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Rhetorical Structure of the Abstracts of Medical Sciences Research Articles

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Abstract

Background and aims: Abstracts as an independent type of genre play a crucial role in selling research articles (RAs), therefore; it is essential to acquire their rhetorical structures and linguistic features to enter a discourse community. Following Santos's (1996) move scheme model,this study aimed at exploring themost frequently employedrhetorical structuresin the abstract sections (ASs) of research articles (RAs) in medical sciences.

Material and methods: To this end, a total of 1500 empirically-oriented RA abstracts with high impact factors were selected from five data bases and analyzed manually.

Results: The results showed that medical abstracts were structured within a five-move scheme wherein moves Situating the research (STR), Presenting the research (PTR), and Discussing the research (DTR) were considered conventional in medical sciences abstracts, while moves Describing the methodology (DTM) and Summarizing the results (STR) were essentiallyobligatory.In other words, the findings revealed that there was a dominant formula-like pattern used by the authors in medical abstracts.

Conclusion: The findings of the present study provide novice RA writers with useful instructions on what the useful rhetoric structures are in their discipline and how to use them appropriately.

Keywords: Abstract sections; Move; Research articles; Rhetorical structures

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Introduction

Abstracts act as a gateway help readers to take up an article, journals to accept a paper, or organizers of conferences to accept or reject articles [1]. Faced with an 'information explosion', members of the worldwide scientific and technical research community have become more and more dependent on abstracts to keep them up to date in their relevant fields [2]. Scholarly authors are required to make their research results public and widespread. Additionally, to some extent their work acceptance is based on strategic use of different rhetorical and interactive aspects [3].

Maedaand Graetz [4,5] might be the first researchers to identify the move structure of the abstracts arguing that they comprise four major parts or 'rhetorical moves' [6]: Theme (T), Method (M), Result (R), and Discussion (D). Maeda [4] employed the T-M-R-D structure as a basic functional framework constituting an abstract text. Move is a "rhetorical unit that performs a coherent communicative function" [7] and considered as "building blocks" of various kinds of texts [8]. Dudley-Evans [9] maintains that the main aim of teaching moves is to develop an appropriate rhetorical awareness of texts and to provide the communicative ability to express ideas in the acceptable ways in their assumed discipline.

Studies of disciplinary differences in this part of genre are found, for instance, applied linguistics and educational technology [1,10], literature [11], conservation biology and wildlife behavior [12], to the best knowledge of the researchers, no study have considered the move structures of abstracts in medical sciences RAs. To fill this gap, this exploratory study addresses the question of what rhetorical moves writersmost frequently employ in the abstract sections of medical research articles.

Method

The corpus

This exploratory study based on Santos' [13] move scheme analyzed rhetorical moves that were most frequently employed in the abstract sections of medical RAs. The corpus of 1500 RA abstracts selected for the present study comes from five data bases including Elsevier, Sage, Springer, Taylor and Francis, and Wiley Online Library published between 2006 and 2016 with the impact factors reported in Journal Citation Reports (JCR) in 2015 with Median Impact Factors (MIFs) ranging from 1 to 5. Table 1 provides detailed information on the selected journals.

Table 1. Corpus Description of ASs in Medical RAs (adopted from [14]).

Journal Title	No of Words	% of Corpus	Number of Abstracts	MIFs
American Journal of Alzheimer's Disease & Other Dementias	24,237	5.88	157	1.614
American Journal of Otolaryngology–Head and Neck Medicine and Surgery	32,563	7.9	138	1.097
Autism	22,287	5.4	132	3.170
Bone	47,597	11.54	169	4.146
Breast Cancer Research	48,239	11.7	166	5.211
Depression and Anxiety	34,008	8.25	155	5.004
Cardiovascular Interventional Radiology	44,017	10.67	186	2.144
Hematological Oncology	11,799	2.86	49	3.494
Human Vaccines &Immunotherapeutics	9,870	2.39	42	2.146
International Journal of Cardiology	23,268	5.64	95	4.468
International Journal of Pediatric Obesity	14,238	3.54	60	5.70
Journal of Addictive Diseases	8,209	1.99	54	2.201
Nutrition Research	26,994	6.54	115	2.983
Sleep & Breathing	34,541	8.38	140	2.332
Wound Repair and Regeneration	30,292	7.34	142	2.628
Total	412,159	100	1800	3.222

Results and Discussion

Rhetorical moves across medical research articles abstracts

To retrieve the most frequently employed rhetorical moves in ASs of medical RAs, the researcher analyzed abstracts manually and intuitively. Drawing on Santos' [13] move scheme model, the rhetorical structures (moves and steps) in the abstract sections of medical RAs were identified. Santos's [13] model is used as the analytical framework for the rhetorical structure of the abstracts in the present study because it includes all the moves identified in other studies of abstracts.

Following Kanoksilapatham [15], the frequencies of five moves were calculated to determine move stability. If a move occurred in 100% of the ASs in the corpus, it was considered obligatory (n=100%). If a move occurred in 60% of the ASs in the corpus, it was considered conventional (n ≥ 60%), and if a move occurred in less than 60% of the corpus, it was considered optional (n<60%). With regard to the cut-off of 60% occurrence rate, Moves 1, 2, and 5 are considered conventional in medical sciences ASs, while Moves 3 and 4 with 100% cut-off criterion is essentiallyobligatory (Table 2). It can be claimed that all these five moves are constant rhetorical features of the medical ASs, that is, all these five moves have consistently been used by medical writers (Table 2).

As Table 2 shows, all of the abstracts in medical sciences had five moves. A closer look at schematic analysis of abstracts in medical sciences revealed that almost all the abstracts contained the Situating the Research (STR) move, presentingthe Research (PTR) move, Describing the Methodology (DTM) move, Summarizing The Results (STR) move, and Discussing The Research (DTR) move. These parts are considered the main components of research articles which are usually required from academic writers in most of scholarly journals and international congresses [16]. For more detailed distribution of the five moves and steps in medical abstracts see Figure 1.

As Table 3 shows, in 799 instances, Move l is realized by Step l A (Stating of current knowledge). This step has taken a lion share of the Move 1 and its steps in medical abstracts. The frequency of occurrences of Move 1, Step 1 A in the corpus confirms that this step is an indispensable part of the ASs in medical sciences and it is considered as a conventional step in the abstract genre of medical sciences. There are 21 instances of Move 1, Step 1 B (citing previous research) which constitutes about two percent of Move 1 and its steps in medical abstracts. Step 2 (Stating a problem) constitutes about one

Table 2. Frequency of occurrences and distribution of the five moves and steps.

Moves	F (%)
Move 1	1,054(70.2)
Move 2	1,361(90.73)
Move 3	1,500(100)
Move 4	1,500(100)
Move 5	1,469(97.93)

Table 3. Occurrences of Move 1 and its steps.

Structure of Move 1	F (%)
Step lA (stating current knowledge)	799 (75.3)
Step lB (Citing previous research)	21 (1.97)
Step 1C (Extended previous research)	7 (0.65)
Step 2 (Stating a problem)	234 (22.05)
Total Number of Move 1and its Steps	1,061 (100)

Table 4. Occurrences of Move 2 and steps.

Structure of Move 2	F (%)
Step l A Indicating main features	321(21.4)
Step l B Indicating main purpose	652(65.2)
Step 2 Hypothesis raising	67(4.46)
Total no. of instances of Move 2 and its Steps	1,040 (69.33)

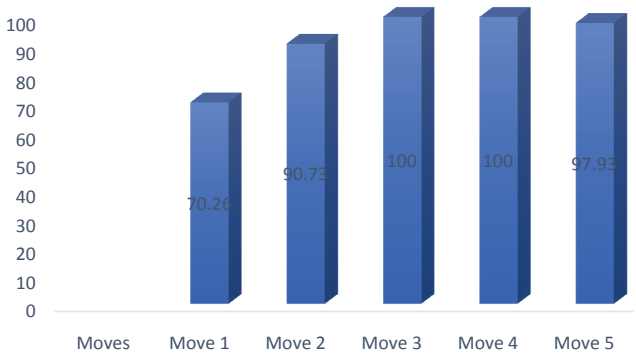

Figure 1. Distribution of total moves per five moves.

fourth of Move 1 and Step l C (extending previous research) occupies a very slight place in Move 1. With regard to cut-off point Step 2 (Stating a problem) as well as Step l C (extending previous research) are considered optional in medical sciences abstracts.

As illustrated in Table 4, Move 2 emerged in 1,361 (90.73) of instances. Further, Move 2 opened 493 abstracts and Move 2 embedded partially in Move 3 opened 38 abstracts, and in 931 instances, it directly follows Move 1.This result suggests that a typical abstract in medical sciences opens with Move 1(62.06%) followed by Move 2 (32.86%) or opens with Move 2 (32.86%). In fact, there is a non-linearity from move 1 to move 2 as well as move 3. Authors usually try to avoid creating a text that its sentences are read as checklists by merging moves within each other and reversing the syntactic sequence of moves [13]. It can be claimed that moves usually do not have a fixed order and their order is sometimes flexible [17].

As Table 4 shows, there are 321 instances of Step l A (Indicating main features), which constitutes almost one third of the cases in M2. Deictics such as this (e.g.,this paper, this article) and articles such as the (e.g., the study) are overused in this step. The author employs the word this to merge the abstract with the body of the paper. The use of the (e.g., the study) indicates that the main article stands apart from the abstract section [13]. It also shows that medical science writers try to provide a detailed description of their research [18]. In this study, the LB this study rather than the study was used in in medical ASs which suggests that the deictic pattern (e.g., this paper, this article) reinforces this oneness in medical abstracts. Typical examples from corpus are given below:

Example 1: This study examined the characteristics of caregivers and persons with dementia (PWD) to determine their association with caregiver depression.

Step l B (Indicating main purpose) is the most widely used step across various steps of move 2(65.2%). This step carried the purposive nature via the verb phrase (e.g., this study was to, this study is to, and study was to examine). Move 2, Step 2 (Hypothesis raising) occurred in 67(4.46 percent) instances after the actual presentation of Step l A or Step 1B which means that this is a conventional step in the abstract genre of medical sciences (Table 4). The downplaying of this step shows that medical sciences writer prefer being explicit about what they are searching.

Move 3 appeared as a separate move immediately after a purposive Move 2 in 1,350 (19.96%) abstracts (see Table 2). In this study, an interesting finding was embedding this move partially into other moves or steps and forming a single move such as Move 2, Step l A (Indicating main features), Move 2, Step l B (Indicating main purpose), and Move 4. In 1,350 (19.96 percent) instances of the corpus move 3 occurred by itself but in 86 instances it merged partially with Move 2, Step l A, in 172 instances with Move 2, Step l B, and 10 instances with Move 4 (Table 5), respectively. It is due, perhaps, to the fact thatin recent years, journals have been striving for fewer numbers of words in their research articles and they set strict word limits. This has pushed scholarly paper writers to use compressed expression. Here is an example of embedded moves:

Example 2: Using a bowel symptom questionnaire **(Move 3)** we compared 51 children with autism spectrum disorder with control groups of 35 children from special school and 112 from mainstream school. **(Move 2, Step l A)**.

As Table 5 indicates, there are 1,469 instances of Move 5, which constitutes 97.92 percent of the 1500 medical abstracts. The large proportion of this move shows that it can be considered as an essentially obligatory move in the medical sciences abstracts. Step 1 (drawing conclusions) occupied a larger territory (81.53%). There are 218 (14.53) instances in the corpus in which Step 1 and Step 2 (Giving recommendations) of Move 5 merged together. Suggestions for future practice or investigation are outlined through Step 2 of Move 5. In 28 (1.86 percent) instances of the corpus, Step 2 was realized. In 31(2.06 percent) of instances the authors excluded this move and left the reader to guess the hard facts rather than delivering. The following example shows absence of Move 5, Step 2 status.

Example 3: The implications of this finding for future caregiver research and interventions are discussed.

Table 5. Summary of occurrences of move 5 and its steps.

Structure of Move 5	F (%)
Step l Drawing conclusions	1,223 (81.53)
Step 2 Giving recommendations	28 (1.86)
Step 1 & Step 2	218 (14.53)
Absence of Move 5	31(2.06)
Total no. of instances of Move 5 and its Steps	1,500 (100)

Embedded moves and steps

In this study, one of the interesting finding has to do with the frequency with which some moves occurred by them or merged with other moves and steps. For instance, in 55 abstracts, Move 1, Step 1 A (stating current knowledge) and Move 1, Step 2 (stating a problem) merged partially together (see Table 6). Some typical examples are given below.

Example 4: Obesity is the most important risk factor for obstructive sleep apnea (OSA) **(Move 1, Step 1 A)**; however, the exact underlying mechanisms are still not fully understood **(Move 1, Step 2).**

Example 5: We hypothesized that treatment of OSA with continuous positive airway pressure (CPAP) may decrease LAV **(Move 2, Step l B & Move 2, Step 2).**

As Table 6 indicates, there are 86 instances of Move 2, Step l A (Indicating main features) partially merged with Move 3 (describing the methodology) in the corpus. Examples include:

Example 6: Using a bowel symptom questionnaire **(Move 3)** we compared 51 children with autism spectrum disorder with control

Table 6. Summary of occurrences of embedded moves and steps.

Embedded Moves and Steps	F (%)
Move 1, Step 1 A (stating current knowledge) & Move 1, Step 2 (stating a problem)	55 (13.48)
Move 2, Step l A (Indicating main features) & Move 3 (describing the methodology)	86 (21.07)
Move 2, Step l B (Indicating main purpose) & Move 3 (describing the methodology)	172 (42.15)
Move 2, Step l B (Indicating main purpose) & Move 2 Step 2 (Hypothesis raising)	85 (20.83)
Move 3 (describing the methodology) & Move 4 (Summarizing the results)	10 (2.45)
Total	408 (100)

groups of 35 children from special school and 112 from mainstream school **(Move 2, Step l A).**

Table 6 presents that in 176 instances of the corpus Move 2 Step l B (Indicating main purpose) embedded partially into Move 3 (describing the methodology), as shown in the following examples:

Example 7: We crossed mouse mammary tumor virus (MMTV) - myr-Akt1 transgenic mice (which express constitutively active Akt1 in the mammary gland) with MMTV-c-ErbB2 transgenic mice **(Move 3)** to evaluate the role of Akt1 activation in ErbB2-induced mammary carcinoma using immunoblot analysis, magnetic resonance spectroscopy and histological analyses **(Move 2, Step l B).**

Table 6 shows that Move 2, Step l B (Indicating main purpose) merged with Move 2, Step 2 (Hypothesis raising) totally.The following examples illustrate the realization of Step l B and Step 2 of Move 2 occurring within the same sentence boundary:

Example 8: We hypothesized that mechanical enlargement of the upper airway by a mandibular advancement oral appliance would permit a reduction in this neuromuscular compensation during wakefulness.

In Table 6, we see that there are 10 instances of merging Move 3 (describing the methodology) with Move 4 (Summarizing the results) partiallyin the corpus.For example consider the examples below:

Example 9: Using the Broad Autism Phenotype Questionnaire and the Student Adaptation to College Questionnaire, **(Move 3)** we found that higher levels of autism spectrum disorder characteristics were associated with poorer adjustment to college **(Move 4).**

For more detailed distribution of embedded moves and steps of the medical sciences abstracts see Figure 2.

Note: M=Move

At the macro level analysis, it was proposed that ASs in this field were structured within a five-move schema wherein Moves 1, 2, and 5 were considered conventional in medical abstracts, while Moves 3 and 4 with 100% cut-off criterion were essentiallyobligatory (see Table 2) which could be regarded as the major genre-specific characteristic of ASs in medical sciences. Samraj [12] states that abstracts traditionally contain purpose, methods, results and conclusions but another move "situating the research" which is a concise introduction ascribed to Santos [13] was prevalent in this study. The results suggest that medical sciences authors should state the introduction, methods, results, and conclusions in their RAs abstracts. In other words, it can be inferred from the analysis of data that there is a dominant formula-like pattern used by the authors in medical abstracts.

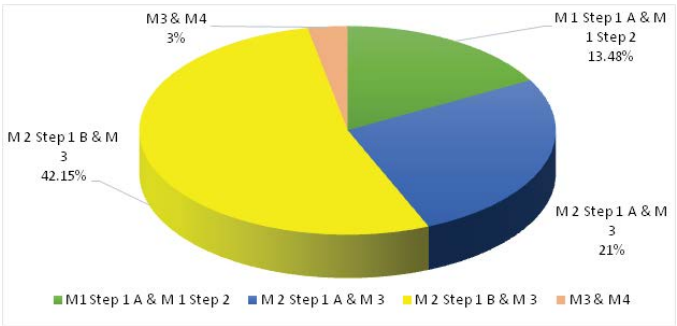

Figure 2: Distribution of embedded moves and steps.

The lower frequency (15%) of M 1 in comparison to other moves in this study can be in harmony with Hyland's [19] claim that in soft sciences authors usually provide their readership with dense introduction to allow them to make decision on whether to continue reading abstracts or not; however, in hard sciences research articles the authors attempt to put main emphasis on Move 3. One plausible reason of the high frequency of occurrence of Move 3 and the medical sciences authors'proclivity for it may be due to the fact that all the articles of the corpus are empirical [10].

Based on Santos' [13] division Move 2 can take two different forms namely "purposive" and "descriptive". Purposive step contains verb phrases (e.g., sought to) tocarry the purposive nature of Move 2. On the other hand, descriptive step employs formula-like patterns (e.g., This paper, This article) to describe the features of the study. In the present study purposive step (62.2%) constituted a larger portion than descriptive step. This result suggests that medical sciences RAs abstracts place more emphasis on purposive nature rather than descriptive which is in contrast with some studies in soft sciences [20,21,13].

With regard to Move 4 which was observed in all 1500 abstracts in the corpus, it was considered as an obligatory move because medical science authors had provided a big room for this move. This finding is in line with Hyland (2000) who posits that hard sciences authors given a high importance to Move 4. Bhatia [22] argues that discussion of methodology and result sections in research articles abstracts are essential since result section is the most striking section of the RAs.

A noteworthy finding in this study is that Move 5 is excluded in some of the instances. Santos [13] argues that the authors leave their reader to guess the hard facts rather than delivering. Standard classification schemes categorize such statements as indicative. Such indicative statements serve neither the job of Move 5 nor the purpose of the abstract section. In fact, "the reader's journey through the abstract ends with a touch of mystery tour. This attempt, nevertheless, is a turn-off for the reader for decision-making purposes" [13].

On the whole, these findings are in line with Hyland [19]claiming that 95 percent of the abstracts had all five moves in 800 abstracts, Saleger-Mayer [16] arguing that a structured abstract should contain all the four obligatory and fundamental components (i.e., purpose, methods, results, and conclusions) in a logical order to process a scientific inquiry. As put by some scholars [1,5,22-26], generally abstracts embody four obligatory macro moves or rhetorical structures of the research articles (Introduction-Methods-Results-Discussion), while Santos [13] added another move, situating the research, which was appeared in applied linguistics abstracts.

Some of the instances indicated that medical sciences abstracts usually do not follow a linear fashion since some of the abstracts started with Move 2 rather than Move 1.In other words, a 2-1-3-4-5 pattern was observed in the corpus. Swales (1990) stated that moves do not usually occur in linear order but sometimes in nonlinear order. Kanoksilapatham [15] also confirms this notion and believes that sometimes different moves are interwoven.

Swales [6] stated that moves do not usually occur in linear order but sometimes in nonlinear order. Kanoksilapatham [15] also confirms this notion and believes that sometimes different moves are interwoven. In some of the instances due to, perhaps, the compact nature of the abstract section [10] various moves or steps were embedded into each other, for instance, embedding Move 3 into Move 2 in some instances of the corpus confirms that "method descriptions in RA abstracts may

have to be squeezed to make room for more information in other moves" [17].

The strategy of merging the methods move into Move 2 or Move 4 suggest that this strategy is favored by the medical science authors due, perhaps, to constraints of space [20,27,28]. Another plausible fact that "Move 3 is more likely to be embedded than the other moves can be explained by the relative flexibility of the realization of this move" [10]. Availability of the limited textual space in journals "requires writers to package their argument in a way which is not only succinct, but also recognizable to a disciplinary audience" [29]. Additionally, in recent years, journals stringent word requirements for fewer numbers of words has pushed scholarly article writers to use compressed texts more than elaborated ones.

Conclusion

This study examined 1500 medical sciences RAs abstracts from five data bases including Elsevier, Sage, Springer, Taylor and Francis, and Wiley Online Library published between 2006 and 2016. The results indicated that medical abstracts followed a five-move scheme and all five moves were constant rhetorical features of the medical ASs, that is, all five moves had consistently been used by medical writers. With regard to the cut-off of 60% occurrence rate, Moves 1,2, and 5 were considered conventional in medical sciences abstracts, while Moves 3 and 4 with 100% cut-off criterion were essentiallyobligatory. It seems noteworthy that in this study some moves occurred by themselves or merged with other moves and steps. Some of the instances also showed that medical sciences abstracts usually do not follow a linear fashion since some of the abstracts started with Move 2 rather than Move 1.In other words, a 2-1-3-4-5 pattern was observed in the corpus.

Findings of the present study could aid academic writing courses in English for Medical Purposes (EMP). Academic writing course instructors can teach characteristics of rhetorical structures to allow students to make use of moves as an indispensable part of scholarly writing. The findings of the present study provide novice RA writers with useful instructions on what the useful rhetorical structures are in their discipline and how to use them appropriately.

References

1. Lore´s R (2004) On RA abstracts: From rhetorical structure to thematic organization. English for Specific Purposes 23: 280-302.
2. Huckin T (2001) Abstracting from abstracts. In M. Hewings (1st edn.), Academic writing in context: Implications and applications (pp. 93-105). Birmingham: The University of Birmingham. University Press.
3. Hyland K (1999) Academic attribution: Citation and the construction of disciplinary knowledge. Applied Linguistics 20: 341-367.
4. Maeda T (1981) An approach toward functional text structure analysis of scientific and technical documents. Information Processing and Management 17: 329-39.
5. Graetz N (1982) Teaching EFL students to extract structural information about abstracts. In: J. M. Ulijn & A. K. Pugh (Eds.), Reading for Professional Purposes Eindhoven, The Netherlands, pp. 123-135
6. Swales J (1990) Genre analysis: English in academic and research settings. Cambridge University Press, Cambridge, UK.
7. Swales J (2004) Research Genres: Explorations and Applications. Cambridge University Press, NewYork, USA.
8. Biber D, Connor U, Upton T (2007) Discourse on the move: Using corpus analysis to describe discourse structure. John Benjamins, Amsterdam, The Netherlands.
9. Dudley-Evans T (1997) Genre model for the teaching of academic writing to second language speakers: Advantages and disadvantages. In: T. Miller(Ed), Functional Approaches to Written Texts: Classroom Applications. United States Information Agency, Washington DC, USA, pp. 150-159.
10. Pho PD (2008) Research Article Abstracts in Applied Linguistics and Education Technology: A Study of Linguistic Realizations of Rhetoric Structure and Authorial Stance. Discourse Studies 10: 231-50.
11. Doró K (2013) Selling their Research: Linguistic Realization of Rhetoric Moves in English thesis Abstracts Written by Hungarian Undergraduates. Romanian Journal of English Studies 10: 181-91.
12. Samraj B (2005) An exploration of a genre set: Research article abstracts and introduction in two disciplines. English for Specific Purposes 24: 141-156.
13. Santos MB (1996) The textual organization of research paper abstracts in applied linguistics. Text 16: 481-499.
14. Abdollahpour Z, Gholami J (2018) Building blocks of medical abstracts: frequency, functions, and structures of lexical bundles. Asian ESP Journal.
15. Kanoksilapatham B (2005) Rhetorical structure of biochemistry research articles. English for Specific Purposes 24: 269-292.
16. Salager-Meyer F (1990) Discoursal flaws in medical English abstracts: A genre analysis per research-and text-type. Text 10: 365-384.
17. Swales JM, Feak C (1994) Academic Writing for Graduate Students: Essential Tasks and Skills (3rd edn). University of Michigan Press, Ann Arbor, USA.
18. Sheldon E (2011) Rhetorical Differences in RA Introductions Written in English L1 and L2 and Castilian Spanish L1 Writers. Journal of English for Academic Purposes 10: 238-251.
19. Hyland K (2000) Disciplinary discourses: Social interactions in academic writing, Longman, London, UK.
20. Li Y (2011) A genre analysis of English and Chinese research article abstracts in linguistics and chemistry. San Diego State University.
21. Van Bonn S, Swales J M (2007) English and French journal abstracts in the language sciences: Three exploratory studies. Journal of English for Academic Purpose 6: 93-108.
22. Bhatia V K (1993) Analyzing genre: Language use in professional settings. Longman, New York, USA
23. Cremmins E T (1982) The art of abstracting. ISI Press, Philadelphia, USA.
24. Jordan M P (1991) The linguistic genre of abstracts. In: A. Della Volpe (Ed.), The seventeenth LACUS forum 1990 (1st edn), LACUS, Lake Bluff, USA; (pp. 507-527).
25. Nwogu K N (1990) Discourse variation in medical texts: Schema, theme and cohesion on professional and journalistic accounts. Department of English Studies, University of Nottingham, Nottingham, UK.
26. Ventola E (1994) Abstracts as an object of linguistic study. In S. Cmejrkova, F. Danes, & E. Havlova (Eds.), Writing vs. Speaking: Language, text, discourse, communication (pp. 333-352). Tubingen: Gunter Narr.
27. Hyland K (2003) Second Language Writing. Cambridge University Press, Cambridge, UK.
28. Martin-Martin P (2003) A genre analysis of English and Spanish research paper abstracts in experimental social sciences. English for Specific Purpose 22: 25-43.
29. Thompson D (1993) Arguing for experimental facts in science. Written Communication 10: 106-128.