

Genre analysis: a key to a theory of ESP?

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The teaching of English for Specific Purposes (ESP) has since the 1960s been a lively and stimulating part of English Language Teaching (ELT). It has generally been acknowledged that, while remaining a part of ELT, ESP has developed its own procedures, such as needs analysis, its own materials and its own teaching methodology (see discussion of this point in Dudley-Evans and St. John, 1998).

The emphasis in the definition of ESP has been on how ESP teaching develops procedures appropriate to learners whose main purpose is learning English for a purpose other than just learning the language system. That purpose may be educational, or may be professional, and ESP seeks its justification on how well it prepares learners to fulfil the purposes required of them. ESP has seemed to shy away from developing an elaborate theory based on a theory of learning preferring rather to see its successes in terms of learning outcomes, and the quality of teaching materials. This essentially pragmatic approach may well have much to do with the predominant influence in the early days of ESP of English practitioners working on British Council projects (e.g. John Swales at the University of Libya in Tripoli and at the University of Khartoum in the Sudan, John Higgins at Chiang Mai University in Thailand).

A much more promising approach to a theory of ESP comes from the analysis of ESP texts. In the same way as the teaching procedures of ESP are linked to a view of language and learning, all ESP activity has to be linked to a view of text. ESP has in its brief history adopted various approaches to text analysis, from the early register analysis associated with the identification of key grammatical elements of scientific communication (Barber, 1962, Swales, 1971) to rhetorical analysis associated with Trimble (1985) and Lackstrom, Selinker, and Trimble (1972) through the functional/notional approach associated with the textbooks *The Nucleus Series* (Bates and Dudley-Evans, 1976) and *The Focus Series* (Allen and Widdowson, 1974) through to the dominant approach of today, genre analysis (Swales, 1990; Bhatia, 1993). The value of all these approaches to text analysis are that they begin from the idea that the texts used in particular specialist environments, whether that be academic writing, business or other professional activity or wherever the ESP need lies, have particular characteristics that distinguish them from other texts and from the generalised summaries of linguistic features that arise from an approach to text analysis that uses a corpus of differing texts.

The various approaches mentioned above all have their own value and have each moved the activity of finding particular characteristics of ESP texts a stage further. The work of the register analysts have shown that an ability to use certain key grammatical features is vital in ESP work and that other grammatical features of little relevance to ESP work can be ignored. The work of rhetorical analysis first introduced the idea that grammatical features found in specific contexts, such as an academic textbook, might follow rules that in certain subtle ways differ from the general rules as set out in general grammar books. This work also stresses the predominance of rhetorical considerations in determining grammatical choice. The notional/functional approach at its best still strikes me as a very fruitful method of bringing together lexical items that co-occur naturally, i.e. verbs such as *consist of* and *contain*, with passive constructions such as *attached to*, *connected to*, *mounted on* in describing the notion of **Structure**, or items associated with the notion of **Quantity**, such as *adequate*, *sufficient*, *enough*, *too much*, *excessive etc.*

The findings of genre analysis, however, bring together the insights of these earlier approaches to text analysis, but also a greater sophistication in the examination of the writers' purpose. The Moves and Steps that Swales (1990) suggests for the article introduction marries the textual awareness of the register analysts with a much broader view of how rhetorical considerations govern grammatical choice. The

interest in discourse community and how the expectations and conventions of different discourse communities mould the texts that they use has led to this broader view and placed ESP research in a position where it can make a meaningful contribution to discussion of how ideas are disseminated and facts created in communities.

The early work by Swales focused on the research article, and in particular the introduction section of the research article genre (Swales, 1990)¹. His Creating a Research Space model (the CARS model) is very well known, but for the sake of clarity and comprehensiveness I shall outline it here. The model captures the ways in which academic writers justify and highlight their own contribution to the ongoing research profile of the field by first establishing a topic for the research and summarising the key features of the previous research, then establishing a gap or possible extension of that work that will form the basis of the writers' claims. The model proposes three main **Moves** for the introduction and a number of **Steps** used to express each move:

Move 1: Establishing a Territory

- Step 1: Claiming Centrality
and/or
- Step 2: Making Topic Generalisations
and/or
- Step 3: Reviewing Items of Previous Research

Move 2: Establishing a Niche

- Step 1A: Counter-claiming
or
- Step 1B: Indicating a Gap
or
- Step 1C: Question Raising
or
- Step 1D: Continuing a Tradition

Move 3: Occupying the Niche

- Step 1A: Outlining Purposes
or
- Step 1B: Announcing Present Research
- Step 2: Announcing Principal Findings
- Step 3: Indicating Research Article Structure

1. The research article is a genre, but the introduction is only part of that genre and following Ayers (1993) we shall refer to it as a *part-genre*.

This model (originally presented by Swales in a slightly different form in 1981) has had a tremendous influence on genre analysis in ESP and on the teaching of academic writing, both to international or L1 students, or to professional writers wishing to publish in international journals. A move based approach has also been used for the analysis of the research article, e.g the abstract (Salager-Meyer, 1990), the methods section (Wood, 1982), the results section (Brett, 1994, Williams, 1999) the discussion section (Belanger, 1982, Dudley-Evans, 1994) and also for the analysis of dissertations (Hopkins and Dudley-Evans, 1988).

A fundamental assumption of all these move-based models is that they are common to all academic disciplines. Swales (1990) notes that different steps may be used in different disciplines, but also suggests that many of these steps will be widely distributed across the disciplinary areas.

While there is little doubt that the CARS model is frequently found in more or less its pure form in many disciplines, many researchers who have continued Swales' work on Moves and Steps have begun to find interesting variations in the patterns found in different disciplines. Clearly there will always be exceptions to the general pattern; writers will choose to omit a particular Move or vary the order of Moves or Steps to suit their particular rhetorical purpose. But where it can be established through detailed analysis that a particular discipline regularly and systematically uses a variation on the general model, then this is an interesting finding. An example of this was Crookes' finding (Crookes, 1986) that the longer introductions found in Social Science articles were the result of the writers' using cycles of Moves so that the introduction might contain more than one Move 2 and Move 3 and that each new Move 2 would be followed by another Move 3. Another more detailed presentation of a key variation comes in Anthony's work on introductions in software engineering (Anthony, 1999). He found that writers seemed to feel a need to justify their research and that he therefore needed to add one Step *Evaluation of Research* to Move 3 to capture what was happening in the articles introductions he examined. Although this may seem a relatively small addition, it is clearly more than just an exception to the rule used by certain writers; it is a distinctive systemic feature of writing in the field of software engineering. The need to use the Step seems to arise from the fact that software engineering is a relatively new field and its journals may be read by many engineers from other branches who are not necessarily up to date in a rapidly developing field. The same situation seems to explain another major feature of article introductions in the field that Anthony (1999: 42) notes: the introductions are

relatively long and that this is because writers make extensive use of Move 1 - Move 2 cycles in which detailed background information and definitions are presented. As Anthony (1999: 43) explains, the writers see their task 'as a kind of preaching to the cannibals'. In this case the cannibals are 'engineers from a wide range of disciplines' who 'subscribe to the journal in order to acquire results which can be used to solve their own particular problems (Anthony, 1999: 43).

It may well be that the need for background information and for justification of the research carried out is not exclusive to software engineering. It is not too surprising, but interesting nonetheless, that in the related field of computer engineering Posteguillo (1999) has found a similar phenomenon. And, although she did not say so directly, Cooper's finding that introductions in electronic engineering did not match Swales' model² seems to reflect the same phenomenon (Cooper, 1985).

The direction that genre analysis has taken since the early Move and Step analysis is interesting. There have been two main tendencies; one under the influence of sociology of science (e.g. Mulkay, 1985 and 1991, Knorr-Cetina, 1981) has been the more detailed analysis of the concept of discourse community (Miller, 1994) and of actual discourse communities in practice (Swales, 1998), the other has been the detailed analysis of specific features of language as used in particular genres, such as hedging (Hyland, 1998), reporting verbs (Thompson and Ye, 1991; Thomas and Hawes, 1994) or verbs with inanimate subjects (Master, 1991). Research in the second of these two tendencies has increasingly thrown up interesting differences between disciplines and I now wish to report on some of these.

There is interesting variation in the use of hedging between disciplines. The difference in this respect between academic articles published in prestigious and versions of those papers published in 'popular' journals such as *Scientific American* or *New Scientist* is well established. Both Fahnestock (1986) and Myers (1990) have shown that writers in academic journals will make guarded claims about their findings using many hedged statements (*the results suggest that ..., the findings appear to support the claim that ...*) but will use more confident statements in popular journals tending to present claims as established facts. The same phenomenon has been observed in articles and textbooks with writers of textbooks presenting theories and experimental findings as established knowledge

2. Cooper was working with Swales's original 4-move model (Swales, 1981)

and developing a consensus view of the state-of-play in the discipline in which these theories and results are seen as uncontroversial (Myers, 1992).

What is interesting is that significant differences in the use of epistemic modality³ are now being observed between disciplines. Rizomilioti (work in progress) has examined the downtoners used in journal articles in three disciplines: Biology, Archaeology and Literary Criticism. In each discipline the corpus she collected consisted of approximately 200,000 words. She found that Archaeology had the highest proportion with a total number of 2569 downtoners used with an ratio of 12.845 per 1,000 words, Biology had 1521 occurrences of downtoners making a ratio of 7.605 per 1,000 words and Literary Criticism had the lowest proportion with 1174 making a ratio of 5.87 per 1,000 words. Rizomilioti has also looked in detail as the use of boosters in the same articles. Boosters are linguistic devices that writers use to affirm their confidence in a claim that they are putting forward; examples include *definitely*, the modal verb *will* and reporting verbs such as *show* and *prove*. Rizomilioti reports that the highest occurrence (389 instances) was in the Literary Criticism corpus; this compared with 169 occurrences in the Archaeology corpus and only 92 occurrences in the Biology corpus. She argues that the relatively high use of boosters by writers of Literary Criticism articles results from their wish to 'seclude certain claims from direct contradiction' (Rizomilioti, work in progress, p. 24). Literary criticism is a discipline in which writers make assertions about literary texts based on their assumed special insight into their texts rather than on experimental evidence as in scientific disciplines. Their writing is therefore marked by the use of adverbials seeking affirmation, such as *surely*, *undoubtedly* and *definitely* and a low use of downtoners. Writers of Archaeology and Biology articles, by contrast, persuade readers of the validity of their claims through the evidence provided in the Results section and therefore have less need to use these boosters.

We have noted differences in the use of epistemic modality between genres (academic article v. popular science article, and academic article v. textbook) and between different disciplines. Bloor and Bloor (1993) have taken this kind of analysis a stage further in that they noted a very interesting difference in the use of hedging devices within one genre and one discipline. They found that in economic articles published

3. Through epistemic modality writers give an indication of the degree of commitment they have to a statement they are making. They may use a Downtoner to weaken the force of a statement thereby in some way detaching themselves from the statement. Alternatively, they may use a Booster to strengthen a statement. The commonly used term hedging is, in fact, one part of epistemic modality. Hedging devices are one type of downtoner.

in that discipline's most general academic journal *The Economic Journal* writers were either making claims that were related to the real world (field central claims) or claims that were related to issues within the discipline itself (substantive claims). Bloor and Bloor noted that the substantive claims tended to be hedged while field central claims were not.

The variation in hedging between disciplines (and within disciplines) is probably the most developed area of research. But other interesting work is emerging. Hyland (1999) has shown how citations practices vary across disciplines and suggests that this results from differences in epistemological and social conventions of the disciplines. Hyland analysed citations in 80 articles taken from the fields of Sociology, Marketing, Philosophy, Applied Linguistics, Biology, Physics, Mechanical Engineering and Electronic Engineering. In general, he found that the social science and humanities writers used more citation than the science and engineering writers. With the regard to the use of integral v. non-integral citation structures (an integral structure will name the cited author in the actual sentence), the overall preference in all the disciplines, except Philosophy, was for non-integral structures. There was, however, a much greater use of integral structures in the four Humanities and Social Science disciplines compared with the Science and Engineering disciplines. There were also major differences in the reporting verbs used by the different disciplines with the science and engineering writers favouring more neutral verbs such as *report*, *use*, *develop* and the humanities and social science writers favouring more tentative verbs such as *suggest*, *claim*, *argue*.

Discussion and Conclusion

The initial work on Move and Step analysis (Swales, 1981 and 1990; Bhatia, 1993) suggested that the models proposed were generalised models that applied to academic articles written in all academic fields. Clearly it was acknowledged that there were some differences between disciplines, but it was argued that the models proposed, such as the CARS model for the article introduction, are prototypes and actual examples will vary in the degree to which they conform with this prototype.

What is becoming clear, however, is that disciplinary variation is much more significant than allowed for in the original work on genre analysis. We need to devise a theory that goes beyond the ideas of prototypicality to acknowledge that variation in the discourse structuring of genres reflecting different epistemological and social

practices in disciplines is a key factor in genre theory. The danger is that the theory will become immensely complicated with a proliferation of genres for each discipline. It could be, however, that the simplicity of Martin's model (Martin, 1989) which places **register** between **genre** and **language** in the hierarchy, as in the diagram below, will capture variation without over-complicating the theory:

(PLEASE NOTE THAT WE NEED TO ADD ARROWS
FROM GENRE TO REGISTER TO LANGUAGE)

Genre – Register – Language

This system allows us to account for differences in discipline and between formal academic papers and those in popular journals through the use of *Field* and *Tenor*, two of the three components of register in the Hallidayan system (Halliday 1985).

I am thus arguing for a theory of ESP based on text, but one that starts from the point of view that texts in different disciplines will have different patterns of organisation rather than variations on one 'common-core' pattern. Common-core patterns are, I am suggesting, a convenient starting point for pedagogical purposes, but may not have much basis in actual genre analysis.

The teaching of academic writing will clearly need to reflect this variation. It is clearly possible to use the generalised CARS model as the starting point for the teaching of academic writing, particularly if one is teaching heterogeneous groups of students from different disciplines, but with homogeneous groups it may be much more efficient to focus on the specific features of the actual genres that students actually have to read or write. This is especially the case where students are in an EFL situation studying their subject course in their first language. Such students will not have the high proficiency levels in English that most students have in a first or second language situation and will need, in my opinion, a much more straightforwardly linguistic approach based on the actual texts they use. They do not have the linguistic sophistication to deal with issues about the readership and the discourse community in any depth. They need to see how the Moves and Steps work in the genres they use and how they are expressed in English.

REFERENCES

- Allen, J.P.B. and H.G. Widdowson (eds) (1974) *English in Focus* Oxford: Oxford University Press.
- Anthony, L. (1999) Writing research articles introductions in software engineering: how accurate is a standard model? *IEEE Transactions on Professional Communication* 42: 38-45.
- Ayers, G.E.M (1993) A preliminary investigation of abstracts through a genre analysis of the short texts accompanying articles and letters in the scientific journal *Nature* ELR, The University of Birmingham, Unpublished M.A. dissertation.
- Barber, C.L. (1962) Some measurable characteristics of modern scientific prose. In *Contributions to English Syntax and Philology* Reprinted in J.M. Swales (ed.) (1988) *Episodes in ESP*.
- Bates, M.R.C. and A. Dudley-Evans (1976) *Nucleus: General Science* Harlow: Longman.
- Belanger, M. (1982) A preliminary analysis of the structure of the discussion sections in ten neuroscience journal articles (mimeo).
- Bhatia, V.K. (1993) *Analysing Genre* Harlow: Longman.
- Bloor, M. and T. Bloor (1993) How economists modify propositions. In W. Henderson, A. Dudley-Evans and R. Backhouse *Economics and Language* London: Routledge, pp. 153-69.
- Brett, P. (1994) A genre analysis of the Results section of sociology articles *English for Specific Purposes* 11: 33-49.
- Cooper, K. (1985) Aspects of article introductions in IEEE publications Language Studies Unit, Aston University, unpublished MSc dissertation.
- Crookes, G. (1986) Towards a validated analysis of scientific text structure *Applied Linguistics* 7: 57-70.
- Dudley-Evans, A. (1994) Genre analysis: an approach for text analysis for ESP. In M. Coulthard (ed.) *Advances in Written Text Analysis* London: Routledge, pp. 219-28.
- Dudley-Evans, A. and M.J. St. John (1998) *Developments in English for Specific Purposes* Cambridge: Cambridge University Press.
- Fahnestock, J. (1986) Accommodating science *Written Communication* 3: 275-96.
- Halliday, M. (1985) *An Introduction to Functional Grammar* London: Arnold.
- Hopkins, A. and A. Dudley-Evans (1988) A genre-based investigation of the discussion sections in articles and dissertations *English for Specific Purposes* 7: 113-22.
- Hutchinson, T. and A. Waters (1987) *English for Specific Purposes* Cambridge: Cambridge University Press.
- Hyland, K. (1998) *Hedging in Scientific Research Articles* Amsterdam: Benjamins.
- Hyland, K. (1999) Academic attribution: citation and the construction of disciplinary knowledge *Applied Linguistics* 20: 341-67.
- Knorr-Cetina, K. (1981) *The Manufacture of Knowledge: an Essay on Constructivist and Social Nature of Science* Oxford: Pergamon Press.
- Lackstrom, J.E., L.Selinker and L.Trimble (1973) Technical rhetorical principles and grammatical choice *TESOL Quarterly* 7: 127-36.
- Martin, J (1989) *Factual Writing* Oxford: Oxford University Press.
- Master, P. (1991) Active verbs with inanimate subjects in scientific prose *English for Specific Purposes* 10: 15-34.
- Miller, C.R. (1994) Rhetorical community: the cultural basis of genre. In A. Freedman and P. Medway (eds) *Genre and the New Rhetoric* London: Taylor and Francis
- Mulkay, M. (1985) *The Word and the World* London: Allen and Unwin.
- Mulkay, M (1991) *Sociology of Science: a Sociological Pilgrimage* Milton Keynes: Open University Press.
- Myers, G. (1990) *Writing Biology: Texts in the Social Construction of Scientific Knowledge* Madison, Wisc: The University of Wisconsin Press.
- Myers, G (1992) Textbooks and the sociology of scientific knowledge *English for Specific Purposes* 11: 3-18.
- Posteguillo, S. (1999) The schematic structure of computer science research articles *English for Specific Purposes* 18: 139-60.
- Rizomilioti, V. (work in progress) Epistemic modality in academic writing ELR: The University of Birmingham.
- Salager-Meyer, F. (1990) Discoursal flaws in medical English abstracts: a genre analysis per research- and text-type *Text* 365-84.
- Swales, J.M. (1971) *Writing Scientific English* London: Thomas Nelson.
- Swales, J.M. (1981) *Aspects of Article Introductions* ESP Monograph No. 1 Language Studies Unit: Aston University.
- Swales, J.M. (1988) *Episodes in ESP* Hemel Hempstead: Prentice Hall International.
- Swales, J.M. (1990) *Genre Analysis: English in Academic and Research Settings* Cambridge: Cambridge University Press.
- Swales, J.M. (1998) *Other Floors Other Voices: a Textography of a Small University Building* Mahwah, NJ: Lawrence Erlbaum Associates.
- Thomas, S. and T. Hawes (1994) Reporting verbs in medical journal articles *English for Specific Purposes* 13: 129-48.
- Thompson, G. and Y.Ye (1991) Evaluation of the reporting verbs used in academic papers *Applied Linguistics* 12: 365-82.
- Trimble, L. (1985) *English for Science and Technology: a Discourse Approach* Cambridge: Cambridge University Press.
- Williams, I. (1999) results sections of medical research articles: analysis of rhetorical categories for pedagogical purposes *English for Specific Purposes* 18: 347-66
- Wood, A.S. (1982) An examination of the rhetorical structures of authentic chemistry texts *Applied Linguistics* 3: 121-43.