition of English verb morphology: Effects of language exposure, structure complexity, and task type. *Language Learning* 60.3, 651-680.(37)
- LL3 Albert, A. & Kormos, J. (2011). Creativity and narrative task performance: An exploratory study. *Language Learning* 61, 73-99.(22)
- LL4 Strapp, C. M., Helmick, A. L., Tonkovich, H. M., & Bleakney, D. M. (2011). Effects of negative and positive evidence on adult word learning. *Language Learning* 60.2, 506-532.
- LL5 Mackey, A., Adams, R., Stafford, C., & Winke, P. (2010). Exploring the relationship between modified output and working memory capacity. *Language Learning* 60.3, 501-533.
- LL6 Murphy, V. A. & Hayes, J. (2010). Processing English compounds in the first and second language: The influence of the middle morpheme. *Language Learning* 60.1, 194-220.(73)
- LL7 Bolger, P. & Zapata, G. (2010). Semantic categories and context in L2 vocabulary learning. *Language Learning* 61.2, 614-646.
- LL8 Vanderfrift, L. & Tafaghodtari, M. H. (2010). Teaching L2 learners how to listen does make a difference: An empirical study. *Language Learning* 60.3, 470-497.(44)
- LL9 Crossley, S., Salsbury, T., & McNamara, D. (2010). The Development of polysemy and frequency use in English second language speakers. *Language Learning* 60.3, 573-605.
- LL10 Laufer, B. & Waldman, T. (2011). Verb-noun collocations in second language writing: A corpus analysis of learners' English. *Language Learning* 61.2, 647-672.(38)

I Language Learning and Technology (LLT)

- LLT1 Ilola, I. & Oskoz, A. (2010). Collaborative writing: Fostering foreign language and writing conventions development. *Language Learning & Technology* 14.3, 51-71.
- LLT2 Hafner, C. A. & Miller, L. (2011). Fostering learner autonomy in English for science: A collaborative digital video project in a technological learning environment. *Language Learning & Technology* 15.3, 68-86.
- LLT3 Yang, Y. (2011). Learner interpretations of shared space in multilateral English blogging. *Language Learning & Technology* 15.1, 122-146.
- LLT4 Chen, Y. & Baker, P. (2010). Lexical bundles in L1 and L2 writing. *Language Learning & Technology* 14.2, 30-49.
- LLT5 Neilson, K. B. (2011). Self-study with language learning software in the workplace: What happened? *Language Learning & Technology* 15.3, 110-129.

- LLT6 Kabata, K., & Edasawa, Y. (2011). Tandem language learning through a cross-cultural keypal project. *Language Learning & Technology* 15.1, 104-121.
- LLT7 Winke, P., Gass, S., & Sydorenko, T. (2010). The effects of captioning videos used for foreign language listening activities. *Language Learning & Technology* 14.1, 65-86.
- LLT8 deHaan, J., Reed, W. M., & Kuwada, K. (2010). The effect of interactivity with a music video game on second language vocabulary recall. *Language Learning & Technology* 14.2, 74-94.
- LLT9 Stockwell, G. (2010). Using mobile phones for vocabulary activities: Examining the effect of the platform. *Language Learning & Technology* 14.2, 95-110.
- LLT10 Liang, M. (2010). Using synchronous online peer response groups in EFL writing: Revision-related discourse. *Language Learning & Technology* 14.1, 45-64.

I Journal of Second Language Writing (JSLW)

- JSLW1 James, M. A. (2010). An investigation of learning transfer in English-for-general-academic-purposes writing instruction. *Journal of Second Language Writing* 19.4, 183-206.
- JSLW2 Kibler, A. (2011). "I write it in a way that people can read it": How teachers and adolescent L2 writers describe content area writing. *Journal of Second Language Writing* 20.3, 211-226.
- JSLW3 Wette, R. (2010). Evaluating student learning in a university-level EAP unit on writing using sources. *Journal of Second Language Writing* 19.3, 158-177.
- JSLW4 Yasuda, S. (2011). Genre-based tasks in foreign language writing: Developing writers' genre awareness, linguistic knowledge, and writing competence. *Journal of Second Language Writing* 20.2, 111-133.
- JSLW5 Kormos, J. (2011). Task complexity and linguistic and discourse features of narrative writing performance. *Journal of Second Language Writing* 20.2, 148-161.
- JSLW6 Cheng, A. (2011). Language features as the pathways to genre: Students' attention to non-prototypical features and its implications. *Journal of Second Language Writing* 20.1, 69-82.
- JSLW7 Fránquiz, M. E. & Salinas, C. S. (2011). Newcomers developing English literacy through historical thinking and digitized primary sources. *Journal of Second Language Writing* 20.3, 196-210.
- JSLW8 Liu, Y. (2011). Power perceptions and negotiations in a cross-national email writing activity. *Journal of Second Language Writing* 20.4, 257-270.

- JSLW9 Murphy, L. & Roca de Larios, J. (2010). Searching for words: One strategic use of the mother tongue by advanced Spanish EFL writers. *Journal of Second Language Writing* 19.2, 61-81.
- JSLW10 Ong, J. & Zhang, L. J. (2010). Effects of task complexity on the fluency and lexical complexity in EFL students' argumentative writing. *Journal of Second Language Writing* 19.4, 218-233.

I Studies in Second Language Acquisition (SSLA)

- SSLA1 Ellis, N. C. & Sagarra, N. (2011). Learned attention in adult language acquisition. *Studies in Second Language Acquisition* 3, 589-524.
- SSLA2 Rah, A. & Adone, D. (2010). Processing of the reduced relative clause versus main verb ambiguity in L2 learners at different proficiency levels. *Studies in Second Language Acquisition* 32, 79-109.
- SSLA3 Bundgaard-Nielsen, R. L., Best, C. T., & Tyler, M. D. (2011). Vocabulary size is associated with second-language vowel perception performance in adult learners. *Studies in Second Language Acquisition* 33, 433-461.
- SSLA4 Spinner, P. (2011). Second language assessment and morphosyntactic. *Studies in Second Language Acquisition* 33.4, 529-561.
- SSLA5 Leung, H. C. & Williams, J. N. (2011). The implicit learning of mapping between forms and contextually derived meanings. *Studies in Second Language Acquisition* 33.1, 33-55.
- SSLA6 Sheen, Y. (2010). Differential effects of oral and written corrective feedback in the ESL classroom. *Studies in Second Language Acquisition* 32.2, 203-234.
- SSLA7 Yang, Y. & Lyster, R. (2010). Effects of form-focused practice and feedback on Chinese EFL learner's acquisition of regular and irregular past tense forms. *Studies in Second Language Acquisition* 32.2, 235-263.
- SSLA8 Storch, N. & Wigglesworth, G. (2010). Learners' processing, uptake, and retention of corrective feedback on writing. *Studies in Second Language Acquisition* 32.2, 303-334.
- SSLA9 Conroy, M. A. & Cupples, L. (2010). We could have loved and lost, or we never could have loved at all. *Studies in Second Language Acquisition* 32.4, 523-552.
- SSLA10 Shintani, N. & Ellis, R. (2010). The incidental acquisition of English plural-s by Japanese children in comprehension-based and production-based lessons—A process-product study. *Studies in Second Language Acquisition* 32.4, 607-637.

References

- Atai, M. R. & Samani, A. S. (2012). Exploring genre variations in research article introductions within a single subdiscipline: EOP versus EAP. *The Asian ESP Journal* 8.1, 5-23.
- Basturkmen, H. (2012). A genre-based investigation of discussion sections of research articles in Dentistry and disciplinary variation. *Journal of English for Academic Purposes* 11, 134-144.
- Berkenkotter, C. & Huckin, T. N. (1995). *Genre knowledge in disciplinary communication: Cognition/culture/power*. Hillsdale, NJ: Lawrence Erlbaum.
- Brett, P. (1994). A genre analysis of the results section of sociology articles. *English for Specific Purposes* 13, 47-59.
- Bruce, I. (2009). Results sections in sociology and organic chemistry articles: A genre analysis. *English for Specific Purposes* 28.2, 105-124.
- Dudley-Evans, T. (1994). *Genre analysis: An approach to text analysis for ESP*. In Coulthard, M. (Ed.), *Advances in Written Text Analysis*. London: Routledge, pp. 219-228.
- Flowerdew, J. (2000). Discourse community, legitimate peripheral participating, and the nonnative-English-speaking scholar. *TESOL Quarterly* 34.1, 127-150.
- Flowerdew, J. (2001). Attitudes of journal editors to nonnative speaker contributions. *TESOL Quarterly* 35.1, 121-150.
- Holmes, R. (1997). Genre analysis and the social sciences: An investigation of the structure of RAs discussion sections in three disciplines. *English for Specific Purposes* 16.4, 321-337.
- Holmes, R. (2001). Variation and text structure: The discussion section in economics research articles. *ITL Review of Applied Linguistics* 107-135.
- Hopkins, A. & Dudley-Evans, T. (1988). A genre-based investigation of the discussion sections in articles and dissertations. *English for Specific Purposes* 7, 113-121.
- Journal Citation Reports: Social Science Edition*. (2010). Retrieved on September 2, 2011, from: <http://admin-apps.webofknowledge.com/JCR/JCR>.
- Kanoksilapatham, B. (2005). Rhetorical structure of biochemistry research articles. *English for Specific Purposes* 24.3, 269-292.
- Lim, J. M. H. (2006). Method sections of management research articles: A pedagogically motivated qualitative study. *English for Specific Purposes* 25.3, 282-309.
- Lim, J. M. H. (2010). Commenting on research results in applied linguistics and education: A comparative genre-based investigation. *Journal of English for Academic Purposes* 9, 280-294.
- Nwogu, K. N. (1997). The medical research paper: Structure and functions. *English for Specific Purposes* 16.2, 119-138.

- Ozturk, I. (2007). The textual organization of research article introductions in applied linguistics: variability within a single discipline. *English for Specific Purposes* 26.1, 25-38.
- Peacock, M. (2002). Communicative moves in the discussion sections of research articles. *System* 30.4, 479-497.
- Peacock, M. (2011). The structure of the methods section in research articles across eight disciplines. *The Asian ESP Journal* 7.2, 99-124.
- Peng, J. (1987). Organizational features in chemical engineering research articles. *English Language Research Journal* 1, 79-116.
- Posteguillo, S. (1999). The schematic structure of computer science research articles. *English for Specific Purposes* 18.2, 139-160.
- Yang, R. & Allison, D. (2003). RAs in applied linguistics: Moving from results to conclusions. *English for Specific Purposes* 22.4, 365-384.
- Samraj, B. (2002). Introductions in research articles: Variations across disciplines. *English for Specific Purposes* 21, 1-17.
- Swales, J. (1981). *Aspects of article introductions*. Birmingham, UK: Aston University, The Language Studies Unit.
- Swales, J. M. (1990). *Genre analysis: English in academic and research settings*. Cambridge: Cambridge University Press.
- William, A. (1999). Results section of medical research articles: An analysis of rhetorical categories for pedagogical purpose. *English for Specific Purposes* 18.4, 347-366.
- Wood, A. (1982). An examination of the rhetorical structures of authentic chemistry texts. *Applied Linguistics* 12, 121-143.
- Wood, A. (2001). *International scientific English: The language of research scientists around the world*. In Flowerdew, J., Peacock, M. (Eds.), *Research Perspectives on English for Academic Purposes*. Cambridge: Cambridge University Press, pp. 71-83.

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