

Do English for Special Purposes (ESP) Textbooks Prepare Students for Writing Research Articles (RAs)

A Case of Metadiscourse Analysis

Gholam Reza Zarei

English Language Center

Isfahan University of Technology

Isfahan, Iran

Tel: +98 311 3912843

Fax: +98 311 3912836

grzarei@cc.iut.ac.ir

Abstract

This paper was intended to study the degree of congruity between the ESP textbooks and research articles in terms of metadiscourse use as a criterion for the writer's rhetorical inclination. The paper compared metdiscursive resources in extracts from ESP textbooks used in Iran with a corpus of eight research articles in the same fields of study, namely, computer engineering and electrical engineering. The analysis revealed that the metadiscursive markers in the selected ESP textbooks were underrepresented in comparison with those in the research articles. As ESP textbooks offer limited rhetorical and communicative guidance, the students may fall short of necessary resources to express themselves appropriately in the academic situations. The results confirm Zarei and Mansoori's (2007) finding that Iranian students deviate from the rhetorical standards of academic communication.

1. Introduction

Nonnative speakers of English language in different countries including Iran draw heavily on ESP textbooks in order to learn and function properly in the English language contexts. English for special purposes in Iran is thus supposed to provide students with the English concepts and methods of their disciplines. Beyond that, these courses have a crucial role in conveying the specialized literacy which consists of discipline-specific rhetorical and linguistic practices of their community (Ballard & Clanchy, 1991; Hyland, 1999). Though ESP textbooks may be inclined to display considerable generic heterogeneity, they are expected to represent the academic genre in terms of textual features and conventions of the respective disciplines. Therefore it seems necessary for the ESP materials to set a good model for students, preparing them for their future roles. However, the present situation in Iran does not look satisfactory and it has been shown that Iranian academics writing in English tend to follow and transfer the linguistic features of their first language to the English context, writing more like their first language (Zarei & Mansouri, 2007). In order to gain more insight to the causal factors for this shortcoming, the present study attempts to compare and

contrast the ESP textbooks and the respective research articles published internationally to see if ESP textbooks used in Iran are likely to pave the way for the students who are supposed to function properly in their future career.

Of various critical features of textual rhetoric which can influence the personal tenor and rhetorical presentation of information and which need to be learned through ESP materials, metadiscourse finds a special significance (Hyland, 1999). Metadiscourse is believed to constitute some aspects of text whereby an intimate connection between propositional content, audience and context is established. The analysis of the ESP books and research articles metdiscursive resources can shed light on their rhetorical distinctiveness and the possibility of redressing the balance between the two. The paper first presents the various notions of metadiscourse and then a study of ESP textbooks and respective research articles will be reported.

2. Metadiscourse

Academic communication is generally distinguished in terms of two types of knowledge: the external world knowledge, usually put as propositional meaning, and the internal world knowledge construed as non-propositional meaning or metadiscourse (Vande Kopple, 1985). Metadiscourse is further taken as the linguistic material not contributing to the ideational or propositional content but assisting the reader in organizing, interpreting, and evaluating the given information (Crismore, Markhanen, & Steffenson, 1993).

However, it is very difficult to maintain the distinction between the two levels of meaning (Hyland and Tse, 2004). That is, since 'overall meaning' results from the integration of different ideational, contextual, textual, and interpersonal elements, it does not stand to reason to speak of separate layers of meaning – metadiscourse as sharply distinct from ideational meaning.

In the same vein, Crismore and Farnsworth (1990), while ignoring the idea of non-propositional meaning as metadiscourse, incorporate into their classifications referential, and informational metadiscourse, implying that the two sides of meaning can be represented under one umbrella term to emphasize the integrative nature of meaning. Hyland (1998a) also rules out the possibility of relegating metadiscourse to a secondary position, taking it as an obligatory process of communicating meaning.

Regardless of the dilemma around it, metadiscourse is an interactive and rhetorical character of academic writing, which establishes social and communicative engagement between writer and reader focusing on "those aspects of the texts which explicitly refer to the discourse or the writer's stance towards either its content or the reader" (Hyland, 1998a, p. 438). In other words, academic writers generate texts as much to represent some external reality as to display their attitudinal positions in relation to the external reality and its recipients. As a matter of fact, the external reality is created and realized on some internal ordered map represented via certain stylistic devices called metadiscourse.

Thus, metadiscourse which refers to the interaction between writer and reader in academic texts is utilized to manage the *role* the writer adopts in relation to the *content* and *reader*, which is respectively viewed as *textual*, indicating how carefully a text is encoded to achieve coherence and organization, and as *interpersonal* used to help writers express their attitudinal and personal reactions towards the readers (Halliday, 1994). Of the two aspects, interpersonal function is believed to be a predominantly encompassing feature which also subsumes textual function. Hyland (2004) argues that textual function does not make a very clear and independent category, but it creates the conditions for both propositional and interpersonal aspects to materialize the sequential integrity of the text. Therefore, this view finds metadiscourse not so much of textual nature as of interpersonal function. As Hyland (ibid) says, "metadiscourse is interpersonal in that it takes account of the reader's knowledge, textual experiences, and processing needs and that it provides writers with an armory of rhetorical appeals to achieve this"(p.161).

Whatever the interpretation, metadiscourse is assumed to be variable across scientific communities and disciplines. The distinctive characteristics of disciplines can prompt writers to capitalize on varying degrees of metadiscourse in regard to their addressees, leading to what has been called as writer responsible versus reader responsible stances (Crismore & Farnsworth, 1990; Hyland & Tse, 2004).

Due to the significance of academic writing, an interest is growing in the genre –based characterization of metadiscourse. Mauranen (1993) attributes such a growing interest to the inherent paradox involved in metadiscourse, and claims that scientific texts are at the same time culturally independent and culturally variable, signifying the specificity of genre and distinctiveness of rhetoric or scientific community cultures. In the same line of thinking, Hyland (1998a) stresses the independence of metadiscourse as intimately linked to the norms and standards of special cultural and professional communities. Moreover, metadiscourse is considered as a critical feature of good native and learner language writing (Intraprawat & Steffenson, 1995), whereby writers for international scientific journals can also achieve intelligibility of communication through proper disciplinary linguistic standards to trail their path to academic promotions. Since much of the genre-based characteristics of disciplines needs necessarily to be imparted to foreign learners of English through ESP materials and because there seems to be a significant gap between the research articles and the instructional materials in the Iranian context (Zarei & Mansouri, 2007), the present study seeks to compare and contrast metadiscursive resources in both ESP text books and research articles to specify the rhetorical preferences that characterize the two, with the hope that the findings can be pedagogically utilized and the possible gaps are bridged for better communications.

3. Studies on Metadiscourse

Analyses of written academic corpora have revealed the specificity of languages and disciplines. They have showed the importance of gaining insight into the special and particular discourse of each community in order to be determined as an insider. Metadiscourse as an important rhetorical aspect of academic genre has also received significant attention. It has been studied in various contexts and texts, e.g., casual conversation (Schiffrin, 1980); school textbooks (Crismore, 1989); science popularization (Crismore & Farnsworth, 1990); post–graduate dissertation (Bunton, 1999); Darwin's *Origins of the Species* (Crismore & Farnsworth, 1989); company annual reports (Hyland, 1998b); introductory course books (Hyland, 1999); undergraduate textbooks (Hyland, 2000); slogans and headlines (Fuertes–Olivera *et al.*, 2001); metadiscourse in academic writing: a reappraisal (Hyland and Tse, 2004), metadiscourse across disciplines and languages (Dahl, 2004; Blagojevic, 2004), and metadiscourse analysis in Persian and English research articles (Zarei & Mansouri, 2007).

To show the significance of metadiscourse across different disciplines and languages, few relevant studies mentioned above are reviewed.

Hyland (1999) investigated the use of metadiscourse in two corpora—textbooks and research articles in three disciplines: biology, applied linguistics and marketing. The results demonstrated that the applied linguistics texts comprised considerably more evidentials and relational markers; the biology authors favored hedges; and marketing textbooks had fewer evidentials and endophorics. Hyland showed that biology had the greatest variation in most categories of metadiscourse both across genres and disciplines. It was also indicated that marketing and applied linguistics texts were more consistent across genres and both contained large differences in hedges and connectives. There were also found significant genre discrepancies in the use of evidentials and person markers in marketing, and endophorics and relation markers in applied linguistics. In general, there were greater genre differences than disciplinary ones, and the textbooks had a propensity to show evidences of greater disciplinary diversity than the research articles.

In another study, Dahl (2004) investigated two kinds of metadiscourse (locational and rhetorical metatext) in three disciplines (linguistics, economics and medicine) across three languages (English, Norwegian and French). She stated that 'economics displayed a somewhat higher frequency of the two types than did linguistics for both English and Norwegian, while for French there was hardly any difference within these two disciplines; for all three languages medicine used far less metatext than the other two disciplines.' (p., 1818). Also, medicine made the least use of metatext and its texts were presented in a highly structured format: Introduction-Methodology-Results-Discussion. She concluded that economics and linguistics in English and Norwegian showed very similar patterns, using much more metatext than French; within medicine, all three languages displayed a uniform pattern of little metatext.

Blagojevic (2004) also studied the use of metadiscourse in academic articles written in English by English and Norwegian native speakers in three disciplines: sociology, psychology and philosophy. Regardless of the languages, Blagojevic noticed that Psychology writers were reluctant to use the plain ways to state or remind the readers of the parts of the material which followed or preceded. They also used less attitude markers, but philosophy writers made most of the direct comments. Blagojevic's study also showed that philosophy writers had a high degree of diversity in their writing, while psychology writers had the highest degree of standardization in writing and sociology writers were somewhere in between.

In another recent study, Hyland and Tse (2004) investigated the use of metadiscourse in postgraduate dissertations in six disciplines: applied linguistics, public administration, business studies, computer science, electrical engineering, and biology. The results showed that the humanities and social science disciplines employed more metadiscourse than the non-humanities. Also, the study showed greater use of metadiscourse in the humanities and more inter-disciplinary balance of interactive metadiscourse but its higher proportion in the science dissertations.

And more recently, Zarei and Mansouri (2007) studied the dispersion of metadiscourse in two different disciplines, namely, computer engineering and applied linguistics, within and across two languages, Persian and English. This study revealed the cross discipline and language differences. The findings prompted present study to see why students in Iran write differently from native English writers. Thus it was hypothesized that ESP materials through which students were initiated into English had a role to play in one way or another.

4. Corpus

The ESP corpus consisted of 40 reading excerpts chosen randomly from the two ESP textbooks (20 extracts each), namely, English for the Students of Computer and English for the Students of Electrical Engineering (power, electronics, control, and communications), both compiled by M. Haghani, published and distributed nationwide by Iranian Ministry of Research, Science and Technology. The computer ESP extracts comprised 7680 words, of which 224 words were metadiscoursal. And the Electrical ESP extracts consisted of 5720 words, containing 152 metadiscourse items. A parallel corpus of 8 research articles consisting of 4 computer engineering (39100 words with 2078 metadiscourse items) and 4 electrical engineering (16273 words and 834 metadiscourse elements) was used for comparison from recently published prestigious journals (See Appendix). The research articles were selected from among those whose authors (at least one of them) came from either British or American universities. This criterion was adopted to ensure that the selected articles are best geared to the standards of English language.

5. Data Analysis

Metadiscourse has so far been differently described and classified. Crismore's (1989), and Williams' (1999) viewed that metadiscourse contributed towards either propositional or interpersonal functions. Furthermore, Mauranen (1993) and Bunton (1999) saw metatext as the writer's self-awareness of text. However, Hyland and

Tse (2004) believe that 'metadiscourse represents the writer's awareness of the unfolding text as *discourse*: how writers situate their language use to include a text, a writer and a reader' (p. 167). Thus, they assert that metadiscourse has to be conceptualized as an interpersonal feature of communication and as such it could capture the underlying principles of academic writing more (more details provided above under the section 'metadiscourse'). In the wake of the above notion, Hylan and Tse (ibid) presented a new model which they think could be a better representation of academic genre. To justify the model for academic contexts, the two writers conclude that their framework is a comprehensive, robust and pragmatically oriented means of studying interpersonal features in the academic articles.

Therefore the present study drew on their model for the analysis of data as the most recent and comprehensive. This model is displayed below.

1) Interactive Resources: They help to guide reader through the text:

- a) Transitions:** They express semantic relation between main clauses. Examples: in addition, thus, but, and
- b) Frame Markers:** They refer to discourse acts, sequences, or text stages. Examples: finally, to conclude, my purpose here is to
- c) Endophoric Markers:** They refer to information in other parts of the text. Examples: noted above, see figure, in section
- d) Evidential Markers:** They refer to sources of information from other texts. Examples: according to X/(Y, 1990)/Z states
- e) Code glosses:** They help readers grasp functions of ideational material. Examples: namely, e.g., such as, in other words

2) Interactional Resources: They involve the reader in the argument:

- a) Hedges:** They withhold writer's full commitment to proposition. Examples :might , perhaps ,possible, about
- b) Boosters:** They emphasize force or writer's certainty in proposition. Examples: in fact, definitely, it is clear that
- c) Attitude Markers:** They express writer's attitude to proposition. Examples: unfortunately, I agree, surprisingly
- d) Engagement Markers:** They explicitly refer to or build relationship with reader. Examples: consider, note that , you can see that
- e) Self-mentions:** They explicitly refer to authors. Examples: I, we, my, your

The analysis of data was done manually for two times with an interval of two weeks. The obtained results then were compared for the consistency of the procedures used. The points of controversy were reviewed again and settled to full agreement.

6. Findings and Discussions

This study set out to study the use of metadiscourse resources in computer and electrical engineering RAs and the corresponding ESP textbooks to determine whether or not the resources matched each other. The rationale for this comparison originates in the fact that university students are exposed to ESP materials with the hope of receiving a

specialized literacy required for their linguistic practices.

The quantitative analysis of RAs as shown below (table 1) revealed that the two research articles, namely computer engineering and electrical engineering, were represented by an average of 53.6 and 51.7 metadiscourse elements per 1000 words, respectively. Though the two RAs display some variations in the use of their individual elements, the entire cross-discipline analysis indicates the comparable total use and nearly identical proportion of interactive and interactional resources in the two disciplines. The general tendency in the two disciplines shows that the interactive side of the research articles receives more weight than the interactional one, which can indicate that the research articles' principal concern is presenting the information more clearly. Of individual elements, writers of RAs used 'transitions' and 'frame markers' far more than others, though the order is reversed for electrical engineering RAs. This finding also emphasizes the importance of content over the involvement of audience in the RAs. Another interesting point in regard to RAs is that they make the least use of 'attitude markers', which can show the detachment and objectivity writers of scientific texts usually try to maintain.

Table 1. Metadiscourse in Research Articles

per 1000 Words (% of total)

Category	Computer Eng.	Electrical Eng.
1. Transition	10.4 (19.4)	6.9 (13.3)
2. Frame Marker	8.6 (16.1)	12.4 (24)
3. Endophoric Marker	7 (13.1)	6.2 (12)
4. Evidential Marker	4.3 (8.1)	5.9 (11.5)
5. Code Glosses	5.9 (11)	5.4 (10.3)
Interactive	36.2 (67.7)	36.8 (71)
1. Hedges	6.5 (12.2)	4.1 (8)
2. Boosters	1.4 (2.5)	3.7 (7.2)
3. Attitude Markers	1.3 (2.3)	1.8 (3.5)
4. Engagement Markers	4 (7.5)	3 (5.8)
5. Self-mention	4.2 (7.8)	2.3 (4.5)
Interactional	17.4 (32.3)	14.9 (29)
Totals	53.6 (100)	51.7 (100)

Table 2 summarizes the use of metadiscourse in the ESP textbooks. These findings also acknowledge that an identical proportion of metadiscourse elements are used in the corpus. The overall use of metadiscourse is 29.6 and 27 words per 1000 words for computer and electrical engineering ESP textbooks, respectively. Computer ESP textbook capitalizes maximally on 'transitions' followed by 'frame markers' and 'code glosses' while electrical ESP textbook makes most use of 'code glosses', followed by 'transitions' and evidential markers'. The difference between these categories confirms some degree of disciplinary variation, but since all these categories belong to interactive rather than interactional dimension of metadiscourse, it can also be interpreted as emphasizing the significance of content over the interpersonal features of the texts.

Table 2. Metadiscourse in ESP Textbooks

per 1000 Words (% of total)

Category	Computer Eng.	Electrical Eng.
1. Transition	5.9 (20)	4.9 (18.2)
2. Frame Marker	5.6 (19)	3.4 (12.5)
3. Endophoric Marker	3.6 (12.1)	2.5 (9.4)
4. Evidential Marker	4.1 (13.7)	4.6 (17.1)

5. Code Glosses	4.6 (15.5)	5.5 (20.3)
Interactive	23.8 (80.3)	20.9 (77.5)
1. Hedges	1.5 (5.1)	2.3 (8.5)
2. Boosters	2.4 (8.1)	3 (11.1)
3. Attitude Markers	.3 (1.1)	.2 (.8)
4. Engagement Markers	1.6 (5.4)	.6 (2.1)
5. Self-mention	0 (0)	0 (0)
Interactional	5.8 (19.7)	6.1 (22.5)
Totals	29.6 (100)	27 (100)

The comparison of the two corpora (table 3) brings to our attention two important issues: the importance and greater use of metadiscourse in the research articles as an academic genre and the discrepancy existing between research articles and ESP textbooks used in Iranian universities. Computer RAs showed that there was one metadiscourse item per 18.9 words while this was one item per 19.6 for electrical RAs. In contrast, computer ESP textbooks revealed one metadiscourse item in 34.3 words and electrical ESP textbook showed one item per 37.7 words. The numerical preponderance of metadiscourse in RAs over that in ESP textbooks stresses the wide quantitative gap that exists between the two.

While the overall density of metadiscourse in RAs is two times more than that in the corresponding ESP textbooks (nearly 5% vs. 2% of the total word count, respectively), there are some other specific category differences as well which make the two markedly distinct from each other. For instance, the greater portion of metadiscourse use belongs to the interactive resources rather than interactional ones, of which certain categories are less frequent in the ESP textbooks. The categories including 'self-mention', 'attitude markers', 'engagement markers' and 'hedges' are much less used in the ESP textbooks, indicating that ESP textbooks provide very little in the way of involving the audience.

Table 3. Total Metadiscourse elements in ESP Textbooks (ESPB)
and Research Articles(RA)

Category	Computer Eng.	Electrical Eng.
	ESPB----RA.	ESPB----RA
	Word count	Word count
1. Transition	45---405	28---112
2. Frame Marker	43---335	19---201
3. Endophoric Marker	27---273	14---100
4. Evidential Marker	31--- 166	26--- 96
5. Code Glosses	35---230	31---87
Interactive	181(2.35%)1409(3.6%)	118(2.06%)596(3.6%)
1. Hedges	11---254	13---66
2. Boosters	18---52	17---59
3. Attitude Markers	2--- 48	1---28
4. Engagement markers	12---153	3 ---48
5. Self-mention	0--- 162	0--- 37
Interactional	43(.55%)-669(1.71%)	34(.59%)-238(1.46%)
Total word count	224---2078	152--- 834
Total percentage	2.91%---5.31%	2.65%-- 5.12%

Please note that the percentages in table 3 are calculated in proportion to the total number of words in each corpus (presented above in the section 'Corpus').

7. Conclusion

The present study analyzed and compared the metadiscursive resources in ESP textbooks and Research articles in two disciplines, computer and electrical engineering. The purpose was to see whether or not ESP textbooks used in Iran could play a preparatory role in making students ready for academic communications.

The results of the study suggest that ESP textbooks fall short of full range of metadiscursive conventions which encode the communicative activities in larger academic contexts such as RAs. The ESP textbooks studied here revealed that content is made accessible to the readers at the expense of effective interactional means required to establish relations with the community members. Therefore, students learning ESP may find it difficult to develop appropriate rhetorical skills. This finding thus emphasizes that students wishing to write for others especially in academic contexts need to attend to the pedagogical limitations of using ESP textbooks only. In other words, ESP textbooks represent a fledgling model and introduce students very poorly to the conventions of academic arguments.

It may be claimed that undergraduate students barely need to write research articles, but it must be remembered that they need to get involved in the acts of communication which define and maintain the respective social groups together (Hyland, 2004), and research article is just one act of communication among many more. Though this study has focused on RAs, the incongruity between the ESP textbooks and RAs reached here does not rule out that the problem may persist in other contexts. Therefore, if students fail to learn genre-related features via ESP courses they are very likely to deviate from the appropriate rhetorical patterns and ways of communications required of their area of specialization.

Whether spoken or written, ways of communication can benefit greatly from metadiscoursal elements as tools of persuasion, which can in turn help students recontextualize in an interpersonally meaningful way other lexicogrammatical features of language. Thus as Johns (1997) stresses, students need to build their genre knowledge in order to react to the requirements of their disciplinary and professional practices more appropriately. In the same vein, Beaufort (2004) maintains that rhetorical knowledge is the ability to consider the audience, the purpose of communication, and the manner in which to achieve proper communication.

Given these points in relation to the genre knowledge and disciplinary practices, it is proposed ESP textbooks be geared such that they could foster students' awareness of rhetorical considerations to recontextualize such awareness both in their academic writing and other relevant contexts of communication.

As a final word, it must be noted that the results of the present study have to be cautiously interpreted and generalized since it uses a very small sample of RAs and also the textbooks used in the Iranian context of English language teaching.

References

Ballard, B. & Clanchy, J. (1991). Assessment by misconception: cultural influences and intellectual traditions. In L. Hamp-Lyons (Eds). *Assessing Second Language Writing in Academic Contexts* (pp. 19-35). Norwood, NJ: Ablex, pp. 19-35.

Beaufort, A. (2004). Developmental gains of a history major: a case for building a theory of disciplinary writing expertise. *Research in the Teaching of English*, 39, 136-185.

Blagojevic, S. (2004). Metadiscourse in academic prose: A contrastive study of academic articles written in English by English and Norwegian speakers. *Studies about Linguistics*, 5, 1-7.

Bunton, D. (1999). The use of higher level metatext in PhD theses. *English for Specific Purposes*, 18, 41–56.

Crismore, A. (1989). *Talking with Readers: Metadiscourse as Rhetorical Act*. New York: Peter Lang.

Crismore, A. & Farnsworth, R. (1989). Mr. Darwin and his readers: Exploring interpersonal metadiscourse as a dimension of ethos. *Rhetoric Review*, 8 (1), 91–112.

Crismore, A. & Farnsworth, R. (1990). Metadiscourse in popular and professional science discourse. In: Nash, W. (Ed.), *The writing scholar: Studies in academic discourse* Sage, Newbury Park/London, pp 118–136.

Crismore, A., Markkanen, R., & Steffensen, M. (1993). Metadiscourse in persuasive writing: A study of texts written by American and Finnish university students. *Written Communication*, 10 (1), 39–71.

Dahl, T. (2004). Textual metadiscourse in research articles: A marker of national culture or of academic discipline?. *Journal of Pragmatics*, 36, 1807–1825.

Fuertes–Olivera, P. A., Velasco–Sacristan, M., Arribas–Btío, A. & Samaniego–Ferntidez, E. (2001). Persuasion and advertising English: Metadiscourse in slogans and headlines. *Journal of Pragmatics*, 33, 1291–1307.

Halliday, M. A. K. (1994). *An Introduction to Functional Grammar* (2nd ed). London: Edward Arnold.

Hyland, K. (1998a). Persuasion and context: The pragmatics of academic metadiscourse. *Journal of Pragmatics*, 30, 437–455.

Hyland, K. (1998b). Exploring corporate rhetoric. Metadiscourse in the CEO's letter. *Journal of Business Communication*, 35(2), 224–245.

Hyland, K. (1999). Talking to students: Metadiscourse in introductory coursebooks. *English for Specific Purposes*, 18(1), 3–26.

Hyland, K. (2000). *Disciplinary Discourses: Social Interaction in Academic Writing*. Pearson: London.

Hyland, K. (2004). Disciplinary interactions: Metadiscourse in L2 postgraduate writing. *Journal of Second Language Writing*, 13, 133–151.

Hyland, K., & Tse, P. (2004). Metadiscourse in academic writing: a reappraisal. *Applied Linguistics*, 25 (2), 156–177.

Intraprawat, P., & Steffensen, M. (1995). The use of metadiscourse in good and poor ESL essays. *Journal of second language writing*, 4/3, 253–72.

Johns, A.M. (1997). *Text, role and context: Developing academic literacies*. New York: CUP.

Mauranen, A. (1993). Contrastive ESP rhetoric: Metatext in Finnish–English economics texts. *English for Specific Purposes*, 12, 3–22

Schiffrin, D. (1980). Metatalk: Organizational and evaluative brackets in discourse. *Sociological Inquiry*, 50, 199–236.

Valero–Garces, C. (1996). Contrastive ESP rhetoric: Metatext in Spanish–English economics texts. *English for Specific Purposes*, 15(4), 279–294.

Vande Kopple, W. J. (1985). Discourse about discourse. *College Composition and Communication*, 36, 82–93.

Williams, I. A. (1999). Results sections of medical research articles: analysis of rhetorical categories for pedagogical purposes. *English for Specific Purposes*, 18, 347–366.

Zarei, G. R. & Mansoori, S. (2007). Metadiscourse in academic prose: A contrastive analysis of English and Persian research articles. *The Asian ESP Journal*, vol. 3 (2), 24-40.

Appendix

Research Articles

A. Computer Engineering

1. Cook, B.; Kroening, D. & Sharygina, N. (2007). Verification of Boolean programs with unbounded thread creation. *Theoretical Computer Science*, 388, 227-242.
2. McCreight, A. & Schrmann, C. (2008). A meta linear logical framework. *Electronic Notes in Theoretical Computer Science*, 199, 129-147.
3. Buford, J.; Brown, A. & Kolberg, M. (2007). Exploring parallelism in the design of peer-to-peer overlays. *Computer Communications*, 31(3), 425-463.
4. Buchholz, F & Spafford, E.H. (2007). Run-time label propagation for forensic data. *Computers and Security*, 26(7-8), 496-513.

B. Electrical Engineering

1. Yamin, H.Y.; El-Dwairi, Q. & Shahidehpour, S.M. (2007). A new approach for GenCos profit based unit commitment in day-ahead competitive electricity markets considering reserve uncertainty. *International Journal of Electrical Power & Energy Systems*, 29(8), 609-616.
2. Cabrera-Vázquez, J.; Loukianov, A. G.; Cañedo, J. M. & and Utkin, V.L. (2007). Robust controller for synchronous generator with local load via VSC. *International Journal of Electrical Power & Energy Systems*, 29(4), 348-359.
3. Harrison, G. P.; Piccolo, A.; Siano P. & Wallace, A. R. (2008). Hybrid GA and OPF evaluation of network capacity for distributed generation connections. *Electric Power Systems Research*, 78(3), 392-398.
4. Angeles-Camacho, C. & Acha E. (2008). Phase-domain power flows in the rectangular co-ordinates frame of reference including VSC-based FACTS controllers. *Electric Power Systems Research*, 78(3), 494-506.

ESP Textbooks

A. Computer Engineering

1. Haghani, M. (2002). Special English for the Students of Computer. Tehran: SAMT

B. Electrical Engineering

2. Haghani, M. (2005) English for the Students of Power, Electronics, Control, and Communications. Tehran: SAMT

Google™

jn Web jn esp-world.info