QUALITY LEVELS OF RESULT-COMMENT MOVE SEQUENCES IN THE DISCUSSION SECTIONS IN TAIWANESE MA APPLIED LINGUISTICS THESES

Cheng-Hua Hsiao

ABSTRACT

MA students often find writing the discussion section of a thesis (hereafter discussion writing) a difficult task (Bitchener & Basturkmen, 2006). Thesis advisors, research writing instructors, and graduate students are able to recognize the strength and weakness of discussion writing through established levels of quality. Therefore, grading discussion writing has the potential to contribute to instructional quality and learning enhancement. This study distinguished the qualities of discussion writing and identified the factor(s) that affect differences in such quality. To achieve this, 30 discussions in applied linguistics MA theses were classified into four quality levels based on raters' judgments. The discussion writings were then coded using the move structure of discussion sections (Basktukmen, 2009). In these sections, it was found that move 3 [reporting a result] and move 4 [commenting on results] were obligatory across only three groups (marginally adequate, competent and mastery groups) and a move cycle was identified as the sequence from move 3 [reporting a result] to move 4 [commenting on results]. The combinations of move 3 and move 4 were found to be a possible factor in determining the quality of discussion writing for competent and mastery levels works. It was also found that the move combinations were single move, two-move combination, three-move combination, and multiple move combinations. The more complex the structure of move 3 and move 4, the more sophisticated and critical the discussion writing. The pedagogical implications of this study are considered and suggestions for future research presented.

Key words: move structure, discussion section, academic writing

INTRODUCTION

Move analysis, a genre-based approach to identify the schematic structure of research articles (RAs), has been a crucial area of research for

decades. A move is an elementary unit of text structure used to analyze genre, although numerous researchers (Lores, 2004; Nwogu, 1997; Santo, 1996; Swales & Feak, 2000) have defined this functional term in different ways. Moves are generally composed of segments of texts which have communicative intents that are realized through either lexico-grammatical or semantic features. The communicative intents give the segments an unvaried orientation and indicate the content of discourse.

The move-based approach has been used extensively to investigate the part-genres of a research article. The most influential research was that of Swales' Create a Research Space model that was applied to examine the introduction of a research article (e.g., Jothong, 2001; Samraj, 2002; Swales, 1990). Related studies have focused on specific part-genres such as the literature review (Kwan, 2005; Hsiao & Yu, 2012, 2015), methods (Lim, 2006; Peacock, 2011), results (e.g. Breet, 1994; Thompson, 1993), and discussion (e.g. Basturkmen, 2009, 2012; Holmes, 1997; Peacocok, 2002; Yang & Allison, 2003), whereas some studies have analyzed all four sections or "IMRD" patterns (e.g Kanoksilapatham, 2005, 2007; Nwogu, 1997; Posteguillo, 1999). Related research has also been extended to examine research articles across disciplines (Peacock, 2002) and in different cultures such as Chinese (Loi & Evan, 2010), Slavic languages (Yakhontova, 2006), Persian (Amnuai & Wannaruk, 2013), Thai (Atai & Fallah, 2005), and Vietnamese (Loan & Pramoolsook, 2015).

Discussion as a Part-Genre

The discussion section plays a critical role in a research article (Jalilifar, Hayati & Namdari, 2012). Its purpose is to provide readers with a sense of the larger picture and convince them of the appropriateness of the authors' interpretation and speculation, progressing from narrow considerations to a broader generalization in a certain field, termed "inside-out" by Buker & Weissburg (1990). Writers of a discussion are expected to claim, corroborate, clarify, and counter (Schafer, 2019). Claiming is adding new information to what is already known, whereas to corroborate is to support what is already known. Clarifying is extending or refining what is already known and contradicting is countering what is already known. The discussion has also been compared to a larger machine (Becker, 2008). Assessing the operation of "this machine" and its parts is the major function of a discussion. Furthermore, it is argued that the challenge of writing up discussion sections is to interpret the meaning

of the results for readers and distinguish foreground and background information. Crafting a sophisticated discussion requires placing the central claim in the foreground and supporting information in the background. Self-criticism is central to writing a discussion section (Shuttleworth, 2008). The discussion section is not always about what the researchers have found but what they did not find and how they have addressed this.

Therefore, this study focused on move use in student writing in the discussion sections of masters' theses.   Levels of quality in discussions drew our attention because it is the initial works by students that should be examined critically, and masters' theses have seldom been touched upon in an EFL context such as that in Taiwan. Through the vulnerabilities and strengths identified in the graded discussion section in this study, pedagogical strategies can be developed and devised for various levels of learners.

Move Structures of Discussion Sections

Several discussion move frameworks have been presented in the literature from 1984 to 2009 (Basturkmen, 2009; Dudley-Evans, 1986; Holmes, 1997; Hopkins & Dudley-Evans, 1988; Liu & Buckingham, 2018; Peacock, 2002; Smith, 1984; Swales & Feak, 2004; Yang & Allison, 2003). For instance, Hopkins and Dudley-Evans (1988) adopted eleven moves. Peacock (2002), however, reduced the exhaustive number of moves to seven: *information move*, *identifying an expected or unexpected outcome*, *reference to previous research*, *explanation*, *generalization*, *limitation*, and *recommendation*. Swales and Feak (2004) claimed that discussion sections generally contain three moves: *consolidate research space*, *discuss limitations*, and *present implications for further research*. Yang and Allison's model (2003) was popular among many subsequent researchers (Amnuai and Wannaruk, 2013; Basturkenmen, 2009; Lin, 2014; Liu and Buckingham, 2018; Nodoushan and Khakbaz, 2011; Rasmeenin, 2006; Zekrati, 2015) because of its conciseness and multi-layered design.   The major move "commenting on results" is realized through four substeps: *interpreting results, comparing results with the literature, accounting for results, evaluating results*. Adopting Yang and Allison's model (2003), Basturkmen (2009) made three changes for her revised framework: first, the first two moves *background information* and *summary of results* were optional; second, the substep *accounting for*

results was removed because of its overlapping sense with *interpreting results*. The third change was to offer the additional steps of explanation: (1) alternative explanations, (2) references to the literature to support explanations and (3) evaluations of the explanations offered. The strength of her revised framework identified that the result–comment sequence acted as a cycle and its multi-level nature. Based on the aforementioned reasons, Basturkmen's framework was used for the present study because it provides a concise description of moves at additional step levels instead of the move level in the result-comment sequence and thus allows for finer distinctions between frequent and marked moves (Liu & Buckingham, 2018). It therefore precisely suits the purpose of the present study to distinguish the levels of quality of discussion sections.

Obligatory Moves in the Discussion Section

An obligatory move is defined as a must-appear move in the desired part-genre. However, the reviews demonstrate that no universally systematic pattern, particularly the obligatory move, is evident in the writing of discussions. For instance, Holmes (1997) found that commonly shared moves were *deduction* and *statement of results*. By contrast, Nwogu (1997) identified three obligatory moves in medical journals: *reporting results, explanation,* and *conclusion*. No obligatory moves were found in Peacock's study (2002) although *claim, findings,* and *reference to previous research* were frequently used. Yang and Allison (2003) reported *reporting results* as an obligatory move (Dudley-Evans, 1994; Hopkins & Dudley-Evans, 1988; Kanoksilapatham, 2005; Peng, 1987). *Finding, reference to previous research,* and *claim* were three obligatory moves that have been used in applied linguistics (Tsai, 2011). In reports by Baskturkmen (2009) and Liu and Buckingham (2018), most of the discussion was related to two moves, *reporting a result* and *commenting on results*. Rasmeenin (2006) identified the following obligatory moves: *background information, reporting a result, summarizing a result, commenting on the result*, and *deduction from research*. Amnuai and Wannaruk (2013) identified *commenting on the results* as the only obligatory move in their study.

Swales and Feak (2004) argued that discussions appear in numerous forms and differ substantially. One reason for this variation is that the different types of research questions each study addresses. The answers to some research questions provide a wide-ranging description of a particular

fact or event, whereas others focus on explaining the findings (Nodoushan & Khakbaz, 2011; Rasmeenin, 2006). Another reason for this discrepancy may be the position of the discussion section in the research article. Some writers start this part-genre by answering the research questions, whereas others prefer to summarize the results. Thus, this part-genre is less consistently structured than the others. However, this study aimed to examine another factor: whether levels of writing quality determine the obligatory moves used in the discussion section of masters' theses in an EFL context in Taiwan. Additionally, this study focused on the result-comment sequence instead of other seldom-used moves. The *result-comment* sequence was emphasized because they have been considered as obligatory or conventional moves (Basturkmen, 2009), a key part for academic communication in discussion writing. The seldom-used moves such as *background information*, *deduction (claim)*, *limitations* and *recommendations* are observed as optional moves by many researchers in past studies (see the subsection "obligatory moves in the discussion section" in the introduction) and they may also overlap with the moves used in the conclusion section. In order to keep the study more focused, the *result-comment* sequence was analyzed in this study.

Disciplines Studied in Discussion Sections

Frameworks have been employed in individual fields and broader disciplinary areas, including agricultural economics (Holmes, 2001); chemical engineering (Peng, 1987); biochemistry (Dudley-Evans, 1994; Kanoksilapathan, 2005; Thompson, 1993); biomedicine (Dubois, 1997); political science, sociology, and history (Holmes, 1997); social sciences (Lewin et al., 2001); biological sciences (Samraj, 2002); physics (Parkinson, 2011); psychology and sociology (Lewin & Fine, 1996); computer science (Posteguillo, 1999); and medicine (Nodoushan, 2011). Move analysis has also been employed as a framework for investigating cross-disciplinary (Basturkmen, 2012; Cotos et al., 2015, 2017; Holmes, 1997; Peacock, 2002) and cross-cultural variation (Amnuai and Wannaruk, 2013, ElMalik and Nesi, 2008; Fallahi & Erzi, 2003; Loi and Evans, 2010, Mohan & Lo, 1985; Takahashi & Beebe, 1987; Yakhontova, 2006; Yang & Allison, 2003) in the generic structure of various RA sections.

Most of the research on particular sections of a research article or its overall structure has been conducted in the field of natural sciences (Brett,

1994; Dudley-Evans, 1994; Hunston, 1993; Kanoksilapathan, 2005; Parkinson, 2011). Applied linguistics was chosen as the field of investigation in this study because academic discourse in this area is characterized as having substantial variety, rivalry, and controversy. English is the means of academic communication and the instructional language in most classrooms in applied linguistics or its subfield- English language teaching. By contrast, most theses in other disciplines in Taiwan are written in the students' native language, Mandarin Chinese. Initial major works by students require attention because students' competence in observing the generic conventions and utilizing the linguistic resources to communicate effectively in academic discourse is an essential academic skill. Furthermore, recent research has shown that perceived knowledge of genre structures plays an important role in the effective use of English in academic settings. An increasing number of students worldwide who are not native English speakers are studying applied linguistics through the medium of English. Therefore, a pedagogical reason exists for expanding the genre analysis of research articles to applied linguistics.

Students' Difficulties in Writing Discussions

Thus far, research has revealed that there are flaws evident in the discussion sections written by students. A common error is that the report summary is often excessively long and includes additional results, which should be placed in the result section (Basturkmen, 2009). In some cases, reporting a result was positioned in the middle of commenting on results rather than in the initial position. Such writers were still tackling the results rather than moving toward generalization, which shows a lack of appropriate genre knowledge. Mansourizadeh and Ahmad (2011) reported local errors with citation, whereas Petric (2007) found that some students exhibited a less refined and intricate use of citations. Parkinson (2011) also found that students have restricted lexico-grammatical resources. Student writers used strong words such as "prove" and "mean" frequently in their discussions. Parkinson also found that students used a large number of conjunctions and the phrase "more spoken" in the discussion section of physics laboratory reports. They were generally affirmative and less tentative in making strong claims.

Distinguishing Quality Levels for Masters' Theses

The data used for a consideration of discussion sections in the literature have largely consisted of students' doctoral dissertations (Bunton, 1998, 2002, 2005; Dong, 1998; Dudley-Evans, 1986; Hyland, 2004; Paltridge, 2002; Swales, 2004; Thompson, 2001, 2005) and published articles (Holmes, 1997; Dubois, 1997; Kanoksilapatham, 2003; Yang & Allison, 2003; Dubois, 1997). Two studies have focused on both expert and student writings (Hopkins & Dudley-Evans, 1988; Samraj, 2013). Masters' theses have received attention from scholars in EFL contexts (Amnuai & Wannaruk, 2013, Chen & Kuo, 2012; Loan & Pramoolsook, 2015). The scarcity of studies on texts written by non-English writers has thus become apparent and research work on Taiwanese writers is nearly non-existent.

With these considerations in mind, the two research questions that guided this study were as follows:

(1) What are the obligatory moves in the discussion sections in Taiwanese MA applied linguistics theses?
(2) How does writing quality differ in terms of move combinations?

METHODS

Data Collection

Thirty master's theses were selected from the database of theses and dissertation network of the National Central Library in Taiwan. Only empirical data-driven research was selected for the comparison of communicative moves because they reflected the IMRD move structure of research writing. A stratified random sample was chosen to ensure external validity and enhance the generalizability of the findings (Mackey & Gass, 2005). The electronic version of each thesis was obtained with the permission of the writers from the libraries.

In this study, the criteria used to select the sample were topics, institutions, regions, and year of coverage. To avoid concentrating on limited topics in this field, the selection covered a wide range of topics in TEFL regarding language skills, applied linguistics, language elements, learning, and teaching. Language skills included vocabulary, listening, reading, speaking, and writing. Topics in applied linguistics consisted of

pragmatics, discourse analysis, and interaction analysis. Learning involved learning strategies and motivation studies. Topics on teaching included CALLs, curriculum design, and testing. Two or three theses were selected for each topic. The regional factor involved selections of theses from graduate programs of the institutions located in the three parts of Taiwan: northern, central and southern. Institutions included TEFL MA programs from various levels/types of institutions: national universities, private universities, national polytechnic universities, private polytechnic colleges, and normal universities. Regarding year of coverage, the theses selected had to be completed and submitted to their respective graduate schools within the previous four years (2014-2018) to reflect rapid changes within the discipline.

Rating

Raters' qualifications

Three raters were chosen for this study. All held PhD degrees in TESOL or applied linguistics. They had taught academic writing in Taiwan for at least five years and were currently instructing TESOL graduate students. Therefore, they were able to understand the functions of the discussion and distinguish different levels of quality in students' discussion writing.

Rating procedures

1. Initial training session: The three raters underwent a training program in which the purpose of the study was explained to them. Based on raters' past experience in guiding thesis writing, they assigned one of the quality levels (inadequate, marginally inadequate, competent and mastery) to each piece of discussion writing. At the end, the quality of discussion writings of 30 theses were categorized into four groups: "inadequate," "marginally inadequate," "competent," and "mastery."
2. Trial rating session: Each rater was presented with four samples of discussion writing that differed in quality. They spent two hours rating the four pieces of writing. Upon completion, they discussed with each other as there were disagreements over certain pieces of discussion writing. After they had reached a consensus, they used the designated criteria to grade the discussions. The trial rating session

was to establish criteria for discussion writing among the three raters based on their past instructional thesis writing experience.

3. Final rating session: Before they attended this meeting, they read the remaining 26 pieces of discussion writing. During this meeting, they discussed the strengths/weaknesses of each piece and assigned them to the appropriate level. If there was no agreement among the three raters, a vote for the quality level was cast.

Coding

The researcher and her research assistant both coded all 30 discussion sections. The research assistant was a doctoral student in TESOL in Taiwan. He was trained to identify the major moves and submoves of the move structure using the move samples. Four pieces of writing were taken from the data for trial coding to match with the researcher's coding. After training, the research assistant coded the rest of the discussions. The reliability between the researcher and the coder was 92%, which was considered substantial. Basturkmen's framework was adopted as the move structure of discussions (Table 1) for coding to derive the frequency of move occurrence.

Table 1

Move Structure of Discussion Sections

Move 1	Background Information: review of research purposes, theory, methodology
Move 2	Summarizing results: integration of number of specific results
Move 3	Reporting a result
Move 4	Commenting on results
	Step A: Explaining the result
	Step B: Comparing with result in literature
	Step C: Evaluating the result
	Move 3
	Move 4
	Move 3
	Move 4
	The result-comment sequence (move 3 & 4) is repeated any number of times.
	Additional steps of step A (Explaining the result)
	A1: Providing alternative explanations for the same result
	A2: Referring to an explanation provided in the literature
	A3: Evaluating an explanation

Data Analysis

Word counts

The total number of words of each group was counted to derive mean word counts, thus showing the average length of the discussion for each group.

Means of move occurrences

The researcher divided the move occurrences by the number of discussions of each group to derive the mean use for each move. Mean scores were used to determine whether the move was obligatory, conventional, or optional. These definitions were suggested by Rasmeenin

(2006). A move was considered obligatory if the mean score of the move was greater than 1, conventional if it was between 0.66 and 0.99, and optional if it was less than 0.66.

Types of move combinations

To derive the different types of move combinations, the researcher followed three steps. First, they listed the move sequences of the four groups to establish whether there was regularity in move sequencing regarding the writers' choice of moves. Second, the regularity of move sequencing was understood as a move cycle. As previously found, a move cycle in the discussion section was identified as the sequence from move 3 [reporting a result] to move 4 [commenting on results]. Third, the possible combinations of move 3 and move 4 were used to determine the quality of the discussion because the alternate move uses between move 3 and move 4 require writers' strategic use of moves to manage the results to give a larger picture and convince readers of the appropriateness of the authors' interpretation and speculation. By repeatedly using move 3 and move 4, the writers interpret the meaning of the results for readers and distinguish foreground and background information. The discourse is progressing from narrow considerations to a broader generalization in a certain field. In this study, the move combinations were [single move], [two-move combination], [three-move combination], and [multiple move combinations]. A single move was defined as a section/sections devoted to only reporting a finding. A two-move combination denotes the reporting of findings together with either the writer's explanation or references to other studies. A three-move combination signifies the reporting of findings along with both the writer's explanation and references to other studies. A multiple move combination indicates the reporting of findings along with multiple explanations by the writer and their respective references to other studies. The more complex the structure of the combined move 3 and move 4, the more sophisticated and critical the writing of the discussion.

RESULTS

Table 2 shows the word counts of each group: the total words for each group and the mean score for each discussion in each group. Students in the inadequate group only wrote 1,798 words for their discussions. The

word counts increased with the marginally inadequate and competent groups. Students in the mastery group were able to write 5,232 words, almost three times as much as those in the inadequate group.

Table 2

Word Counts at Each Group

Levels of group	Inadequate	Marginally Inadequate	Competent	Mastery
Word count	N=9	N=8	N=9	N=4
Total	16,811	22,939	30,921	20,926
Mean	1,798	2,867	3,435	5,232

Table 3 shows the mean score of move use of each group. For the inadequate group, move 3 was the obligatory move and was used on average 2.67 times for each discussion section. However, the mean score of move 4 did not exceed 1; this means that an absence of move 4 is common at this level of discussion, resulting in major deficiencies in the quality of discussion writing. It appears that the inadequate group simply writes down the major findings of the study (move 3) without including any discussion in their MA theses.

For the marginally inadequate group, move 3 [reporting a result], move 4 (step A [explain the result], and step B [comparing with results in the literature]) were obligatory. Move 3 was still used most frequently with a total of 6. This group was rated as marginally inadequate because they reported the findings (move 3) at great length. However, there was no further use of move 4 steps A1, A2, and A3 to strengthen their arguments.

In the competent group, move 3 and move 4 (A, B, A1, A2) were obligatory moves. When writing discussions, they were able to use move 3 and move 4 alternately. Steps A1, A2, and A3 were used to provide further insights in the discussion sections, though with a lower frequency than steps A and B.

For the mastery group, the obligatory moves were move 3 and move 4 (Steps A, B, A1, and A2). Move 3 and move 4 were used alternately by the mastery group; moreover, they used more of move 4 steps A1 and A2, signifying that this group offered a more in-depth analysis in their discussions.

Table 3

Mean Score of Move (Steps) Occurrences in Each Group

	Inadequate	Marginally Inadequate	Competent	Mastery
	N=9	N=8	N=9	N=4
Move3	2.67***	6.00***	12.11***	10.75***
Move 4 Step A	0.22*	3.13***	6.22***	5.50***
Move 4 Step B	0.44*	3.13***	8.11***	7.50***
Move 4 Step C	0.00	0.25*	0.22*	0.25*
Move 4 Step A1	0.00	0.00	1.44***	4.00***
Move 4 Step A2	0.00	0.25*	2.00***	2.50***
Move 4 Step A3	0.00	0.13*	0.11*	0.00

*** obligatory move mean score 0=1.00 ,   ** conventional move mean score 0.99-0.66, *optional move <0.66

In Table 4, the sequence pattern analysis showed that a single move [major findings] was mainly adopted by the inadequate group. The results also showed that with advances in group levels, the writers develop strategies involving more complex move combinations. The marginally inadequate group had the highest frequency of two-move combinations as [major finding-explanation] and [major finding-reference] and used a three-move combination at least once in their discussions. The competent group used two- and three- move combinations most frequently. The mastery group favored three- and multiple- move combinations. The distinction between the competent group and mastery group was that the mastery group had a good command of utilizing multiple move cycles [major finding-explanation-reference] to form multiple-move combinations.

Table 4

Types of Move Combinations of Each Group

Types of move combinations	Inadequate N=9	Marginally Inadequate N=8	Competent N=9	Mastery N=4
Single move [Major finding]	2	1.25	0.56	0
Two-move combination [Major findings-explanation] [Major finding-references]	0.44	2	5.44	1
Three-move combination [Major findings-explanation-references]	0	1.625	3.11	2.25
Multiple move combination [Major findings-explanation-references-additional explanation-additional references]	0	0.125	1.78	2.10

It is apparent that the writers in the inadequate group place information that should be placed in the result section in the discussion section. In Excerpt 1, the researcher reacted to the research question raised "What problems did the researcher encounter? How should the design be planned and revised for the remedial class?" In this thesis entitled "Implementing a remedial class: An action research," the answer to the research question was extended and iterated, the same as those in the result section.

Excerpt 1 (N5)

[Move 3]   The researcher, also the teacher, encountered a common problem in most junior high schools in Taiwan. That was some ninth graders gave up learning English, and some of them even hated English. The following was the problem that the teacher encountered in the classroom.

These students were almost English low-level students.

They did not do homework, and kept English test paper untouched. When they were forced to hand in the workbooks, they just copied their classmates. In regular class, they sat at their desk without vigor. They seemed to fall asleep anytime or chatted or other classmates. When asked to sit straight, they looked absent-minded. The teacher tried hard to solve the problem, and talked to these students in person. When asked why they did not pay attention to English class, they all said that they did not understand what the teacher said because they did not have a solid foundation of English. One of them, Allen, expressed that "hated English tests because I did not understand the questions on paper. I really don't like English." (Informal talk, February, 2014)

When Allen said so, the rest of the low-level students nodded. The teacher had a clear vision of remedial instruction. This remedial English class aimed at that first, help these students develop basic English competence. Second, enhancing the low-level students' confidence so that they could not have a positive attitude toward English.

The teacher, also the researcher planned the action research based on the low-level students' learning experiences. The findings related to designing the instruction based on the interviews with these low-level students included three issues. First, the contents of remedial instruction should be adapted to meet the two low-level students' readiness level. Second, to enhance two students' confidence, grammar which overwhelmed them should be the focus of instruction needed to meet their learning styles…..

Writers in the marginally inadequate group also made more use of move 3 [reporting a result]. They were able to explain the results and compare them with those of previous studies, but only in a couple of instances in this section. In the example below, there are occasionally inadequate move sequences that highlight the wrong information. In this

particular study, social-culture theory (SCT) is used to explain the strategies used by language learners to acquire language in a study-abroad program. However, in Excerpt 2, the writer cited Brown's (2007) statement to define what is meant by successful language learners. The readers may feel somewhat at a loss as to what the focus is in the citation, which appears to be a strange insertion and has no meaningful connection with the previous sentence. Therefore, the incorrect sequence of move 4 and move 3 creates cognitive confusion and disrupts the flow of reading.

Excerpt 2 (P12)

[Move 4 Step B]   **Coping Strategies**
The last two research question(s) are about their coping strategies to enhance their language proficiency and cross-cultural adaptation. <u>Brown (2007) defined successful language learners as those who "tend to take charge of their own attainment, proactively seeking means for acquisition" (p.272)</u>.

[Move 3]   The analysis of the interview data from the Taiwanese senior high students in this study, the coping strategies to get meaning across and enhance the language proficiency are participating in activities, much effort taken in learning, holding active learning attitude, and above all,

[Move 4 Step A]
[Move 4 Step B]   the most consistently reported strategy being what SCT maintains: interaction. According to SCT, "…the most important forms of cognitive activity develop through interaction within these social and material environments" (Lantolf, 2006, p. 197).

[Move 3]   In this study, Aaron reported how he interacted with his host father…. Allen described his Russian improved mainly through the interaction with host siblings and classroom. Cathy also described…. she kept talking with her host mother after school to get used to Australia accent. Chi revealed his active

	characteristic …. Wen interacted with her 2nd host mother …. and Nim interacted with younger host siblings….
[Move 4 Step B]	Previous research also revealed the importance of social interaction in the host culture. For example, one participant in Fotovatian's (2012) study narrated her experience in Australia. She isolated herself after being frequently corrected ….

In both competent and mastery groups, the writers were able to present the results and then explain and compare these with the results from previous studies. Furthermore, they used additional explanation(s) and comparisons with other research studies. However, writers in the mastery group employed a more complicated discussion structure and offered more than two explanations so that the statements sounded well-thought out and elaborated upon. Most importantly, the mastery groups focused on multiple explanations and unexpected results, which made the discussion more resourceful and critical.

The following excerpt shows a discussion section of the mastery group. The author responded to the first research question by briefly presenting the positive result and listing the studies that supported such findings. Four factors were then provided to explain this result. Additionally, an unexpected result was addressed whereby two groups made similar progress on listening in the GEPT proficiency post-test. Although English storytelling instruction was effective in promoting the listening ability of the experimental group, this group did not show superior development compared with the control group. The writer gave multiple explanations to account for results that were not anticipated.

Excerpt 3 (N2)

[Move 3] unexpected result	On the other hand, according to GEPT proficiency post-tests, two groups made similar progress on listening. Although English storytelling instruction was effective for promoting the experimental group' listening ability, this group did not show superior development when compared with the control group. That is, English storytelling instruction is not as good as originally expected in this study. Thus, some possible reasons are

Cheng-Hua Hsiao

[Move 4
Step A]   First, time might be one factor. Listeners in this study
only accepted the storytelling instruction within
fourteen weeks….

[Move 4
Step A1]   Second, speech rate may be one of the factors that affect
students' listening comprehension. Listeners in this
study were exposed to slower speech rate….

[Move 4
Step A2]   As Hayati (2010) suggested, storytelling with natural
speech rate could better improve EFL learners' listening
comprehension ….

[Move 4
Step A1]   Third, the reason why the storytelling instruction was
not better than the traditional instruction might be
credited to students' heavy reliance on the illustrations
in the story books….

DISCUSSION

In response to the first research question "What are the obligatory moves in the discussion sections in Taiwanese MA applied linguistics theses?," the results showed that *reporting a result* [move 3] was the only obligatory move used across the four groups. However, reporting a result [move 3] and *commenting on result* [move 4] were the two major moves employed by the three groups of student writers: the marginally inadequate group, the competent group, and the mastery group.

The lack of a match for the obligatory moves among the inadequate group and the other three groups could be explained by the writers' strategic uses of moves, as this may determine the obligatory move uses in discussion writing. In studies by Chen and Kuo (2012) and Amirian et al. (2008), which comprised MA graduates in applied linguistics as participants, only *reporting major findings* was found obligatory, which is consistent with the result in the inadequate group in the current study. Since the discussion writings of several nonnative-English-speaking graduate students were rated as inadequate, accounting for nearly one third of the participants, the reason could be that the inadequate group maybe regarded as having a limited idea of what was required for the discussion

component. These writers continued to grapple with the results, resulting in ineffective communication of this part-genre. They experienced difficulties in constructing an extended argument to meet the appropriate generic requirements (Lei, 2012; McCulloch, 2012). Fallahi and Erzi (2003) also found that their master's students in applied linguistics chose *reporting results* as the only obligatory move. They found that it was difficult for their Iranian MA graduates to make deductions from their data, evaluate their studies, and comment on other results.

The more strategically the graduate students write in their discussion, the more connected moves they compose in this part-genre. This finding yielded from the other superior groups corresponds with previous studies showing that *reporting a result* and *commenting on results* (*comparing with results in the literature* and *explanation*) are the two obligatory moves in applied linguistics (Loan and Pramoolsook, 2015; Tsai, 2011; Nodoushan and Khakbaz, 2011; Yang & Allison, 2003; Zekrati, 2015) indicating that when writers are more strategic in discussion writing, the use of the two moves *reporting a result* and *commenting on results* is more substantial. Amirian, Kassaian, and Tavakoli (2008) argued that cultural writing styles also play a role. Their Persian writers tended to make strong claims and validated their findings by repetitively referring to past literature. The prevalent use of these sequences in *reporting and commenting on results* in discussion sections corresponds with the findings from other datasets in the field of applied linguistics (Basturkmen, 2009; Dudley-Evans,1988; Holmes,1997; Liu & Buckingham, 2018; Jalilifar et al., 2012; Nodoushan and Khakbaz, 2011; Peng,1987; Rasmeenin, 2006; Swales, 1990; Yang and Allison, 2003; Zekrati, 2015).

There are two reasons for the high frequency of these two moves in the discussions. First, most of the theses collected were empirical studies (quantitative) where the authors may textualize noteworthy findings in narratives. The comparatively high frequency of steps involving comparing results with previous literature in the three superior datasets in this study suggests that referring to previous studies, solidifying interpretations, and/or contextualizing specific findings are given greater prominence in this section than reporting noticeable results (Liu & Buckingham, 2018). The interpretive component gains prominence in these results and the use of interpretations is largely in agreement with the findings reported by Basturkmen (2009, 2012) and Liu and Buckingham (2018). By using these interpretive moves and/or steps, writers display an awareness of disciplinary inquiry and openly declare their findings

(Basturkmen, 2009; Basturkmen, East & Bitchener, 2014).

Second, these two moves embrace a certain kind of discourse style, as commented on by Li and Ge (2009, cited in Amnuai and Wannaruk, 2013) in that an inductive rather than a deductive discourse pattern is employed whereby the authors prefer to state the specific findings first and then derive some principles from these particular findings. They avoid presenting the overall findings (deduction) in the discussion sections. This chosen pattern confirms our earlier claim that discussion writers usually move from the specific to the general, discussing and examining research findings in a larger research context (Chen and Kuo, 2012).

In response to the second research question "How does writing quality differ in terms of move combinations?," the results showed that the less capable the writer was, the more they use a single move or two-move combination. The more competent the writer was, the more they used a complex structure such as three-move and multiple move combinations. Although the individual results and comments occurred alternately, most discussions in the three superior sets of data were constructed cyclically and different levels of writers appeared to use different strategies to compose their discussions. Furthermore, in terms of move combinations, the mastery group used a higher frequency of three-move and multiple-move combinations, meaning that they were able to write better connected statements in any of their chosen combinations than other groups. Notably, unexpected outcomes were also addressed by the mastery group writers, which made their discussion sections more critical, interactive, and reflective.

The reasons these nonnative-English-speaking Taiwanese students exhibit divergent textual performances in the discussion texts of MA theses can be explained as follows. First, thesis advisors or research writing instructors may themselves use either a tacit or explicit method of teaching genre knowledge to their students (Wilder, 2012), which results in students' indifference to understanding genre differences. Second, prior to writing the thesis, graduate students must have read research articles in their chosen fields. Either the move structures of different sections of RAs or the variations within disciplines may have gone unnoticed or they were not trained to observe the text conventions from genre-analysis tasks and transfer the genre features or structure perceived from the analysis of model texts into their own writing (termed as the "writerly reading of genre and readerly writing of genre") (Cheng, 2007, 2008). A substantial gap appears to exist between noticing and performing genre. Third, several

studies (Lei, 2012; McCulloch, 2012) focusing on nonnative-English-speaking students have found they experience persistent problems with counter/arguments, evidence-based interpretation, and the critical evaluation of methodologies. Some Asian student writers lack an ability to critically analyze the results, exemplified in studies of Persian, Thai, and Vietnamese graduate students (Amnuai & Wannaruk, 2013; Atai & Fallah, 2005; Loan & Pramoolsook, 2015)

By contrast, the cyclic pattern of moves was dominant in the discussion sections of applied linguistics, which confirms that applied linguistics is an established field as it is generally acknowledged that humanities and social sciences are fields that compete for floor-taking. The discursive norms of these fields may expect authors to focus on commenting on the results. Interpretation is given priority over the reporting of objective information, whereas the natural sciences generally afford a greater importance to objectivity (e.g., Hyland, 1999; Jalilifar et al., 2012; Liu & Buckingham, 2018). For example, in Basturkenmen's (2009) study, the frequency of additional step "alternative explanations" in the RA discussion sections of dentistry (28%) articles was considerably lower than in the field of applied linguistics (73%) (cited in Liu & Buckingham, 2018) and the preferred cyclic pattern found in computer science was that the result move structure rotated with deduction or recommendation in Posteguillo's (1999) study. The move *commenting on results* seems to be more important than objective results in the humanities and social science fields than it is in the natural sciences.

CONCLUSIONS AND PEDAGOGICAL IMPLICATIONS

The discussion section is often thought to be the most critical part of a research paper for two reasons. First, this genre puts the findings into context, transcends the facts and engages in productive speculation; it refers to the literature to clarify the meaning of the findings, including how they fit in with previous work. Second, this genre engages readers in the critical interpretation of issues based on evidence in the literature (Annesley, 2010; Bitchener & Basturkmen, 2006). This paper presented text-based research to elucidate the various textual qualities of the discussion sections of non-native graduate students' MA theses. A recurrent pattern of major findings and comments on the results were found in the discussion sections of MA theses in applied linguistics. Although there were some discussion sections whose quality was

inadequate, we found that, if the writers are taught the strategic uses of moves, they exhibit better writing quality in their discussion sections. It is concluded that writers' strategic uses of moves/steps/additional steps may be one of the major factors influencing their textual performances in this part-genre, which is based on the finding that students in the competent and mastery groups were able to use major findings and explanation/comparison of the results to existing research evidence to form cycles in more complex move combinations.

In terms of pedagogical implications, research writing instructors and/or thesis writers could design various genre-analysis writing tasks to suit students' particular needs. For novice writers, the move structures of each part-genre need to be explicitly taught and move identification tasks can be of great help in noticing a genre. Additionally, synthesis writing tasks could be given to upper-level students to foster their competence in performing genre (Cheng, 2007, 2008). Thus, with appropriate genre knowledge, nonnative-English-speaking graduate writers can achieve mastery of their writing of research articles.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

In terms of limitations, this study only selected 30 theses in applied linguistics by Taiwanese graduates; therefore, generalizability could not be guaranteed. In conclusion, a solid discussion includes a concise summary of the results and a critical discussion of the most important findings in the context of the published literature. This includes considering alternative explanations for the findings, stating their disciplinary relevance, acknowledging the limitations of the study, making suggestions for further research, and providing a take-home message in the form of a conclusion. Suggestions for future research in relation to this study are that more discussion sections could be collected and analyzed in order to generalize the results. Furthermore, to validate the findings, qualitative studies could be conducted to investigate the process utilized by various groups of nonnative-English-speaking students to compose a discussion and the decisions they make in so doing. Nonnative-English-speaking graduate students of other cultures could also be recruited to determine whether there are cultural differences in move use and move combination in the discussion sections. The fruitful findings yielded from such research directions could help facilitate future decisions made in relation to genre pedagogy.

REFERENCES

Amirian, Z., Kassaian, Z., & Tavakoli, M. (2008). Genre analysis: An investigation of the discussion sections of applied linguistics research articles. *The Asian ESP Journal*, *4*(1), 39–63.

Amnuai, W., & Wannaruk, A. (2013). Investigating move structure of English applied linguistics research article discussions published in international and Thai journals. *English Language Teaching*, 6(2), 1-13.

Annesley, T. (2010). The discussion section: Your closing argument. *Clinical Chemistry*, *56*(11), 1671-1674.

Atai, M., & Falah, S. (2005). *A contrastive genre analysis of result and discussion section of applied linguistic research articles written by native and non-native English speaker with respect to evaluated entities and ascribed values.* Paper presented at the 10th Pan-Pacific Association of Applied Linguistics Conference in Edinburgh University. Retrieved from
http://www.paaljan.org/resources/proceedings/PAAL10/pdfs/atai.pdf

Basturkmen, H. (2009). Commenting on results in published research articles and masters dissertations in Language Teaching. *Journal of English for Academic Purposes*, *8*(4), 241-251.

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*(2), 134-144.

Basturkmen, H., East, M., & Bitchener, J. (2014). Supervisors' on-script feedback comments on drafts of dissertations: Socialising students into the academic discourse community. *Teaching in Higher Education*, *19*(4), 432–445

Becker, H. (2008). *Tricks of the trade: How to think about your research while you're doing it.* Chicago: The University of Chicago Press.

Bitchener J., & Basturkmen H. (2006). Perceptions of the difficulties of postgraduate L2 thesis students writing the discussion section. *Journal of English for Academic Purposes*. *5*(1), 4-18.

Brett, P. (1994). A genre analysis of the results section of sociology articles. *English for Specific Purposes*, *13*(1) ,47–59.

Bunton, D. (1998). *Linguistic and textual problems in Ph.D and M. Phil Theses: An analysis of genre moves and metatext* (Unpublished doctoral dissertation). University of Hong Kong, Hong Kong.

Bunton, D. (2002). Generic moves in Ph.D. thesis introductions. In J. Flowerdew (Ed.), *Academic Discourse* (pp. 57-75). London: Pearson Education

Bunton, D. (2005). The structure of PhD conclusion chapters. *Journal of English for Academic Purposes*, *4*(3), 207-224.

Chen, T., & Kuo, C. (2012). A genre-based analysis of the information structure of master's theses in applied linguistics. *Asian ESP Journal*, *8*(1), 24-52.

Cheng, A. (2007). Transferring generic features and recontextualizing genre awareness: Understanding writing performance in the ESP genre-based literacy framework.

English for Specific Purposes, *26*(3), 287-307.

Cheng, A. (2008). Analyzing genre exemplars in preparation for writing: The case of an L2 graduate student in the ESP genre-based instructional framework of academic literacy. *Applied Linguistics*, *29*(1), 50–71.

Cotos, E., Huffman, S., & Link, S. (2015). Furthering and applying move/step constructs: Technology-driven marshalling of Swalesian genre theory for EAP pedagogy. *Journal of English for Academic Purposes, 19*, 52-72.

Cotos, E., Huffman, S., & Link, S. (2017). A move/step model for methods sections: Demonstrating Rigour and Credibility. *English for Specific Purposes*, *46*, 90-106.

Dong, Y. (1998). Non-native graduate students' thesis/dissertation writing in science: Self-reports by students and their advisors from two U.S. institutions. *English for Specific Purpose*s, *17*(4), 369-390.

Dubois, B. (1997). *The biomedical discussion section in context*. Greenwich, CT: Ablex.

Dudley-Evans, T. (1986). Genre analysis: An investigation of the introduction and discussion sections of M.Sc. dissertations. In M. Coulthard (Ed.), *Talking about Text*. Birmingham, U.K.: English Language Research.

ElMalik, A. T., & Nesi, H. (2008). Publishing research in a second language: The use of Sudanese contributors to international medical journals. *Journal of English for Academic Purposes*, *7*(2), 87-96.

Fallahi, M., & Erzi, M. (2003). Genre analysis in language teaching: An investigation of the structure of the discussion section of language-teaching-journal articles. *International Journal of Applied Linguistics*, *6*(1), 69-81

Holmes, R. (1997). Genre analysis, and the social sciences: An investigation of the structure of research article 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-International Journal of Applied Linguistics*, *131*(1), 107-137.

Hopkins, A., & Dudley-Evans, T. (1988). A genre-based investigation of the discussion sections in articles and dissertations. *English for Specific Purposes*, *7*(2), 113-121.

Hsiao, C., & Yu, H. (2012). Knowledge presentation in thesis writing- Examining move use in reviewing literature. *English Teaching and Learning*, *36*(3), 133-179.

Hsiao, C., & Yu, H. (2015). Move distribution and configuration of literature reviews at four levels. *Taiwan International ESP Journal*, *7*(1), 51–77.

Hyland, K. (1999). Disciplinary discourses: Writer stance in research articles. In C. Candlin, & K. Hyland, (Eds.). *Writing: Texts, processes and practices* (pp. 99-121). London: Longman.

Hyland, K. (2004). *Disciplinary discourses: Social interactions in academic writing*. Ann Arbor: University of Michigan Press.

Hunston, S. (1993). Evaluation and ideology in scientific discourse. In M. Ghadessy (Ed.), *Register analysis: Theory and practice* (pp. 57–73). London: Pinter.

Jalilifar, A., & Alavi-Nia, M. (2012). We are surprised; wasn't Iran disgraced there? A functional analysis of hedges and boosters in televised Iranian and American presidential debates. *Discourse and Communication, 6*(2), 135-161.

Jalilifar, A., Hayati, A., & Namdari, N. (2012). A Comparative study of research article discussion sections of local and international applied linguistic journals. *The Journal of Asia TEFL*, *9*(1), 1-29.

Jogthong, C. (2001). *Research article introductions in Thai: Genre analysis of academic writing* (Unpublished doctoral dissertation). West Virginia University, Morgantown, WV.

Kwan, B. (2005). A genre analysis of literature reviews in doctoral theses (Unpublished doctoral dissertation). City University of Hong Kong, Hong Kong.

Kanoksilapatham, B. (2003). A corpus-based investigation of biochemistry research articles: Linking move analysis with multidimensional analysis (Unpublished doctoral dissertation). Georgetown University, Washington, D.C.

Kanoksilapatham, B. (2005). Rhetorical structure of biochemistry research articles. *English for Specific Purposes*, *24*(3), 269-292.

Kanoksilapatham, B. (2007). Writing scientific research articles in Thai and English: Similarities and differences. *Silpakorn University International Journal*, *7*, 172-203.

Lei, L (2012). Linking adverbials in academic writing on applied linguistics by Chinese doctoral students. *Journal of English for Academic Purposes*, *11*(3), 267-275.

Lewin, B., & Fine, J. (1996). The writing of research texts: Genre analysis and its applications. In G. Rijlaarsdam, H. Van den Bergh, M. Couzijn, (Eds.), *Theories, models and methodology in writing research*, (pp. 423-444). Amsterdam: Amsterdam University Press.

Lewin, B., Fine, J. & Young, L. (2001). *Expository discourse: A genre-based approach to social science research texts*. London: Continuum.

Li, L., & Ge, G. (2009). Genre analysis: Structural and linguistic evolution of the English-medium medical research article (1985-2004). *English for Specific Purposes*, *28*(2), 93-104.

Lin, S. (2014). *A move analysis of discussion chapters in TESOL PhD Dissertations* (Unpublished master's thesis). National Changhua University of Education, Taiwan.

Liu, Y., & Buckingham, L. (2018). The schematic structure of discussion sections in applied linguistics and the distribution of metadiscourse markers. *Journal of English for Academic Purposes, 34*, 97-109.

Loan, N., & Pramoolsook, I. (2015). Move analysis of results-discussion chapters in TESOL Master's theses written by Vietnamese students. *3L: The Southeast Asian Journal of English Language Studies*, *21*(2), 1-15.

Loi, C., & Evans, M. (2010). Cultural differences in the organization of research articles introductions from the field of educational psychology: English and Chinese. *Journal of Pragmatics*, *42*(10), 2814-2825.

Mackey, A., & Gass, S. (2005). *Second language research: Methodology and design*. Mahwah, NJ: Lawrence Erlbaum.

Mansourizadeh, K., & Ahmad, U. (2011). Citation practices among non-native expert and novice scientific writers. *Journal of English for Academic Purposes*, *10*(3), 152-161.

McCulloch, S. (2012). Citations in search of a purpose: Source use and authorial voice in L2 student writing. *International Journal for Educational Integrity*, *8*(1), 55-69.

Mohan, B., & Lo, W. (1985). Academic writing and Chinese students: Transfer and developmental factors. *TESOL Quarterly, 19*(3), 515-534.

Nwogu, K. (1997). The medical research paper: Structure and functions. *English for Specific Purposes, 16*(2), 119-138.

Parkinson, J. (2011). The discussion section as argument: The language used to prove knowledge claims. *English for Specific Purposes*, *30*(3), 164-175.

Paltridge, B. (2002). Thesis and dissertation writing: An examination of published advice and actual practice. *English for Specific Purposes*, *21*(2), 125-143.

Peacock, M. (2002). Communicative moves in the discussion section of research articles. *System*, *30*(4), 479-497.

Peacock, M. (2011). The structure of the methods section in research articles across eight disciplines. *Asian ESP Journal*, *7*(2), 99-122.

Peng, J. (1987). Organizational features in chemical engineering research articles. *ELR Journal*, *1*, 315-331.

Petric, B. (2007). Rhetorical functions of citations in high- and low-rated master's theses. *Journal of English for Academic Purposes*, *6*(3), 238-253.

Posteguillo, S. (1999). The schematic structure of computer science research articles. *English for Specific Purposes*, *18*(2), 139-160.

Rasmeenin, C. (2006). A structural move analysis of MA thesis discussion sections in applied linguistics (Unpublished master's thesis). Mahidol University, Thailand.

Salmani Nodoushan, M. A. (2011). The place of genre analysis in international communication. *International Journal of Language Studies*, *5*(1), 63-74.

Salmani Nodoushan, M. A., & Khakbaz, N. (2011). Theses 'Discussion' sections: A structural move analysis. *International Journal of Language Studies*, *5*(3), 111-132.

Santos, M. B. (1996). The textual organization of research paper abstracts in applied linguistics. *Text*, *16*(4), 481-499.

Samraj, B. (2002). Introductions in research articles: Variations across disciplines. *English for Specific Purposes*, *21*(1), 1–17.

Samraj, B. (2013). Form and function of citations in discussion sections of master's theses and research articles. *Journal of English for Academic Purposes*, *12*(4), 299-310.

Schafer M. (2019). *Writing the discussion*. Retrieved from University of Florida, Writing in Psychology website: http://users.clas.ufl.edu/msscha/psych/report_discussion.html

Shuttleworth, M. (2008). *Scientific Method.* Retrieved from Explorable website: http://explorable.com/scientific-method

Smith. D. E. A. (1984). Medical discourse: Aspects of author's comment. *The ESP Journal*, *3*(1), 25-36.

Swales, J. (1990). *Genre analysis*. Cambridge: Cambridge University Press.

Swales, J., & Feak, C. (2000). *English in today's research world: A writing guide.* Ann Arbor, MI: The University of Michigan Press.

Swales, J. (2004). *Research genres: Explorations and applications*. Cambridge: Cambridge University Press.

Swales, J. M., & Feak, C. B. (2004). *Academic writing for graduate students: Essential tasks and skills* (2nd ed.). Michigan: The University of Michigan Press.

Takahashi, T., & Beebe, L. (1987). The development of pragmatic competence by Japanese learners of English. *JALT Journal*, *8,* 131-151.

Thompson, D. K. (1993). Arguing for experimental "facts" in science: A study of research article results sections in Biochemistry. *Written Communication*, *10*(1), 106-128.

Thompson, P. (2001). A pedagogically-motivated corpus-based examination of PhD theses: Macrostructure, citation practices and uses of modal verbs. Unpublished Ph.D. thesis, University of Reading, UK.

Thompson, P. (2005). Points of focus and position: Intertextual reference in PhD theses. *Journal of English for Academic Purposes*, *4*(4), 307-323.

Tsai, W. (2011). *A genre-based investigation of the discussion section of research articles in applied linguistics* (Unpublished MA thesis). National Taiwan Normal University. Taipei, Taiwan.

Weissberg, R., & Buker, S. (1990). *Writing up research: Experimental research report writing for students of English*. Englewood Cliffs, NJ: Prentice Hall Regents.

Wilder, L. (2012). *Rhetorical strategies and genre conventions in literary studies: Teaching and writing in the disciplines.* Carbondale, IL: Southern Illinois University Press.

Yakhontova, T. (2006). Cultural and disciplinary variation in academic discourse: The issue of influencing factors. *Journal of English for Academic Purposes*, *5*(2), 153-167.

Yang, R., & Allison, D. (2003). Research articles in applied linguistics: Moving from results to conclusions. *English for Specific Purposes*, *22*(4), 365-385.

Zekrati, S. (2015). A move analysis of discussion section of medical articles. *Taiwan International ESP Journal*, *7*(1), 38-50.

Cheng-Hua Hsiao

CORRESPONDENCE

Cheng-Hua Hsiao, Department of Foreign Languages and Literature,
National Ilan University, Yilan County, Taiwan
Email address: chhsiao@niu.edu.tw