The Interaction between Rhetorical Structure and Thematisation in Academic Research Articles

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Abstract

Much has been written about the complex textual mechanisms which lie under the structure of academic genre. However, we are still far from a vivid taxonomy of factors that lead to the development of research articles (RAs) as the manifestation of the given genre. Rhetorical structure and thematicity are two of these main parameters. The present study investigates the interaction of the thematic structures and the rhetorical moves of RAs published in the international journals (IJs) and those of the Iranian local journals (ILJs). To this end, a corpus of 120 RA discussion sections of sub-disciplines of Applied Linguistics were analyzed using Kanoksilapatham's (2007) move analytical model, thematic option (TO) model proposed by Halliday (1985), and the Daneš' (1974) revised model of thematic progression (TP) in McCabe (1999). The results indicated a significant relationship between the theme types and the generic moves on one hand, and distribution of the theme progressions and rhetorical structures on the other hand. The choice of theme type and thematic progression was found, however, to be, in some cases, influenced by locality of the journals. The findings of the study call for a consideration of a more complex rhetorical profile of RAs than what has to date been assumed.

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Introduction

Within the academic community, scientific research articles (RAs) have special status. In fact, the publication of RAs will reward their authors and writers high reputation and become a rigorous motivation for them to perpetuate the achievement in their vocations. This, in turn, has urged writers to focus on writing for publication. However, as long as writing is regarded to be a culturally bounded phenomenon (Kaplan, 1966), the publication of RAs in English seems a challenging task for naive and non-native writers. Therefore, for a long time academic genre analysis has been announced to assist writers to come up with their wishes. The kernel organization of segments of RAs can to a great extent determine their publication (Belcher & Braine, 1995; Swales, 1990; Kelly & Bazerman, 2003). There are some influential factors in an acceptable organization of academic texts, one of which is the realization of academic conventions. It is generally believed that being aware of principles dominating the standardized structure of academic research articles can lead to successful publication.

Academic research articles in different journals employ particular parameters for their forms which are quite often violated by non-native writers. That is why they mostly fail to publish their RAs in the prestigious international journals (Sionis, 1995; Martínez, 2003, Atai & Sadr, 2008). Therefore, it seems essential to sensitize writers to the knowledge of the language of research articles (Martínez, 2003; Salmon, Monreal, and Olivares, 2008; Keshavarz, Atai, and Barzegar 2007; Moghimi and Mobasher, 2007; Markman, Markman, and Waddell, 1994). The acquisition of rhetorical structure and functional grammar (Halliday, 1985) can be very helpful for academicians to achieve the wanted goal which is, of course, the publication of their RAs. Genre analysis that identifies thematic components and organization within the rhetorical moves has a great deal to offer for the study of research articles. Therefore, the present study was an attempt to help learners get cognizant of the intricate relationship between generic conventions and thematic mechanism mostly realized in what has come to be known today as systemic functional grammar (SFG).

The contribution of systemic functional grammar (SFG) has been materialized in different perspectives (Borschev and Partee, 2002; Fries, 1994, 1995; Martin,

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1992*)*. The proponents of SFG approach maintain that discourse does not allow linguistic forms to be purposelessly organized. In fact, linguistic elements bear a specific function in their own right. In other words, discourse analysis tries to penetrate deeply into the interwoven relationship between syntax and semantics. Hence, linguistics features are the solidified manifestation of particular propositions. Thematic mechanism is just one of the plenty of beneficial assets shedding light on the relationship between syntax and semantics. Theme is recognized by its position in the clause, which is almost known as "the starting point for the message" (Halliday, 1985, p.39). To take the definition one step further, Lock (1996) considers theme as "a jumping- off point of the message in the clause" and rheme as "a part of the message that is presented as most important, or most newsworthy" (p.222).

An increasing number of investigations on thematisation are concerned with RAs produced by writers and the way RAs are developed through the knowledge of the theme/rheme principles (Belmonte and McCabe-Hidalgo, 1998; Sa-ard, Suwanbenjakul, and Thanasootornrerk, 2001; Thomas, 1999; Francis, 1989; Holzinger, 1996; Li & liu, 2005; Nwogu & Bloor, 1991; Hawes & Thomas, 1995; Berry, 1995).

The generic moves also facilitate the development of well-organized RAs. Moves in genre analysis play the role of traffic sign indicating main headings and points of the whole text of articles. It guides where writers should turn right or left or head straight. According to Swales (1990), move is rhetorical organization while Holmes (1997) considers move as fragment of discourse with a specific communicative function. Bhatia's (2001, p.85) contends that "although moves have surface-level lexico-grammatical realization, they are essentially functional in character and are closely associated with the realization of communicative purpose(s) of the genre." Accordingly moves are created through the spirit of communicative merits and the visible body of linguistic elements. Therefore, in genre theory, the purpose of move analysis is not to identify the linguistic elements but to evaluate the communicative objectives. Although they are linguistic components which mirror the "communicative purpose(s)," in order to attain the unity of genre the role of purpose(s) seems more vital in move analysis. The last few years have witnessed a large number of studies done in the area of the generic moves in the academic texts (Paltridge, 2002; Ridley, 2000; Samraj, 2002; Gupta, 1995; Zhen-ye, 2008; Hyon, 1996; Fakhri, 2004; Habibie, 2004; Flowerdew and

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Dudley-Evan, 2002; Connor and Mauranen, 2001; Gledhill, 2000; Deng and She Qiongze, 2005). One of the pioneering works conducted in the domain of move analysis is Swales' (1981, 1990). Swales (1981) proposed a model for the structure of research articles introductions, which she later modified in 1990s. Following Swales (1981, 1990) different genres were studied in terms of the rhetorical move. For example, the general organization of the masters' and PhD theses was analyzed by Paltridge (2002), different sections of the RAs were also investigated, the introduction (Bunton, 2002), conclusion (Dudley-Evans, 1986), and literature review (Kwan, 2006).

Since the rhetorical moves and thematisation are generally considered as macro-structure and micro-structure respectively, they reinforce the connectivity and integrity of scientific articles in different ways. In other words, the rhetorical moves deal with the larger segments of texts and the rhetorical knowledge render a uniform orientation to the segments. On the other hand, the thematic structures which are almost always embedded within the moves are essential in the overall construct of clauses. Like the rhetorical moves, thematic notion is a central contributor to the organization of discourse but in a smaller stage than the generic moves. Therefore, it seems important to see how these structural categories interact in the research articles and, more specifically, how thematic elements function within the generic moves.

One aspect of genre mastery that has remained relatively underexplored among scientific practitioners is the role thematisation plays within the rhetorical moves. The present study intended to shed light on the internal relation existing between the moves and thematic mechanism. More specifically, this contribution was directed to specify the way themes were identified and organized within each move in the discussion sections of sub-disciplines of applied linguistics RAs across the international and local articles. The rational for the selection of discussion section is on ground that in comparison with other research article sections, discussion sections pose the most challenging part for academic writers and, particularly non-native authors. To Burrough-Boenisch (2003, p.9), "the discussion is therefore more argumentative than the methods or results sections, in which the emphasis is on reporting (i.e. narration), and hence it is more challenging to write—especially for an NNS [non-native speaker]." Researchers argue that discussion sections of articles represent one of the challenging sections for non-native writers in preparation of research articles (Flowerdew, 2001; Rasmeenin, 2006; Swales and

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Feak, 2004; Wilkinson, 1991; Martínez, 2002, Swales and Feak, 1994; Carter-Thomas, 2000).

Analytical framework

The present study was based on three distinctive analytical frameworks. These frameworks consist of thematic option, thematic progression, and move analysis of discussion sections. The first analytical framework adopted in this study is the thematic mechanism elaborated by Halliday (1985). Theme was represented as the starting element in individual clause, which determines the relation of the clause with other surrounding clause and terminates in the structurally cohesive texts. The construction of a clause involves three elements. Firstly, the ideational theme (topical) plays an inevitable role in clauses. Each clause includes only one topical theme. It is almost always realized by the role of subject, complement, and circumstantial adjunct. The next theme type is interpersonal which is optional and its presence in discourse rests on the speaker or writers' intention. In fact, it indicates the way the content of discourse used by language users and signals their mood in manipulating subjects. It is typically recognized as the modal theme (*interestingly, remarkably,* and *It has been argued that*) including finite verbs in yes/no questions, and vocative components. Finally, the textual theme is considered as a tailor sewing different clauses together so that the continuity and cohesion of discourse becomes reinforced. Like the interpersonal theme, it is an optional theme and within this element continuative, structural, and conjunctive themes (*On the other hand* and *furthermore)* are usually involved.

In addition, clauses may appear in two different forms concerning these three themes. Clauses can be identified as the simple theme. In that case, it is only topical theme which comes to the first position of the clause. However, sometimes clauses have multiple theme construction and a sequence of themes comes to form a clause.

The second analytical framework, thematic progression (TP), is prominent for written knowledge of discourse. This theory first stemmed from Prague scholars (Daneš, 1974) and Hallidayan systemic grammarians in the early 1970. The progression of theme and rheme is a great help in organization of text elements and is considered to be one of the influential factors of rhetorical coherence. Daneš (1974) also proposes four types of thematic progression which was later revised by

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McCabe (1999). McCabe's proposal which serves as bedrock for the theme analysis in the present study is elaborated below.

(1) Parallel progression: This structure holds the 'same' topical theme (T) in central consideration throughout a succession of clauses. The new information is constructed in the rheme (R) of each clause.

T ----- R1
T ----- R2
T ----- R3

(2) The continuous, linear or 'zigzag' progression: In this pattern, a component that is first known as the rheme of a clause appears as the theme of the next clause, and so on. Each rheme turns into the theme of the next utterance.

T1------R1
T2 (R1) ------ R2
T3 (R2) ------ R3

(3) The split rheme pattern: The rheme of the first clause compasses an element which can be divided into several themes in the following clauses.

(4) Split theme pattern: the theme of the first clause is split into two or more ideas and these ideas are developed in the themes of subsequent clauses.

Orthographic sentence or clause complex has been used as the unit of theme analysis in the present study. This unit of analysis has been defined by Halliday (1994) and used in thematic research (Martínez, 2003; Ghadessy and Gao, 2001; Thomas, 1999). The variables the present study has taken into account in the discussion sections contained: simple theme (topical theme), multiple theme (Interpersonal + Topical; Textual + Topical; Textual + Interpersonal + Topical), Parallel progression, linear progression, split rheme pattern, Split theme pattern, and the four generic moves in discussion sections.

Finally, the present study utilized the Kanoksilapatham's (2007) model of discussion moves which are as follows: Move 1: Contextualizing the study, Move 2: Consolidating results, Move 3: Stating limitations, and Move 4: Suggesting further research. It should also be indicated that each move itself can be subdivided into several steps. Therefore, move 1, *contextualizing the study,* includes two steps: *Describing established knowledge and Making generalizations.* Six steps which have hierarchical order are also embedded in the move of *consolidating results: Step 1: Restating methodology, Step 2: Stating selected findings, Step 3: Referring to previous literature, Step 4: Explaining differences in findings, Step 5: Making*

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claims and Step 6: Exemplifying. However, there are no steps underlying the last two moves.

Method

Corpus

The corpus of the study consisted of 120 discussion sections from eight international and Iranian local journals (four international journals and four Iranian local journals) which all were derived from sub-disciplines of applied linguistics. The international articles were chosen from the following journals: *Testing, TESOL Quarterly, Pragmatics,* and *SLR*. The local journals analyzed in this study were *journal of social sciences and humanities of Shiraz University, journal of scientific publication of the faculty of foreign languages of Tehran University, IJAL,* and *TELL*. Nearly the majority of articles followed the pattern of introduction-method-result and discussion (IMRD) which has been introduced by Swales (1990).

Procedure

From each journal 15 articles which have been published during the last twelve years (1998-2010) were selected. All discussion sections of these 120 articles were undergone scrupulous scanning. Within each macro-structure (move) in discussion sections, the type of theme choice and progression were identified and enumerated in each journal. With respect to the analysis of thematisation in the articles, there were some particular cases worth mentioning. First, it seemed possible that two elements indicating one particular theme option followed each other in the initial position of a clause. In such a case, these two elements were considered as one theme indicator under the category of one thematic type. For example, in sentence *"Thus, although mature optionality can be theoretically predicted…"* two conjunctions (*thus*) and (*although*) were enumerated as merely one thematic type which was textual theme in this case. Then, it should also be indicated that the theme progression could be identified within each move and not across the moves. It was, therefore, possible that a move consisting of merely one sentence did not provide enough room for applying the theme progression. Such cases were highly centralized in the last two moves in discussion sections. In addition, as the theme of a clause was not indicated by the preceding theme or rheme, a rupture in the text might be burst out. According to Fontaine and Kodratoff (2003, p.5), the absence of an "identifiable link" to the theme of a clause might lead to the rupture in the thematic progression. Such cases were excluded in the present study in order to make sure the consistency of the study. However, these excluded themes could be

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referents for the proceeding thematic progressions which were taken into account in this investigation.

Data analysis

The accumulated data were analyzed using descriptive statistics through frequency tables. Inferential statistics was also employed to display any possible significant differences based on the frequency tables. Chi-square technique, with a significance of P=0.05 was utilized in order to signify the possible differences among the variables. The study also benefited from the qualitative analysis in order to compare and contrast the international and local RAs.

Results

Theme option

As displayed in Table 1, in the international corpus, within the four moves the most widespread use of the theme options belonged to the simple themes and the least was the textual + interpersonal themes. In the local articles, too, the topical theme was the most favored choice within the move number 1, 2 and 4 in comparison to the other options. In contrast to IJs, within the third move, ILJs preferred the textual thematic option. In other words, the data in Table1 indicates that within the four moves the textual function was the second most frequent use in the international corpus. The same, of course to a slight extent, can be said of the local corpus since authors emphasized their use of the textual themes within the third move more than other moves. In fact, compared to other theme types, this move showed a greater dominancy of the textual theme (57.7%). As for the theme types within each rhetorical move, the international and local articles had similar preferences in terms of the topical and textual choice.

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Table 1
The distribution of the simple and multiple themes within the generic moves in the international and local articles.

	Local Journals								**International Journals**							
	Topical		Textual		Inter-personal		Multiple theme		Topical		Textual		Inter-personal		Multiple theme	
Move	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
move 1	87	68.9	31	24.6	9	7.1	89	68.9	21	16.2	16	12.4	3	2.3	86	68.9
move 2	647	59.7	328	30.3	85	7.8	22	2.03	903	60.8	439	29.5	110	7.4	33	2.2
move 3	18	40	26	57.7	1	2.2	0	0	31	53.4	22	37.9	3	5.1	2	3.4
move 4	16	66.6	8	33.4	0	0	0	0	103	66.8	40	25.9	10	6.4	1	0.6

However, the four moves in the local corpus showed the least preference to the use of the textual + interpersonal themes which was similar to those of the international results. On the basis of this quantitative investigation, it can be said that in both international and local journals, the lowest number of occurrences of the interpersonal themes and textual + interpersonal themes was attested within the four analyzed moves in the discussion sections. The figures also indicate that these two types of themes were much less frequent in the local articles than in the international ones. This indicates that a divergence might be observed in the total number of occurrences of the interpersonal themes and the textual + interpersonal themes within all moves across both corpora. In the Iranian local articles, move number 1, 3, and 4 did not display any tendency toward the use of the textual + interpersonal themes. In fact, among 60 Iranian analyzed articles no cases were found for this type of theme within the indicated moves. Moreover, for the interpersonal theme these articles did not have any case within the last move and only one case (2.2%) was observed within the third move.

1- **It seems that** it would have been more informative to do it based on a more heterogeneous population. **Interpersonal theme**. (Move 3). IJAL 2007, 1(1), 1-14.

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Although the international articles were inclined enough to use the interpersonal themes and textual + interpersonal themes within all moves as many times as the topical and textual themes, contrasted to the local RAs, no discrepancy was observed among the moves for the use of these theme choices. It should be pointed out, however, that as for the textual + interpersonal themes, there were two cases for move three (3.4%) and one case (0.6%) for move four which verified the low concentration of these theme types within the moves.

2- **However, we believe that** in combination with the more naturalistic tasks in Study1, this somewhat artificial nature of the task is compensated for. **Textual + interpersonal theme**. (Move 3) Journal of Pragmatics, 2008, 40, 2003–2026.

3- **Hence, it does not seem plausible to argue that** doing the written recall task (i.e. a task involving written translation and memory) first…….. **Textual + interpersonal theme** (Move 3). Language Testing 2006, 23, (4), 520–543.

However, in the sense of the interpersonal theme a consistent distribution was observed within the moves among the international RAs. Therefore, the results suggest the tendency of the Iranian local articles to have fewer interpersonal themes and textual + interpersonal themes within all moves than the international RAs concerning all major discourse functions, albeit to a different extent. Table 2 also shows a similarity between the two corpora in the distribution of the theme types within rhetorical move.

Table 2

Results of χ^2 for the distribution of the simple and multiple themes within the generic moves in the international and local articles

Moves / Journal	Contextualizing the study (move 1)	Consolidating results (move2)	Stating limitations (move 3)	Suggesting further research (move4)
local	74.90	436.69	21.73	2.66
	*.000	*.000	*.000	.10
International	138.5	1034.3	42.55	159.40
	*.000	*.000	*.000	*.000

Note. *P < .05

The results show that the distribution of the theme types in all moves of discussion sections was statistically significant in both international and local corpora. Despite the similarity of the two corpora in their tendency to favor the significantly identical distribution of the theme types within the first three moves

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there was still some variation in the distribution of the theme types within the last move. That is, there was a meaningful relationship between the last move and the use of thematic option in the international corpus whereas such a significant relationship was not observed in the local RAs.

Although the theme types found in the first, third and last moves were distributed differently, the results in both international and local data showed that "*consolidating results*" (move 2) did not have such inconsistency in the themes distribution. The former group in all journals represented some discrepancy. That is, within these moves sometimes some theme types were wholly absent while no result indicated any theme absence within the second move. Although, the topical theme in the second move had the highest presence of all other theme types, it never showed the paucity of the theme types in the discussion sections. The main reason for such a consistent presence in the second move might originate from the fact that in both corpora this move engaged the largest proportion of argumentation in discussion sections compared to the other moves. Moreover, since this move provided voluminous room for discussing the particular results of studies, the topical theme had the most widespread use in statements of research findings.

4- **The findings of this study** indicate that there is a difference between males' and females' comprehension of the reading passages. **Topical theme**. (Move 2). IJAL 2008, 11 (1), 97-113.
5- **Another finding** is that both males and females are better comprehenders of essay followed by history and short story regardless of their gender. **Topical theme**. (Move 2). IJAL 2008, 11 (1), 97-113.
6- **The results of the experiment** showed that the Featural Model of L2 Perception generally worked well to point to the most problematic areas of phonological contrast for Japanese learners of Russian. **Topical theme**. (Move 2). SLR 2004, 20(1) 33–76.
7- **Many experimental tests** have shown that while Japanese learners may have moderate to strong difficulty in identifying the English /¨–l/ contrast in initial position……. **Topical theme**. (Move 2). SLR 2004, 20(1) 33–76.

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Theme progression (TP)

Table 3 displays the raw frequency and percentage figures in terms of the use of thematic progression patterns in the international and local journals.

Table 3

The distribution of the theme progressions within the generic moves in the international and local articles

	Local Journals								International Journals							
	Parallel Progression		Linear Progression		Split Rheme		Split Theme		Parallel Progression		Linear Progression		Split Rheme		Split Theme	
Move	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
move 1	29	52.8	22	40	2	3.6	2	3.6	15	39.4	21	55.2	2	5.2	0	0
move 2	202	38.9	276	53.1	24	24	17	3.2	258	38.2	321	47.6	59	8.7	36	5.3
move 3	2	18.1	9	81.9	0	0	0	0	7	38.8	8	44.4	1	5.5	2	11.1
move 4	1	20	4	80	0	0	0	0	34	54.8	25	40.3	0	0	3	4.8

On the level of the rhetoric moves, the above comparison revealed a great variation in the frequency across the two corpora concerning the use of the theme patterns. Findings were rather surprising, considering that in the international RAs, the first three moves seemed to employ more linear TP patterns as the theme development while this was the case in the last three moves in the ILJs. What was more striking was that the international articles almost chose parallel progression within the last move whereas the Iranian local counterparts concentrated more on the use of parallel pattern within the first move. In fact, 54.8% of all thematic patterns were dedicated to the use of the parallel TPs in the last move in the IJs which was slightly similar to the rate of the incidence of the thematic parallel patterns in the ILJs (52.8%). However, the use of the linear TPs in both corpora was more marked than other TP patterns specially the split rheme and the theme patterns. Then, it is tempting to say that the majority of instances were realized by means of the linear and parallel patterns which suggest that the discussion moves use them in order to develop this section of RAs. In contrast to other moves and with regards to the same reasons cited above, the second move "*consolidating results*", here, also involved the largest proportion of the linear patterns either in the international corpus or local articles.

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8- Farsi speakers rely on position. That is, Farsi speakers use initial phonemes to break down the flow of speech into meaningful units in English. **Linear progression.** (Move 2). Journal of social sciences & humanities of shiraz university 2006, 23(1), 32-44.

9- Hawkins and Chan (1997) would predict that English learners (mis)categorize German scrambling as **topicalization. Topicalization** is the closest analogue to German scrambling in English. **Linear progression.** (Move 2). SLR (2005), 21, 1, 34–71.

In comparison to these two predominant theme patterns, the moves in both corpora did not favor the use of the split theme and rheme patterns. Their use was restricted to the chronological and hierarchical discussions. When the discussion sections were supposed to be described progressively, these kinds of theme introduce a noticeable help to carry on the discussion gradually. They were most of the time used with sequential expressions like, *first, second, next, then*, or a group of nominal content referring to a larger category in the theme or rheme of preceding clauses.

10- **Additional research** is necessary to see whether lexical elaboration combined with typographical enhancement with the aid of boldfacing, *italicizing*, underlying, larger font size, etc. would result in formal retention of a larger number of target words. **Lee (2007), as an instance**, demonstrated that textual enhancement by making unfamiliar forms boldfaced, aided the learning of passive forms. **Similarly, Shook (1994) and Jourdenais, Ota, Stauffer, Boyson, & Doughty (1995)** report the same results showing significantly better performance by participants in the enhanced text conditions. **Split theme**. TELL 2008, 2 (6), 101-124.

11-**Three potentially critical differences** between the present study and Thomas and Dieter's (1987) study concern task difficulty, presentation format, and scoring. **First,** more target words were used in Thomas and Dieter's study, but the inclusion of an additional repetition for each word and an additional 4 seconds for every repetition may have resulted in a less demanding vocabulary learning task than that of the present study. If so, the negative effect of word writing via processing resource depletion may have been less detectable. **Second,** Thomas and Dieter presented target words both visually and orally. As such, word writing may have enabled participants to attend to sound-to-spelling correspondences in a

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manner that was more beneficial to encoding the new forms. **Third,** Thomas and Dieter's scoring method most sensitive to partial word form knowledge (most inclusion of partial word fragments) did not yield positive effects. **Split theme**. SLR 2006, 22(4), 487–497.

In both international and local cases, the lowest number of occurrences of the split theme and rheme patterns was testified within the four moves. The discrepancy of the split theme and rheme distribution among the IJs was not as much as the ILJs. For the international RAs, there were also some moves wherein no cases were found for the split themes and rhemes. For move 1, there was not any case for the split themes and the last move also had no case for split rheme. Move 3 had only one case (5.5%) for the split rheme and 2 cases (11.1%) for the split theme patterns.

12- **There are two reasons** for this. **First**, although initial transfer of the L1 is assumed it is also possible to account for the results by saying simply that Japanese speaker had not received positive evidence for the target. **Secondly,** infrequency of the target structure in the input is assumed; however, as R. Bley-Vroman points out (personal communication, September 2000), this assumption needs to be checked with real data using a corpus of some sort. **Split theme**. (Move 3). SLR 2002, 18(1), 3–27.

13- However, our results **must be interpreted with two important caveats**. **First,** we have assumed a causal time order that we can not directly defend. It is possible that respondents' preexisting attitudes toward ESL students, positive or negative, led teachers to seek or avoid many of the experiences we assessed in our study. Within the context of a one-shot, cross-sectional survey that measured experiences and attitudes simultaneously, this time order can not be ruled out, but it seems improbable. The presence of a significant number of ESL students in the district was recent and unexpected. It is unlikely that many of the teachers in our sample (in which the typical teacher had taught for 15.5 years) obtained their course work experiences and personal multicultural experiences only after ESL students were present in the community. **Split rheme**. (Move 3). TESOL Quarterly 2001, 35(1), 97-120.

In the local RAs, it is interesting to note that the last two discussion moves did not display any case for the split themes and rhemes. However, the move number one *contextualizing the study* displayed an equal number of the split theme and

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rheme patterns. That is, for each of them 2 cases were observed in analysis of data which totally comprised 7.2 % of all thematic progression patterns used in this move.

14- When studied in the light of the **DCT** and **CAM,** the findings do not definitely support one model against the other. **The dual-coding theory** predicts that concrete materials are easier to comprehend and recall regardless of the kind of context in which they appear (Wattenmaker and Shoben, 1987). They are easily recalled because they are supported by two mental systems. However, **the context-availability model** emphasizes the role of context and argues that appropriate contexts can enhance the comprehension of texts. **Split theme**. (Move 1). Journal of social sciences & humanities of shiraz university 2006, 23 (1). 21-31.

Based on the statistical investigation, it emerged that both types of journals showed a considerable tendency to the use of the split themes and rhemes within the second move *consolidating results*. In fact, there were a sufficient number of the split themes and rhemes occurrences in both corpora which indicated the usefulness of these types of patterns in the development of this move. However, the international articles stepped into the discourse within the second move by means of the split theme and rheme patterns almost twice as often as their local counterparts.

15- As illustrated earlier, the subcategories of hedging devices used by **ENS** and **PNS** differ in terms of kind and frequency. **ENS** used a variety of terms to express tentativeness and degree of their commitments towards their findings. Obviously, the relatively larger number of hedging taxonomies in ENS corpus may provide evidence for their r familiarity with interactive nature of applied linguistics RA genre. **PNS** used a limited variety of terms to express their tentativeness and degree of commitments towards the findings due to their attention to textual rather than interactional aspect of academic writing which, in turn, makes their RAs less interactive compared to ENS corpus. **Split rheme** (Move 2).TELL 2008, 2(7), 1-22.

16- We found that **both programs** were also under inexplicit pressure to conform to the prevailing ideologies of the departments: **The program at SEU** could not afford to be too pedagogical, lest it be seen as belonging elsewhere; likewise, **the curriculum at the program at WCU** has had to be structurally oriented because it resides in a general linguistics department. **Split theme**. (Move 2). TESOL

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Quarterly 2001, 35 (2), 279-305.

The textual analysis revealed that there was a strong association between the theme progressions and the four moves in the discussion sections of all international and local journals. The Chi-square results too showed that all types of the theme progression were significantly distributed in the given moves (Table 4). The last move *suggesting further research* was the only move which did not show a significant relationship between thematic progression patterns and the rhetorical moves in both groups of journals.

Table 4

Results of χ^2 for the distribution of the theme organization within the generic moves in the international and local articles.

Moves / Journals	Contextualizing the study (move 1)	Consolidating results (move 2)	Stating limitations (move 3)	Suggesting further research (move 4)
local	41.9	389.24	4.45	1.80
	*.000	*.000	*.03	.18
International	14.89	554.38	8.22	24.61
	.001*	.000*	.04*	.000*

Note. *P < .05

In short, it could be indicated that in both groups of articles, the international and local, thematic patterns were not used accidentally. In other words, there was a specific purpose underlying the employment of these thematic progressions in a particular generic move. Although there was a relative variation in the raw distribution in both groups, they showed a common preference to the overall use of the theme development patterns.

Discussion

The main purpose of the present research was to investigate the move-theme interaction in discussion sections of research articles (RAs). According to the findings reported in the previous section, it could be concluded that there was a significant relationship between the generic moves and thematic types in both corpora. However, the last move in the ILJs did not show a meaningful relationship with thematic option. More specifically, all moves in both corpora were dominated

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mainly by the topical and textual themes and they displayed the low portion of the interpersonal + topical themes (double themes) and the textual + interpersonal + topical themes (triple themes). According to Matthiessen (2002, p.48), "the textual system of theme contributes to the realization of the rhetorical development of the text."The high frequency of the topical and textual themes within the rhetorical moves support the claim that the moves in the discussion section appear to be strongly argumentative since the primary purpose of the moves, particularly the second move, is to argue the findings of the result section. Then, it could be stated that the way thematic option and rhetorical moves interact might not be arbitrary and there could be a logical structure underlying such a relationship. In fact, "the organization of coherent contiguous text", as noted by Mann et al. (1992, p.41), in general, and of the moves, in particular, roots in the thematic types. Moreover, the consistent frequency of the thematic options within the generic moves supports the principal assumptions of Rhetorical Structure Theory (RST), as discussed by Mann et al. (1992). In fact, the way rhetorical moves appear to significantly interact with thematisation underpins the "nature of relation," one of the important RSTs assumptions. The results of the present study were to a great extent compatible with those of Whittaker (1995) who found high frequency of the textual and topical themes in the research articles. The findings also echoed the results of Martínez (2003) who observed few cases for the interpersonal themes in the discussion sections. However, it should be pointed out that these studies did not consider the thematisation within the generic moves. They just analyzed thematic types in the scientific texts in a general view.

Although both international and Iranian local RAs had relatively identical tendency toward the use of thematic types within the moves, it could be pointed out that the use of the thematic options were more frequent within the IJs than the ILJs. Since the argumentative nature of the generic moves is due highly to the use of topical and the textual themes and their persuasiveness roots in the interpersonal themes and the triple themes, the low proportion of these thematic options in ILJs, as compared to the international counterparts, might lead to the low persuasive and argumentative quality of their articles. That there is a meaningful relationship between the moves schemata and the thematic types confirms the fact that authors in both groups have followed the same academic principles and conventions. Further, the difference between two corpora might be due to stylistic variation and "cultural discrepancies" (Amirian et al., 2008, p.57). It might also be attributed to

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the "socio-cultural factors including different rhetorical styles and the degree of influence of academic writing instruction" (Tahririan and Jalilifar, 2008, p.140).

Furthermore, findings of the present study suggest a meaningful relationship between the rhetorical moves and the thematic patterns. However, no significant relationship was observed within the last move in the ILJs. As for the thematic progression, the analysis revealed that the moves in both corpora were more predominated by the linear and constant TPs than the split themes and rhemes. The present results to some extent are in line with the findings of similar research in other contexts conducted by Nwogu (1997) who figured out that research articles had a dominant constant pattern in textual organizations.

In addition to the argumentative nature of the rhetorical moves which was endorsed through the thematic option, the continuity and connectivity of clauses within the generic moves can be intensified through the thematic progression patterns specifically the parallel and linear patterns. Since thematic mechanisms is concerned with the relation of the clauses and moves with the rhetorical pattern of texts, it seems that, as pointed by Matthiessen (2002, p.43), "clause complexing" can be realized in terms of "rhetorical-relational patterning in text." Based on the high presence of the linear and constant TPs, one can argue that these TPs are significant devices for developing the moves in the discussion section. On one hand, the constant progression patterns through the repetition of key terms or phrase of the preceding clause help each move focus on the given ideas and keep the readers' attention to the discussed points. In short, it could support the coherence of the text (Li and Liu, 2005). On the other hand, the moves favor the linear progression patterns since they enable writers to share the specific knowledge with readers. That is, the new information delivered in the rheme of the preceding clause can now be reflected as the given information in the theme of the following clause. Therefore, such a procedure provides a mutual communication of knowledge between readers and writers.

The low frequency of the split theme and rheme patterns as found in the study can be justified since the analysis of data revealed that a specific move could rarely embrace a split theme or rheme pattern. That is, sometimes these patterns transcend a specific move. Therefore, it could be suggested that unlike the linear and constant patterns, these latter patterns are more suitable for analyzing the coherence across the moves and not within them.

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As for the distribution of thematic patterns within the rhetorical move, there was a slight difference between the international and Iranian local articles. However, the results showed that within the second move the international articles used twice as many the split theme and rheme patterns as the local RAs. Since these devices were very vital for the cohesion of the second move, it seems that the international articles have represented a far stronger connectivity within the second move than the Iranian RAs. Therefore, the scarcity of these thematic patterns in the ILJs can to some degree indicate that the second move in the discussion sections of the ILJs was not prepared as cohesively as that of the international counterparts.

Finally, besides such factors as generic differences (Ghadessy, 1999), the contextual configuration of the texts (Halliday, 1985) and unity and coherence imported by rhetorical structure (Mann et al., 1992), one more factor should be taken into consideration in move, theme, and move-theme selection and that is expertise by which authors develop their texts; an issue which requires further research.

Conclusion

This paper aimed at studying the move-theme interaction as two main features in the total development of the rhetorical organization of RAs. There are, however, other important rhetorical features which deserve an equal attention if we are going to come up with an inclusive profile of factors that lead to the development of the academic genre. Such an inclusive typology among other things should investigate such features as rhetorical structures, generic moves, thematicity, information structures, lexical cohesion patterns, and last but not the least, content. Although there are many studies exploring these elements individually, it seems that the double and triple interactions of these factors have not been deeply investigated. Further studies need to be carried out to give us a more vivid interactive taxonomy of such features. Such studies not only contribute to the development of the theory, but they can help researchers, especially MA and PhD candidates get familiar with the intricate forms of RAs. After all, "publication in international journals has become a prerequisite to PhD graduation" (Huang, 2010) and a criterion for academic success.

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