The Journal of Applied Linguistics Vol. 2, Issue 2
Fall 2009

Exploring Sub-Disciplinary Variations and Generic Structure of Applied Linguistics Research Article Introductions Using CARS Model

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This paper explores sub-disciplinary variations and generic structure of research article introductions (RAIs) within three sub-disciplines of applied linguistics (AL); namely, English for Specific Purposes (ESP), Psycholinguistics, and Sociolinguistics, using Swales'(1990) CARS model. The corpus consisted of 90 RAIs drawn from a wide range of refereed journals in the corresponding sub-disciplines. The results indicate sub-disciplinary variation in the structure of this genre in terms of Move 2 / step 1B that can be justified through the concepts of 'established' versus 'emerging' fields. The findings underline the need for further in-depth research into sub-disciplinary variation and generic structure of RAIs. The results also promise pedagogical implications for ESP/EAP practitioners, course administrators as well as material developers.
Keywords: Genre Analysis, Moves, Sub-moves, CARS model, Research Article, Introduction, Applied Linguistics.

Academic writing, as an important channel of communication, has been playing an important role in academic discourse communities. This position of great centrality has entitled written academic discourse to be appreciated and analyzed from various aspects of significance and interest. Over the past

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decades, researchers have analyzed quite an assorted span of textual components and features such as: the use of tense and aspect (Burrough-Boenisch, 2003; Hinkel, 2004), modality (Vassileva, 2001), the use and function of adjectives (Soler, 2002), nouns (Flowerdew, 2003), the use of reporting verbs (Thompson & Ye, 1991) etc. and various academic written genres such as textbooks (Hyland, 2000; Moore, 2002), and conference papers (Rowley-Jolivet, 2002), etc.

Research article (RA), as one of the outstanding media for sharing research findings among scholars, has been the most reviewed and analyzed type of academic written discourse, and a large number of studies have explored the holistic aspects of RA: historical evolution (Salager-Meyer, 1999), social construction (Myers, 1990), the structural/ organizational aspect of RA including introduction, (Swales 1981, 1990; Swales & Najjar 1987), the result section (Thompson, 1993; Brett, 1994; Williams, 1999), discussions and conclusions (Holmes, 1997; Hopkins & Dudley-Evans, 1988; Yang & Allison, 2003), the abstracts (Salager-Meyer, 1992; Hyland, 2000; Samraj, 2005), and the grammatical and stylistic aspects of RA including various lexico-grammatical features, ranging from tense choice to citation practices.

Swales (1981), analyzing some forty-eight research article introductions from fourteen journals ranging from molecular physics through electronics, chemical engineering, neurology, radiology, educational research, educational psychology, management, language and linguistics, discovered remarkable similarities displayed by the authors of academic research papers in organizing their article introductions. Based on what he had discovered, Swales (1981) posited a four-move structure for a typical article introduction, which he, after some modifications in his later publication (1990), presented as the CARS model (Create a Research Space).

Move 1. Establishing a Territory
- Step 1. Claiming centrality and/or
- Step 2. Making topic generalizations and/or
- Step 3. Reviewing items of previous research

Move 2. Establishing a Niche
- Step 1.A. Counter-claiming or
- Step 1.B. Indicating a gap or
- Step 1.C. Question-raising or
- Step 1.D. Continuing a tradition

Move 3. Occupying the Niche
- Step 1.A. Outlining purposes or
- Step 1.B. Announcing present research
- Step 2. Announcing principle findings
- Step 3. Indicating RA structure

Figure 1. The CARS Model for RA Introductions, (Swales 1990, p. 141)

'Establishing a territory', which is the opening move of the CARS model, is considered as a commitment on the part of the writer to the academic discourse community of the relevance of the reported research to issues and propositions agreed upon by the members of that community. By adopting this move, the writer intends to assure the community that the study to be reported is among the concerns of that academic circle and might contribute to their understanding of some of the vague issues which are of interest to that circle. In move 2, i.e. Niche-establishment, the researcher adopts a challenging or even dubious stand toward the established territory, previous research and its findings. He attempts to highlight the shortcomings, gaps and unanswered questions regarding the established territory and consequently to

emphasize the necessity for further and more profound investigations. In this move, the writer/researcher intends to draw the attention of the academic circle to some vague points in the established territory, therefore gaining the confidence of the academic community is of utmost importance to him. Move 3, as the last move of the CARS model, serves a justifying purpose to turn the established niche, created by move 2, into the research space that validates the present article. In this move, the writer/researcher finds himself on a vantage point to state his side of the story and inform the academic circle of the objectives, procedures, methodology, structure, and possible outcomes of his study.

The presentation of CARS model by (Swales' 1981, 1990), drew more attention to RA introduction, and promoted the application of this model to other sets of texts (the cyclical nature of introductions , the use of references in introductions , the investigation of texts written in different languages and cultures using Swales' model (Fredrickson & Swales, 1994), the analysis of citation practices of 'expert' writers (Pickard, 1995), the investigation of citation practices in academic texts (Thompson, 2000), extending Swales' division of citation forms (Thompson & Tribble, 2001). Moreover, it triggered more interest in research on the move structure of RA introductions and the examination of the nature, applicability, and comprehensiveness of this model not only across the boundaries of related and unrelated disciplines, but also within single disciplines and among their sub-disciplines.

Disciplinary variation, i.e. marked mismatches in the number, sequence, nature, and function of moves and their constituent steps, has been documented in a number of studies including analysis of social science RA introductions (Crookes, 1986), political science and sociology RAs (Holmes, 1997), medical science RAs (Nwogu, 1997), computer science RAs (Posteguillo, 1999), software engineering RAs (Anthony, 1999), Wildlife Behaviour and Conservation Biology RAs (Samraj, 2002), and applied linguistics RA introductions (Ozturk, 2007). Some scholars have extended the scope of disciplinary variations in RAs to other parts of RA. For instance, (Hyland, 2000) and

(Samraj, 2005) have documented disciplinary variations in RA abstracts as well.

The quite comprehensive nature of CARS model, and the frequent amendments it has undergone, the most recent of which was presented in (Swales, 2004), credits this model as a descriptive, and to a large extent thorough model for RAIs. However, the discrepancies between this model and some aspects and features of RA introduction such as the presence of definitions of terms, exemplifications of difficult concepts, and evaluation of the research presented witnessed in afore-mentioned studies and the existence of disciplinary variation in not only unrelated disciplines but also related ones in the above-mentioned studies, on the one hand, and the ever-increasing interest in variations and differences across disciplinary boundaries, on the other hand, highlight this fact that the span of generic variation has gone beyond disciplinary (related or unrelated disciplines) borders, consequently underlining the necessity for tracing generic variation along sub-disciplinary borders as well.

The current study means to explore sub-disciplinary variations in RA introductions across the three sub-disciplines of ESP, sociolinguistics and psycholinguistics. Verifying the existence of any disciplinary variations, exploring generic structure of RAIs in the above-mentioned sub-disciplines, and corroborating the concordance of Swales' (1990) CARS model with the RA introductions in these sub-disciplines are the main objectives of the current study. It intends to contribute to the configuration of academic writing blueprints with specific moves and constituent parts for not only the current members of these academic communities but also people that seek membership in them and those students that intend to communicate with the target community through academic writing. Moreover, it may enlighten English for academic purposes (EAP) instruction, material and curriculum development, and provide implications for academic writing instructors through shedding light on textual norms across these sub-disciplines. This study seeks answers to the following research questions:

1. Are there any differences across RA introductions in the three sub-disciplines of Sociolinguistics, Psycholinguistics, and ESP in terms of moves and steps constituting each move?

This research question can be rephrased in three minor questions:

a) Are there any differences across RA introductions in the three sub-disciplines of Sociolinguistics, Psycholinguistics, and ESP in terms of move 1 and its constituent steps?

b) Are there any differences across RA introductions in the three sub-disciplines of Sociolinguistics, Psycholinguistics, and ESP in terms of move 2 and its constituent steps?

c) Are there any differences across RA introductions in the three sub-disciplines of Sociolinguistics, Psycholinguistics, and ESP in terms of move 3 and its constituent steps?

2. Are there any differences across RA introductions in the three sub-disciplines of ESP, psycholinguistics, and sociolinguistics in terms of adopting the move structure of Swales' (1990) CARS model?

The following null hypotheses were formulated based on the above research questions:

1. There are no significant differences across RA introductions in the three sub-disciplines of Sociolinguistics, Psycholinguistics, and ESP in terms of moves and steps constituting each move.

a) There are no significant differences across RA introductions in the three sub-disciplines of Sociolinguistics, Psycholinguistics, and ESP in terms of move 1 and its constituent steps.

b) There are no significant differences across RA introductions in the three sub disciplines of Sociolinguistics, Psycholinguistics, and ESP in terms of move 2 and its constituent steps.

c) There are no significant differences across RA introductions in the three sub disciplines of Sociolinguistics, Psycholinguistics, and ESP in terms of move 3 and its constituent steps.

2. There are no significant differences across RA introductions in the three sub disciplines of ESP, psycholinguistics, and sociolinguistics in terms of adopting the move structure of Swales' (1990) CARS model.

Method

Corpus

Having surfed the net, the list of related Applied Linguistics journals was shared with two ESP experts and the preliminary corpus (consisting of 90 RAIs) was drawn from a range of journals refereed by the two experts to be central in these sub-disciplines, and published between 1998-2003. The corpus was restricted to a period of 6 years (1998-2003) to control for potential rapid changes within any of the disciplines. The final corpus, 60 RAIs (20 from each discipline), was selected on the basis of stratified sampling procedure. In other words, the RAIs were drawn from unequal-sized samples (on a proportional basis) based on the importance and reputation of the journals and the extent to which the journals were research-oriented. Moreover, to qualify for the final corpus, all the RAs from which the introductions were drawn had to report original research and had the traditional IMRD (introduction, method, results, discussion) sections. The final corpus consisted of introductions including one to seven paragraphs.

Data Analysis

The framework of analysis in this study was Swales'(1990) genre-analysis model (i.e. CARS model). Based on his analysis of 48 article introductions randomly selected from three main fields of hard sciences, biology and medicine, and social sciences,

Swales(1981) posited a four-move structure for a typical research article introduction, which he, after some modifications in his later publication (1990), presented as a three-move model called the CARS model (Create a Research Space). According to this model, RA writers include three moves in RA introductions. In the first move, they establish the general topic being discussed, then resort to various steps , followed by creating a niche within the territory, and eventually presenting their side of the story by occupying the niche.

Due to the specific nature of the study, an ex post facto design was selected for the study. Since there was no cause-effect relationship between the variables, moves and sub-moves were labeled as dependent variables and the researchers / writers' knowledge of the generic structure was treated as an independent variable. On the basis of advice from the two ESP experts, the collected data were analyzed according to Swales' (1990) CARS model and the move structure of the RA introductions were identified. Finally, the move identification process was refereed by the experts to assure inter-rater reliability.

In order to determine possible variations in the occurrence of moves 1, 2, 3 and their constituent steps in the RAIs across the three sub-disciplines, as well as the extent of concordance between Swales' (1990) CARS model and the move structure of the RA introductions in these sub-disciplines, the observed frequencies of each move and its constituent steps were tallied and summed. Also, to probe the significance of differences, a series of statistical non-parametric tests for nominal data, namely Chi- square tests, were conducted.

Results

Move 1

In this study, step 1, that is, 'Centrality claim' was realized through these strategies: A. Highlighting an increasing emphasis/ interest/ attention B. Expressing a well-established territory C. Expressing recognition and importance D. Expressing interest and attention E. Reference to the central issues of the discipline, F.

Recency of the research territory. Centrality claims typically occur sentence initially. From among 20 ESP RAIs which utilized move 1, 13 RAIs (65%) used step 1; 9 RAIs of them deployed this step sentence initially and in the other four this step didn't occur sentence initially. Out of 19 psycholinguistics RAIs which used move 1, 7 RAIs (36.8%) applied step 1, from which 3 RAIs used this step sentence initially and in the other four this step didn't occur sentence initially. From among 17 sociolinguistics RAIs which used move 1, 6 RAIs (35.2%) utilized step 1, from which 2 RAIs had this step sentence initially and in the other four this step didn't occur sentence initially. Some examples of the strategies used for realizing step 1 are presented below.

(A) ESP (RAI No.11) *The last three decades … of increased emphasis on…*

(B) ESP (RAI No.17) *Over the last twenty years, a large number of studies…*

(C) ESP (RAI NO.6) *Metaphor plays a central role …*

(D) ESP (RAI No.8) *They (conditionals) have often attracted the attention of …*

(E) ESP (RAI No.14) *One of the central issues within … is this precarious reader …*

(F) ESP (RAI No.15) *It is only relatively recently that the Spanish …*

In the current study Step 2 and its constituent strategies were fulfilled as mentioned by Swales (1990) through making either A) statements about the knowledge or practice or B) statements about the phenomena. See two examples in this regard below.

(A) ESP (RAI No.18) *In Indonesia… university students taught through the medium of the national language,…*

(B) ESP (RAI No.8) *Conditionals are widely used to consider option,…*

Reference to previous research is fulfilled through three major techniques of (1) Integral citations (2) Non-integral citations (3) Both integral and non-integral citations (Swales, 1990). The following are the examples of these techniques found in the corpus.

(1) ESP (RAI No.18) *Nation (1990: 24) states that learners…*

(2) ESP (RAI No.7) *There have been previous attempts (Cooper, 1985; Hughes, 1998) to analyze…*

(3) ESP (RAI No.4) *In contrast to this Shannon and Weaver's (1963) view… Hedges (Hyland, 1996, 1998),…*

Regarding the position of Move 1, RAI writers preferred to pose this introduction move initially in 18 (90 %), 17 (89.47 %), and 12 (70.5 %) RAIs in the three disciplines of ESP, psycholinguistics, and sociolinguistics, respectively. In 8 ESP RAIs (40%), 9 psycholinguistics RAIs (47.36 %), and 10 sociolinguistics RAIs (58.82 %), move 1 was fulfilled through individual application of its constituent steps, while in 12 ESP RAIs (60 %), 10 psycholinguistics RAIs (52.63 %), and 7 sociolinguistics RAIs (41.17 %) this move was realized through a combination of its constituent steps.

Addressing the first research question (1a), regarding the existence of any differences in the occurrence of move 1 and its constituent steps in the RAIs across the three sub-disciplines, the observed frequencies of occurrence of move 1 and its constituent steps were tallied and summed; and to probe the first null hypothesis (1a), the statistical analysis chi-square was run on the collected data. The results, as depicted in Table 1, indicated that there was no significant difference between the type and frequency of move 1 along with its constituent steps utilized in ESP, psycholinguistics, and sociolinguistics RAIs. Consequently, the

first null hypothesis, regarding move 1 was confirmed at the level of $p \leq 0.05$.

Table 1
Chi-Square for Move 1 across AL Sub-Disciplines

Disciplines	Move 1/ Steps			Total
	Step 1	Step 2	Step 3	
ESP	13 37.1	7 20.0	15 42.9	35 38.0
Psycholinguistics	7 22.6	9 29.0	15 48.4	31 33.7
Sociolinguistics	6 23.1	5 19.2	15 57.7	26 28.3
Total	26 28.3	21 22.8	45 48.9	92 100.0
Chi-square	D.F.	Significance	Min E.F.	Cells with E.F.<5
3.04484	4	0.5503	5.935	None

Move 2

In the current study, step 1A was realized through these linguistic exponents: A. Contrastive comments B. Verb phrase negation/lexical negation. Out of 17 ESP RAIs, 15 Psycholinguistics RAIs, and 13 Sociolinguistics RAIs which utilized move 2, only 3 psycholinguistics RAIs and 1 sociolinguistics RAI used step 1A, that is, they counterclaimed the previous research.

(A) Psycho-linguistics *(RAI No.14) …However, recent evidence examining …has challenged this idea…*
,respectively
(B) Psycho-linguistics *(RAI No.10) …he is mistaken that replication of his results among children…*

Step 1B was realized through: A. Negative or quasi-negative quantifiers B. Lexical negation C. Verb phrase negation D. Expressed needs E. Contrastive comments. Out of 17 ESP RAIs, 15 Psycholinguistics RAIs, and 13 Sociolinguistics RAs which utilized move 2, 17 ESP RAs (100 %), 8 psycholinguistics RAIs

(53.3 %), and 5 sociolinguistics RAIs (38.46 %) employed this step.

(A)ESP (RAI No.10)…but there appears to be little if any analysis of …

(B)ESP (RAI No.14)…there is a notable absence of specific studies…

(C)ESP (RAI No.16)…, academic research has not caught up with … and it has so far provided no clear…

*(D)*ESP *(RAI No.15)…more English/Spanish comparative rhetoric studies …are needed.*

(E)ESP (RAI No.13) Although giving examples is a common…strategy…college-level L2 writers rarely…

In order to crystallize step 1C, the writer /researcher either implies or poses the question directly to the audience. Out of 17 ESP RAIs, 15 Psycholinguistics RAIs, and 13 Sociolinguistics RAIs which utilized move 2, no ESP RAIs (0 %), 1 psycholinguistics RAI (6.66 %), and 1 sociolinguistics RAI (7.69 %) employed this step, revealing more tendency on the part of psycholinguistics, and sociolinguistics RAI writers in including this step in their introductions compared to ESP RA introduction writers.

Psycho-linguistics *(RAI No.11) Thus the question arises: why do children often fail…*

Socio-linguistics *(RAI No.13) Briefly, there are two questions to be asked…*

Out of 17 ESP RAIs, 15 Psycholinguistics RAIs, and 13 Sociolinguistics RAIs which deployed move 2, no ESP RAIs (0 %), 3 psycholinguistics RAIs (20 %), and 6 sociolinguistics RAIs (46.15 %) employed step 1D.

Psycho-linguistics (RAI No.5) In pursuing this research question... shed light on a long standing debate in…

Psycho-linguistics *(RAI No.7) The present study seeks to expand upon this link between…*

The constituent steps of move 2 can be ranked (from the most frequent to the least frequent) as follows in terms of the tendency of the researcher to include them in the RA introductions in each of the three disciplines: ESP(1B), Psycholinguistics (1B,1D,1A,1C), Sociolinguistics (1B, 1D,1A, 1C). It is noteworthy that ESP RAI writers were the only RAI writers who avoided resorting to steps 1A, 1C, and 1D, and preferred to present their arguments in a more conservative way, without posing any serious challenge, raising any questions, or even continuing the same line of research. Move 2 was embodied in 85 % of ESP RAIs, 75 % of psycholinguistics RAIs and 65 % of sociolinguistics RAIs through resorting to single constituent steps, and no combination of these constituent steps was observed in the corpus analyzed. Steps 1B and 1C ranked as the most frequent step and the least frequent step, respectively in the corpus analyzed, leaving steps 1D, and 1A as the second and the third favorite choice. This preference for step 1B in most of the RAIs analyzed highlights the tendency on the part of the researcher for less direct and challenging approaches toward the established territory and the previous research. Regarding the position of Move 2 in the corpus analyzed, out of 17 ESP RAIs which included this move, 16 RAIs (94.11 %) utilized this move in the second position, one RAI (No.7) (5.8 %) used this move in the third position, and 3 RAIs (15 %) did not employ this move at all. Out of 15 psycholinguistics RAIs which included this move, 12 RAII (No.13) (6.6 %) utilized this move in the initial position, 2 RAIs (No.3, 14) (13.3 %) used this move in the third position and 5 RAIs did not utilize this move at all. Out of 13 RAIs which included Move 2, 6 RAIs (46.15 %) deployed this move in the second position, 7 RAIs (53.84 %) utilized this move in the third position, and 7 RAIs (35 %) did not use this move at all.

Addressing the second research question (1b), regarding the existence of any differences in the frequency of occurrence of

move 2 and its constituent steps in the RAIs of the three sub-disciplines, the observed frequencies of occurrence of move 2 and its constituent steps were tallied and summed; and to probe the second null hypothesis (1b), two rounds of chi-square tests were conducted. Taking into account that the frequency of occurrence of some of the constituent steps of move 2 (namely steps 1A, 1C, 1D) in ESP RAIs was equal to 0, in the course of the first round of conducting chi-square tests through SPSS software, It was revealed that 75 % of cells had expected frequencies of less than 5, exceeding the limits set by the statistical principles of chi-square and SPSS(not more than 20% of cells can have expected frequencies of less than 5). Therefore, the results of the first round were open to question. Having excluded the cells with 0 observed frequencies, the second round of chi-square tests analyzed the data in the three sub-disciplines considering move 2 (step 1B only). The results indicated a marked difference between the frequency of occurrence of move 2 / step 1B across the three sub-disciplines. Consequently, the second null hypothesis regarding move 2 was rejected at the level of $p \leq 0.05$. Table 2 presents the results of the chi-square tests on move 2.

Table 2
Chi-Square for Move 2 across AL Sub-Disciplines

Disciplines	Move 2 / Step		
	1B observed	Expected	Residual
ESP	17	10.00	7.00
Psycholinguistics	8	10.00	- 2.00
Sociolinguistics	5	10.00	- 5.00
Total	30		
Chi-square	D.F.	Significance	
7.800	2	.020	

Move 3

In the current study, step 1A was realized through the following linguistic exponents: (A) In a neutral way (B) Expression of focus and concentration (C) Expressed concern, purpose, aim, objective, intention, and goal (D) Expressed attempts (E) Expressed examination, investigations, and explanations. Out of 20 ESP RAIs, 19 psycholinguistics RAIs, and 20 sociolinguistics RAIS which utilized move 3, 13 ESP RAIs (65 %), 14 psycholinguistics RAIs (73.68 %), and 16 sociolinguistics RAIs (80 %) included step 1A, and 12 ESP RAIs (60 %), 8 psycholinguistics RAIs (42.10 %), and 16 sociolinguistics RAIs (80 %) included step 1B in their introductions, respectively. It is worth mentioning that from among 13 ESP RAIs that utilized step 1A, 8 RAIs (7,19,3,16,18,2,14,9) used this step individually (i.e. without combination with step 1B) and 5 RAIs (17,15,5,8,20) deployed this step in combination with step 1B. Out of 14 psycholinguistics RAIs that had step 1A,10 RAIs (7,5,19,6,14,10,15,18,2,1) utilized this step individually, but 4 RAIs (17, 9, 3, 12) employed this step in combination with step 1B. From among 16 sociolinguistics RAIs that utilized step 1A, 4 RAIs (11,10,19,15) utilized this step by itself while 12 RAIs (16,4,7,5,1,2,14,8,17,6,12,13) used this step in combination with step 1B. The following are 5 examples of step 1A and 4 examples of step 1B, respectively.

(A) ESP (RAI No.15) We hope that the study reported here will… contribute to …

(B) Psycho-linguistics *(RAI No.10) It is evidence of this latter type that is the focus of this paper*

(C) ESP (RAI No.7) The aim of this paper is to…

(D) ESP *(RAI No.5) I have attempted to make…*

(E) ESP *(RAI No.19) In this study we examine the occurrence…*

1. ESP (RAI No.12) The study … an analysis of a ten-hour collection of conversation…

2. ESP (RAI No.10) … 13 PHD theses were analyzed to see…

3. ESP (RAI No.15) … the present research follows… to study …from a historical perspective…

4. Psycho-*linguistics (RAI No.8) we have empirically illustrated the crucial…*

Like step 1, steps 2 and 3 of Move 3 were utilized in the introductions of RAIs of the three disciplines in different numbers. Out of 20 ESP RAIs, 19 psycholinguistics RAIs, and 20 sociolinguistics RAIs which used move 3, 1 ESP RAIs (5 %), 8 psycholinguistics RAIs (10.5 %), and 6 sociolinguistics RAIs (30 %) included step 2 while step 3 was used in 3 ESP RAIs (15 %), 6 psycholinguistics RAIs (31.57 %), and 8 sociolinguistics RAIs (40 %). The following are 6 examples of steps 2 and 3 (3 each), respectively.

*1. ESP (*RAI *No.17) The results of my analysis reveal differences…*

2. Psycho-linguistics (RAI No.7) As will readily become apparent, it does appear that the well-established pattern of …

3. Psycho-*linguistics (RAI No.11) In this regard, perspective taking plays a great role in … in Japanese.*

1. ESP (RAI No.16) … the corpus of the data will firstly be described, *followed by…*

*2. ESP (*RAI *No.4) I begin with… then go on to …*

3. ESP *(RAI No.10) … the first part of the present study set out to do. Following that…*

In total, Move 3 appeared in 59 out of 60 RAIs included in the corpus. This indicates the importance of it among the members of the academic circle and their well-awareness of the significance

and concluding role it serves. This move was fulfilled through either individual application of its constituent steps or a combination of them. Step 1, as the obligatory element in move 3 according to Swales (1990, p.159), occurred in 20 ESP RAIs (100 %), 18 psycholinguistics RAIs (94.73 %) and 20 sociolinguistics RAIs (100 %). This step failed to appear in only one psycholinguistics RAI (No.11). Step 2 did not appear alone in ESP and sociolinguistics RAIs while it appeared individually in only one psycholinguistics RAI (No.11). Step 3 did not occur alone in the RAIs analyzed in the corpus. In 8 ESP RAIs (40 %), 9 psycholinguistics RAIs (47.36 %) and 15 sociolinguistics RAIs, the writer/researcher did prefer to resort to a combination of steps to convince the academic circle of the worthiness of the current research and the new prospects it was to disclose before the discourse community.

Regarding the position of Move 3 in the RAIs analyzed, this move appeared in the final position in 18 ESP RAIs, and the initial position in only two of the RAIs analyzed (No. 7 and 12). In psycholinguistics RAIs, this step occurred in the final position and the initial position in 17 RAIs and 2 RAIs (No.9 and 14), respectively. In sociolinguistics RAIs, this step did appear in the final position in 13 RAIs, and occupied the initial position in 7 RAIs (No. 11, 17, 8, 9, 3, 18, 5).

Addressing the third research question (1c), regarding the existence of any differences in the frequency of occurrence of move 3 and its constituent steps in the RAIs of the three sub-disciplines, the observed frequencies of occurrence of move 3 and its constituent steps were tallied and summed, and to probe the third null hypothesis (1c) three rounds of chi-square tests were conducted. In the course of the first round of tests through SPSS, it was revealed that 41.7 percent of cells had expected frequencies of less than 5, exceeding the limits set by the statistical principles of chi-square and SPSS (not more than 20% of cells can have expected frequencies of less than 5), therefore the results of the first round were open to question and unreliable. In the course of the second round of chi-square test, having excluded step 2, 22.2 percent of cells showed expected frequencies of less than 5,

exceeding the limits set by the statistical principles of chi-square and SPSS; therefore, the results of the second round were open to question and unreliable. Having excluded steps 2&3, the third round of chi-square tests analyzed the data in the three sub-disciplines considering steps 1A, and 1B. The results indicated no marked differences between the type and frequency of occurrence of move 3 and its constituent steps (1A, 1B). Consequently, the third null hypothesis, regarding move 3 was confirmed at the level of $p \leq 0.05$. Table 3 presents the results of the chi-square tests on move 3.

Table 3
Chi–square for the frequency of Move 3 across AL sub-disciplines

Disciplines	Move3 / Steps		Total
	1A observed	1B observed	
ESP	13 52.0	12 48.0	25 31.6
Psycholinguistics	14 63.6	8 36.4	22 27.8
Sociolinguistics	16 50.0	16 50.0	32 40.5
Total	43 54.4	36 45.6	79 100.0

Chi-square	D.F.	significance	Min E.F.	Cells with E.F.< 5
1.06447	2	0.5873	10.025	None

Addressing research question 2, regarding the existence of any differences in the adoption of Swales' CARS model in the RAIs of the three sub-disciplines, it was discovered that of 20 ESP, psycholinguistics, and sociolinguistics RAIs analyzed in the corpus,16 ESP RAIs (80 %),11 psycholinguistics RAIs (55 %), and 5 sociolinguistics RAIs (25 %) did apply these moves, sub-moves, and steps in the assigned order (according to Swales' CARS model). Table 4 shows move structure of RAIs in the three sub-disciplines according to Swales' CARS model.

To probe null hypothesis (2) a chi-square test was conducted in which the move structures of the RAIs in the corpus were compared and contrasted against the move structure of Swales' CARS model.

Table 4
Move Structure of RAIs According to (Swales' 1990) CARS Model

Move / constituent Steps	ESP	Psycholing.	Socioling.
Move 1. Establishing a Territory	100 %	95 %	85 %
Step1.claiming centrality *and/or* Step2.Making topic Generalization *and/or* Step3.Reviewing Items of Previous Research	65 % 35 % 75 %	36.8 % 47.36 % 78.94 %	35.2 % 29.41 % 88.23 %
Move 2. Establishing a Niche	85 %	75 %	85 %
Step1A.Counter- claiming *or* Step1B.Indicating a Gap *or* Step1C.Question-raising *or* Step1D.Continuing a Tradition	0 % 100 % 0 % 0 %	20 % 53.33 % 1.66 % 20 %	7.69 % 38.46 % 7.69 % 46.15 %
Move 3. Occupying the Niche	100 %	95 %	100 %
Step1A.Outlining Purposes *or* Step1B.Announcing Present Research Step 2.Announcing Principle Findings Step 3.Indicating RA Structure	65 % 60 % 5 % 15 %	73.68 % 42.10 % 10.5 % 31.57 %	80 % 80 % 30 % 40 %

The results of the chi-square test confirmed the absence of any marked differences in adopting Swales' CARS model across RA introductions in the three sub-disciplines. Consequently, the second null hypothesis was confirmed at the level of $p \leq 0.05$. Table 5 presents the results of the chi-square test on the extent to which the RA introductions across the three sub-disciplines differed in adopting the move structure of Swales' (1990) CARS model.

Table 5
Chi –Square for Concordance with Cars Model

Disciplines	Cases Observed	Expected	Residual
ESP	16	10.67	5.33
Psycholinguistics	11	10.67	.33
Sociolinguistics	5	10.67	- 5.67

Total	32	
Chi-square	D.F.	Significance
5.688	2	0.058

Discussion

Discrepancies in Moves 1, 2, 3

The obligatory inclusion of Move 1, especially its step 3, was not observed in one psycholinguistics and three sociolinguistics RAIs. Considering the fact that the above-mentioned RAIs all started with move 3 (Occupying the niche), it can be assumed that the writers did take moves 1, and 2 for granted and did assume that the centrality, significance and recency of the research territory, and any challenges posed to this territory in terms of counter-claims, gaps and questions are among the propositions that the members of the related academic circles are well aware of. Therefore, they did think it better not to mention the ever-repeated and get straight down to the points they were to put forward. Interestingly, Step 1 (Centrality Claim) was included in Move 3 (Occupying the niche) in psycholinguistics RAI No. 17 and was reiterated after step 2 in psycholinguistics RAI No.6 ,which reveals the extra attempt on the part of the researcher to draw the attention of the academic circle to the importance of his study.

Unlike what Swales (1990) thinks of integral and non-integral citations, in psycholinguistics RAI No.16, the name of the researcher not only occupied the subject position, which is typical of integral citations, but was also set off the actual citing sentence, which is typical of non-integral citations. This technique was not accounted for by Swales' CARS model. Considering its rarity in the corpus and the recency of the publication of this RA (Dec. 2003), it might be a new style of making citations or merely the editorial preference of the source journal, i.e., System.

Move 2 was also omitted or dislocated (occupying the initial or third position) in some of the RAIs analyzed. Unlike what Swales (1990) claims as the strong and obligatory binding between Moves 2 and 3, the ratio of co-occurrence of these two moves in the RAIs analyzed in the three sub-disciplines of ESP, psycholinguistics, and sociolinguistics was 17 to 20, 15 to 19, and 13 to 20 respectively.

The combination of steps 1A and 1B (move 3) in some of RAIs might be because of the writer/researcher unawareness of the

orientation of Move 3 and the difference between steps 1A and 1B and the issues presented in each. Also, it might be the result of the writer/researcher tendency to present as much of their research as possible to impress the academic circle, or the writer/researcher belief that the academic circle is entitled to know both the objectives and the methodological issues of his research.

In one sociolinguistics RAI (No.8) and four ESP RAIs (No.9, 11, 13, 17), the writers/researchers presented the implications, contributions, and applications of their research for future studies. The following are a few examples of this step found in the corpus:

1. Sociolinguistics *RAI (No.8) This research thus contributes to…*
2. *ESP RAI (No.9) The findings of this study may be useful…*
3. *ESP RAI (No.11) Information obtained could be used in the …*
4. *ESP RAI (No.13) The findings of this study are intended to help…*

The appearance of the above-mentioned mismatches in 4 (20%), 9 (45%), and 15 (75%) of RAIs (ESP, psycholinguistics, and sociolinguistics respectively), and the fact that they were more observed in psycholinguistics and sociolinguistics RAIs rather than ESP RAIs, can be justified through the concepts of 'established and emerging' fields. According to Samraj (2005) and Hyland (1999) 'emerging' fields are more multidisciplinary in terms of their underlying concepts and resources and due to this generality and multidisciplinary nature, the upcoming issues are multi-faceted and should be dealt with from different angles whereas in 'established' fields the boundaries and procedural issues of research and inquiry are more clearly organized and specified. Therefore RAs written in 'established fields' show higher levels of generic and structural homogeneity and unity and lower rate of discrepancies and anomaly structures in their overall organization compared with RAs written in 'emerging fields'.

Following this line of reasoning, the much lower rate of mismatches and discrepancies in ESP RAIs could be partly due to

the 'well-establishedness' of this field compared with psycholinguistics and sociolinguistics (as more of an 'emerging field). However, other elements such as Swales' membership on the editorial board of ESP journal (most of the ESP RAIs analyzed in the current study were culled from ESP journal) versus low share of knowledge of generic move structure RAI on the part of psycholinguistics and sociolinguistics writers might have had relative effects as well. In addition to the concepts of 'Established v.s. Emerging' , these mismatches can be justified on one or a combination of the following grounds:

1. The writer/researcher unfamiliarity with the conventions and formalities of academic discourse and generic structures.
2. The novelty of the topic under discussion, which prevents the writer/researcher from posing any criticism toward the previous research.
3. Generality/specificity of the topic of the study: some topics are either so general or specific that may have evaded the attention of the academic circle or have failed to tease their interest.
4. The researcher is building its current research upon his earlier claims, assertions, or studies (established territory); in other words the research in question is deep-rooted in a longer experience or research by the same very researcher (Swales, 1990).
5. Dislocation for the sake of emphasis: utilizing move 2 in the initial, third or last position (sometimes even after move 3) is a strategy adopted by the writer/researcher to emphasize the current research as being innovative, unprecedented, or informative in a way or another compared to previous research.
6. Lack of any notable studies or research which could be referred to, or depended upon.

Conclusion

Considering the fact that historical boundaries around disciplines are blurring and single disciplines are getting more and more multi-functional, the concept of variation is no longer limited

to different disciplines or related ones and can be observed even in sub-disciplines of a single discipline.

The current study attempted to explore sub-disciplinary variation across three related AL sub-disciplines; ESP, psycholinguistics, sociolinguistics. The findings indicate no significant differences in the RAIs across the afore-mentioned sub-disciplines regarding the move structure according to the CARS model. The existence of discrepancies and mismatches in the generic structure of the RAIs, the novelty of the concept of sub-disciplinary variation and thin literature on that underline the necessity for further studies in sub-disciplinary variation, focusing not only on introduction but also other parts of RA and probing the validity and credibility extent of the concepts of 'established' versus. 'emerging'. Exploring sub-disciplinary variations will enlighten academic community on true nature and the reasons underlying sub-disciplinary variation and will provide a sound framework the norms of which are well-defined, known and observed both inter-disciplinarily and intra-disciplinarily by participating parties consequently serving the transactional function of language as a means of circulation of research amongst global academia.

This genre-based study offers linguistic researchers as well as EFL/ESP teachers, insights which can be used in instruction. The findings of this research can be applied in English for Academic Purposes courses for non-native English-speaking researchers or graduate students to contribute to the development of learners' awareness of the grammatical forms and structures that typify the discoursal patterns of the RAI. Learners in such courses may profit from a pedagogical approach that raises their awareness about the structures that exhibit syntactic-semantic distance. This can be achieved through activities that require, within a discoursal framework, discriminating and judgment through alternative evidence provided on the basis of conventionalized use. Thus, congruent and incongruent structures can be observed or contrasted across the introductions of the RAs or contrasted with other scientific genres, allowing the learner to judge on the basis of appropriacy rather than lexicogrammatical aspects per se.

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بررسی ساختار سبکی و مغایرت های موجود درمقدمه های مقالات تحقیقاتي در رشته های مرتبط زبان شناسی کاربردی با استفاده از مدل کارس

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این مقاله ساختار سبکی و مغایرت های موجود در مقدمه های مقالات تحقیقاتي در سه رشته مرتبط زبان شناسی کاربردی یعنی :انگلیسی با اهداف ویژه ، روانشناسی زبان و جامعه شناسی زبان را با استفاده از مدل سویلز کارس (۱۹۹۰) مورد بررسی قرار می دهد . پیکره این تحقیقات شامل ۹۰ مقاله تحقیقاتي است که از طیفي گسترده از مجلات علمي معتبر در سه رشته فوق مورد گزینش قرار گرفته اند .نتایج این تحقیق حاکی از وجود مغایرت در ساختار این سبک درسه رشته فوق در زمینه Move 2 / Step 1 B می باشد که این امر با توجه به مفاهیم رشته های " دیرپا " و " نو پا " قابل توجیه می باشد .نتایج حاصله مؤید نیاز به تحقیق بیش از پیش در موردمغایرت های مرتبط با هر رشته و ساختار سبکی مقدمه های مقالات تحقیقاتي مي باشند .یافته های این تحقیق همچنین می توانند از جنبه های آموزشی مورد توجه متخصصین انگلیسی با اهداف ویژه یا آکادمیک ، برگزار کننده های دوره های آموزشی و همچنین گردآورندگان مطالب آموزشی قرار گیرند.

کلیدواژه ها: بررسی ساختار سبکی، گرایشها، زیر گرایشها، مدل کارس، مقدمه مقاله تحقیقاتي، زبان شناسی کاربردی