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Academic Cultures and Disciplinary Writing: Specificity in EAP

Abstract
It is almost a cliché now to say that writing (and reading) are not abstract skills but only make sense within wider social and cultural practices. This means that we must see the social context of an event as more than just the immediate environment surrounding it. We have to look beyond specific acts of writing to recognise how wider institutions and social groups influence them. We must, in other words, see communities as cultures. Culture is a key dimension of writing and of writing differences, and it can influence every aspect of language use. In this paper I will explore some of the ways that disciplinary cultures influence writing in academic contexts by looking at repeated patterns of language choices as evidence of specific cultural beliefs and practices. I discuss some data which supports the importance of specificity by drawing on some of my research over the last decade, arguing that identifying the particular language features, discourse practices, and communicative skills of target groups is central to teaching English in universities.

Key words: specific EAP, hedging, bundles, directives, academic bios

Introduction

A text is a projection of a writer's shared social world; a culture which he or she creates and reinforces through use of particular approved discourses. The

use of corpora can help us see aspects of these cultures by revealing patterns of everyday language use. This can help us to:

1. understand something of the practices of particular communities;
2. underline the importance of communicating as an insider by identifying the familiar ways insiders talk about reality.

In this paper I will argue for the importance of discipline in academic writing by showing that they represent distinct academic cultures, and, by implication, for the need to adopt specific approaches when teaching English for Academic Purposes.

Culture, community and discipline

Every community has its own distinctive culture. This culture is characterised by an ideological schema which controls its self-identification, knowledge, goals and conduct and is expressed in the conventional actions of its members, particularly in their use of language. So texts are written or spoken to be understood within certain cultural contexts and thus reveal shared group values and beliefs through their routine rhetorical patterns. A community, then, is more than a group with shared goals, but a way of 'being in the world', a means of interacting with colleagues and creating certain values and understandings. Essentially, communities provide the contexts where we craft our identities, cement relationships, achieve recognition and acquire the specialized discourse competencies to participate as members.

The idea that disciplines should be seen as communities, however, is contentious. Discipline is a concept under attack from post modernism, which sees fragmentation and the collapse of disciplinary coherence (e.g. Gergen, & Thatchenkery, 1996), and from institutional changes such as the emergence of modular and practice-based degrees. Their boundaries shift and dissolve and research problems often encourage multidisciplinary treatments. Each one, moreover, often embraces a range of specialisms, theories, methods and subject matters (Becher, & Trowler, 2001; Hyland, 2015).

Disciplines, however, have a real existence for those who work and study in them. Members have a sense of being part of something with others. This is done through communication and, most centrally, through writing. Writing embodies basic assumptions concerning the nature of the world, so Wignell, Martin and Eggins (1993), for instance, characterize the sciences as reworking experience technically by establishing a range of specialist terms which are ordered to explain how things happen or exist. The humanities, like history and philosophy on the other hand, employ abstraction rather than technicality, moving from instances to generalizations by gradually shifting away from particular contexts to build ever-more abstract interpretations of events. Discipline is a term that helps us see academic cultures by joining writers, texts and readers together, providing the context within which we learn to communicate and to interpret each other's talk in academic settings. Students do not learn in a cultural vacuum but are judged on their use of discourses that insiders are likely to find effective and persuasive.

In what follows I will draw on four very different sources to show how language varies across disciplinary cultures, looking at preferred lexis, genre features, identity claims in bios, and undergraduate writing assignments. All reinforce the importance of specificity as a core principle which should inform our understanding and teaching of EAP.

Lexical variation

Perhaps most obviously, each discipline draws on different lexical resources to create specialized knowledge: they have different ways of naming and describing the world, and this makes it difficult to identify a common academic vocabulary. University students need to do a great deal of reading, presenting them with a huge vocabulary load. As readers, they need to understand around 95–98% of the words in a text in order to comprehend what they read, and a high proportion of this lexis is discipline specific (Hyland, & Tse, 2007).

As a result, several discipline-specific vocabulary lists have been created, for example, for those studying plumbing (Coxhead, & Demecheleer, 2018) and agriculture (Munoz, 2015).

Students are not only likely to encounter completely different content items, but attempts to create general academic word lists suitable for students across a range of disciplines have also met with limited success. The Academic Vocabulary List (Gardner, & Davies, 2014) discriminates between academic and other registers and covers an impressive 14% of a 120-million-word academic corpus, but does not help students with the fact that words may change meanings when they cross disciplines. A study by Hyland and Tse (2007), for example, shows that the so-called universal 'semi-technical' items which make up the earlier *Academic Word List*, actually have widely different frequencies and preferred meanings in different fields. For example:

- '*consist*' means '*stay the same*' in social sciences and '*composed of*' in the sciences.
- 'volume' means *book* in applied linguistics and '*quantity*' in biology.
- '*Abstract*' means '*remove*' in engineering and '*theoretical*' in the social sciences.

So words which seem to be the same have different meanings across different fields. Thus in a study of a 6.7 million word corpus of texts from economics and finance, Ha and Hyland (2017) identified over 800 words which had a meaning specific to those fields, even if they had a general meaning too. This becomes even more complex when we consider how everyday words take on discipline specific meanings through preferred collocations, such as 'settling time' and 'load factor' in engineering.

Genre features

A second area where language evidence supports the need for specific EAP teaching is in genre features. Rhetorical choices vary enormously across disciplines because they express very different epistemological and social practices (e.g.

Swales, 2004; Hyland, & Bondi, 2006). This means that students learn their disciplines as they learn its discourses. While the hard-soft distinction is a blunt instrument to elaborate these differences, it helps reveal some of the ways that authoring involves writers relating their rhetorical choices to wider social and academic understandings. Here I refer to three of these feature differences. Hedges and directives in a 1.4-million-word corpus of 120 research articles in 8 disciplines (Hyland, 1996; 2002) and bundles in a 4-million-word corpus of 120 research articles and 120 post-graduate dissertations (Hyland, 2008).

Hedges

First, hedges index their context. These devices withhold complete commitment to a proposition, implying that a claim is based on plausible reasoning rather than certain knowledge. They indicate the degree of confidence the writer thinks it might be wise to give a claim while opening a discursive space for readers to dispute interpretations.

Because they represent the writer's direct involvement in a text, they are twice as common in humanities and social science papers than in hard sciences. We find more statements like this:

1. The existence of such networks did not go unnoticed by contemporaries and it seems sensible to assume the men concerned were probably not unreflective about this patterned conduct either. (Soc)
2. With hindsight, we believe it might have been better to have presented the questionnaire bilingually. (AL)

The fact that there is less control of variables, more diversity of research outcomes, and fewer clear bases for accepting claims than in the sciences means that writers can't report research with the same confidence of shared assumptions. So papers rely far more on recognizing alternative voices. Arguments have to be expressed more cautiously by using more hedges. Some disciplines such as philosophy, literary criticism, and cultural studies, in fact, hold explicit reflection and subjectivity as a central part of their ideology.

In the hard sciences, on the other hand, positivist epistemologies mean that the authority of the individual is subordinated to the authority of the text and facts are meant to 'speak for themselves'. This means that writers often disguise their interpretative activities behind linguistic objectivity. They downplay their personal role to suggest that results would be the same whoever conducted the research. Less frequent use of hedges is one way of minimising the researcher's role. Another is the preference for modals over cognitive verbs as these are more often used without explicit author subjects. So we tend to find far more hedges like 3 and 4 than 5 and 6 as they do not attribute agency to the researcher:

3. The deviations at high frequencies may have been caused by the noise measurements... (EE)
4. This shift could be partially caused by solvent-exposed helical segments... (BIO)
5. We interpret this as a potential consequence of the earlier decision. (AL)
6. It seems sensible to assume the men concerned were probably not unreflective about this patterned conduct. (Soc)

Scientists tend to be concerned with generalisations rather than individuals, so greater weight is put on the methods, procedures and equipment used rather than the argument. In other words, claims for the originality of research have to be balanced against the beliefs of readers, taking into account their likely objections, background knowledge and rhetorical expectations. Modals are one way of helping to reinforce a view of science as an impersonal, inductive enterprise while allowing scientists to see themselves as discovering truth rather than constructing it.

Directives

Another feature which reflects the difference between hard and soft knowledge areas regarding the extent to which succinctness and precision are valued, or even possible: directives. These instruct the reader to perform an action or

to see things in a way determined by the writer and are expressed through imperatives (like *consider, note,* and *imagine*) and obligation modals (such as *must, should* and *ought*). They direct readers to 3 main kinds of activity:

- **textual acts** direct readers to another part of the text or to another text;
- **physical acts** direct readers how to carry out some action in the real-world;
- **cognitive acts** instruct readers how to interpret an argument, explicitly positioning readers by encouraging them to *note, concede* or *consider* some argument in the text.

Generally, explicit engagement is a feature of the soft disciplines, where writers are less able to rely on the explanatory value of accepted procedures, but directives are a potentially risky tactic as they instruct readers to act or see things in a certain way. As a result, if we exclude Philosophy, 60% of directives in the soft knowledge texts direct readers to a reference or table rather than telling them how they should interpret an argument. So examples like these are common:

7. See Steuer 1983 for a discussion of other contingencies' effects. (Marketing)
8. Look at Table 2 again for examples of behavioristic variables. (Marketing)
9. For transcription conventions please refer to the Appendix. (App. Ling)

Argument in the hard knowledge fields, in contrast, is formulated in a highly standardised code. The linear, problem-oriented nature of the natural sciences enables research to occur within an established framework, allowing authors to presuppose considerable background knowledge among their readers. Directives in the sciences allow writers to guide readers explicitly through an argument, emphasising what they should attend to and the way they should understand it:

10. What has to be recognized is that these issues... (Mech Eng)
11. Consider the case where a very versatile milling machine of type M5... (Elec Eng)
12. A distinction must be made between cytogenetic and molecular resolution. (Biology)

Bundles

The final feature of academic genres I want to mention are lexical bundles – or frequently occurring word sequences. These are a key way of shaping text meanings and contributing to our sense of distinctiveness and naturalness in a register. So collocations like *as a result of* and *it should be noted that,* help identify a text as belonging to an academic register while *in pursuance of*, and *in accordance with* mark out a legal text.

The most common bundles in academic writing are *on the other hand*, *at the same time* and *in the case of*, although there are considerable variations across disciplines. Of the four disciplines in the corpus, the Electrical engineering texts were most dependent on bundles and used many sequences not found in the other disciplines. This could be because technical communication is relatively abstract and graphical. Language constructs an argument by linking data or findings in routinely patterned ways and so Engineering relies on formulaic sequences far more and uses more of them for stylistic variation.

There are also considerable differences across disciplines in the 4-word bundles themselves. In fact, there are just two forms in all 4 disciplines (*on the other hand* and *in the case of*) and just a handful in 3. In fact, over half of all items in the top 50 bundles in each discipline don't occur in the top 50 of any other discipline. The greatest similarities are between cognate fields. Business Studies and Applied Linguistics share 18 items in the top 50 with four sequences exclusive to these two fields. Biology and Electrical Engineering have 16 bundles in common, again with four bundles which were not in the social science lists. Here we see the bundles which ae exclusive to papers in the broad areas:

Exclusive to social sciences	**Exclusive to sciences**
On the basis of	*it was found that*
in the context of	*is shown in figure*
the relationship between the	*as shown in figure*
it is important to	*is due to the*
	the presence of the

There are also differences in the functions that writers in different fields ask bundles to perform. Here we find a split between ***research-oriented bundles***, referring to real world activities, comprising about half of all those in the sciences; and ***text-oriented bundles,*** focusing on the argument itself – comprising half those in the social sciences. These choices reflect the argument patterns in the two domains. ***Participant bundles*** concern the writer or reader of the text and are twice as common in the discursive fields.

These are text-oriented examples from the social sciences

13. The term 'linguistics' might be too narrow *in terms of the* diverse knowledge-base and expertise that is required. (AL)

14. The *purpose of this paper* is to investigate the perceptions of consumers in the Hong Kong market toward fast food. (BS)

While these bundles largely connect aspects of argument, those in the sciences point to the research and findings:

15. *The structure of the* coasting-point model can be divided into three areas.

16. The DNA was precipitated *in the presence of* 2.5 volumes of ethanol and 0.1 volume of 3.0 M sodium acetate pH. (Bio)

These convey the grounded, experimental basis of work in the hard sciences. Finally, Participant bundles imply the presence of the speaker or reader more explicitly:

17. Such a dilemma may be due to the fact that they generally are unable to get support on English difficulties. (AL)

18. Nevertheless, it is possible that greater social interaction between marketing and engineering managers would be beneficial. (BS)

They express a stance and modality of statements – they are twice as common in soft sciences.

We could go on and look at many other features like stance, metadiscourse, personal pronouns, citation practices and so on but the point is that the rhetorical practices of each discipline don't just *reflect* a disciplinary epistemology but help *construct* it. It's clear that writers in different disciplines represent themselves, their work and their readers in different ways, with those in the humanities and social sciences taking far more personal positions than those in the sciences and engineering.

Academic Bios

The academic bio is another genre which displays disciplinary variation. This is a genre where, in 50 to 100 words, academics present a narrative of expertise for themselves. It is particularly interesting as it sits in stark contrast to the article itself, which has been stripped of identifying information for blind review. Another reason it is interesting is that, while it is essentially a genre of self-representation, presenting the competence and qualifications of an individual academic, it reflects disciplinary values. This is, then, a site where individuals stake a claim for a particular version of themselves and so they indicate what writers see as important and valued by a community.

Our corpus here comprised 600 bios, with 200 from leading journals in each of Applied Linguistics, Electrical Engineering, and Philosophy (Hyland, & Tse, 2012). We were interested to see the importance of other variables on this site of identity representation and so also controlled for gender, with 100 bios written by males and females in each discipline, and by status, using four categories from senior academics to technicians and teachers. In the analysis we looked at what people said about themselves and how they said it.

Bio moves

First I looked at what aspects of themselves writers included as these show kinds of identities likely to be approved by peers in this context. Virtually everyone mentioned their current or previous employment and together with research interests this comprised over half of all moves in the corpus. Clearly, for junior academics this is often all they are able to say about themselves, but professors obviously have a greater range of experiences to draw on in constructing a biographical identity. As a result, there is an upward curve in the number of bios which mention research, employment, publication and achievements as we move up the status ladder from teachers to professors. Gender seems relatively unimportant in how these individuals constructed identity as men and women said similar things about themselves. In fact, discipline was the most significant influence on what authors included in their bios.

The biggest disciplinary difference was the weight engineers give to education. For them, this was typically linked with the area of study, thereby demonstrating a specific expertise and insider-competence:

19. She received the Ph.D. degree (on thin-oxide technology and novel quasi-nonvolatile memory) from the University of California, Berkeley in 1999.

20. Irene Ntoutsi received her Ph.D. in Informatics from the Department of Informatics, University of Piraeus, Greece.

This reflects a hard science apprenticeship-model where the education of Ph.D. students is also an opportunity to research and publish as part of a team, making education more central to their bios. We also find engineers giving more importance to personal information, so that almost all engineers mentioned their birthplace, for example, and often the year of birth:

21. Meiling Zhou was born in Changsha, China,

22. Sarah C. McQuaide was born in Ventura, CA, in 1976.

In contrast, applied linguists crafted identities around their research interests, making a claim for credibility through insider expertise. These made up about a third of all acts in their bios:

23. Her research interests include human motivation and affect in a variety of applied contexts.

24. Jennifer deWinter's scholarship unpacks traditional and new media convergence within global markets.

Philosophers, on the other hand, parade publications.

25. He is author of seven books and over nine edited volumes on various topics in New Testament studies. His most recent books are ...

26. His latest book is *An Exploration of epistemology*, Ashgate, Aldershot 2009.

Generally, these publications are monographs and involve a greater investment of time than the multiply authored, frenetically paced and rapidly produced articles in the hard science. As a result, they may be more significant to how disciplinary members see themselves.

Process types in bios

Identity is expressed not only in terms of *what* we talk about but *how* we talk about it. One way of understanding identity in this way is to focus on verbs, or rather, process types. Systemic Functional Linguistics recognises a broad distinction between *mental* and *material* processes:

- *mental processes* – are verbs relating to sensing (*think, belief, feel*)
- *material processes* – are concerned with doing *(work, write, study)*
- A third form are *relational* processes which express *being*.

These choices matter in identity performance. For example:

a) 'she is interested in…' (a mental process), constructs the author as an active, thinking being exercising conscious choice in a research interest, whereas

b) 'her research interests are…" (a relational process) is more impersonal, downplaying the author's role to highlight something that belongs to her.

We can see that acting on the world in some way (a material process) represents greater visibility than subjectively interpreting it with mental processes.

In these bios, writers used relational and material processes in 95% of all clauses, stressing what they *are* and what they *do*. This is because bios have

something to say about *who the author is*, or rather, how he or she wants to be seen. Interestingly, relational forms increased with rank and material forms decreased with rank so, interestingly, there is a shift from seeing our activities as something we ***do*** to something we ***are***.

Relational clauses present identity claims as they construe 'being' and relational processes are mainly *intensive*, where a writer claims to *be* something, such as an assistant professor, doctoral student, etc. These claims are strengthened by use of *identifying* over *attributive* choices, particularly among professors, where these forms are over twice as frequent:

27. Bonnie Urciuoli is Professor of Anthropology at Hamilton College (AL)

28. She is the author or co-author of over 40 technical papers and is the holder of two patents. (EE)

These identifying choices give a definiteness and uniqueness to what is being claimed. They *identify* the writer by signalling that this is an important part of who they see themselves to be. The bios of students and support staff, in contrast, use *attributive* options to signal class membership rather than a unique identity:

29. Sampath is a member of the Institute of Industrial Engineers. (EE)

30. (He is a Ph.D. student in Teaching English as a Second Language at UBC. (AL)

So, status has some impact on identity representation, but once again, it isn't status or gender but discipline which is the major influence on self-representation.

Applied linguists often used mental process types, representing themselves as thinking academics rather than as intellectual workers grinding out a quota of papers and presentations:

31. Her recent work considers the intersections of civic rhetoric and digital spaces. (AL)

32. His fascination with computers leads him to examine why some technologies are taken up while others are abandoned. (AL)

Choices such as this project a distinctively intellectual identity to the writer. Engineers, in contrast, used more verbal forms to present themselves as arguers and talkers:

33. She is now lecturing at Sanjesh College of Computing and Statistics, Tehran, Iran. (EE)

34. He proposes the use of selectively grown epitaxial layers … (EE)

Such verbal choices highlight agency, helping to construe the author as an active scholar.

The biggest variations were in relational processes. Interestingly, Philosophers used identifying relational clauses over twice as frequently as linguists and 4 times more than engineers:

35. Jeanne Openshaw is Senior Lecturer in Religious Studies at the University of Edinburgh (Phil)

36. She is the co-editor of Philosophy of film (Phil)

Explicitly naming yourself as something is key to identity and this perhaps reflects the more individualistic ethos in philosophy. Here research represents the creative insights of the author and this is very different to the more humble scientific ideology which sees results as the collective endeavours of a team using appropriate methods.

Student assignment types

Finally, for students, disciplinary specificity is most apparent in the *kinds* of writing that they are asked to do at university. It almost goes without saying that different fields value different kinds of argument and set different writing tasks, so that analysing and synthesising from multiple sources are important in humanities & social science fields while activity-based skills like describing procedures, defining objects, and planning solutions are needed in science and technology subjects (Hyland, 2016).

We also know that different fields make use of different genres, so that in their large-scale corpus study of 30 disciplines in UK universities, for example, Nesi and Gardner (2012) found disciplinary differences in the assignments students wrote with 13 different 'genre families', ranging from case studies through empathy writing to reports. These differ considerably

in social purpose, genre structure and the networks they form with other genres. Even in fairly cognate fields students write quite different texts. In looking at the assignments given to medical students, for instance, Gimenez (2009) found that nursing and midwifery students were given very different writing assignments. Similarly, in the courses at Hong Kong University, we find discipline-specific assignments such as community health reports, Speech & Hearing Sciences project reports, popular science journal articles, hospital bulletin articles, political science dissertations, and patient case histories.

This underlines the different ways students are assessed and different expectations of how they should write.

Conclusions

The idea of disciplinary specificity has become important in EAP as we have become more sensitive to the ways students write as members of social groups. This research shows that scholarly discourse is not uniform and monolithic but an outcome of different practices and strategies, where argument and engagement are crafted within specific disciplines that have different ideas about what is worth communicating and how this should be done. The fact that subject teachers are generally unwilling, for various reasons, to teach these practices encourage EAP teachers to bring their courses as close as they can to their students' reasons for learning English. This is likely to make teaching more effective as students will be able to make use of it in their subject classes. Equally importantly, students are likely to be more motivated if they can see that their English course is directly related to their subject course.

To summarise: EAP has nothing to do with topping up generic language skills, but about developing new kinds of literacy. The most effective, and time-economical EAP courses are likely to be those which seek to equip students with the communicative skills to participate in particular academic cultures.

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