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The investigation has revealed what textual and visual metadiscourse resources are employed, where and why, and as a consequence, what textual and visual metadiscourse strategies should be adopted by poster authors depending on the practices and expectations of their academic community.
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Linguistic Insights

Studies in Language and Communication

Edited by Maurizio Gotti,
University of Bergamo

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Academic posters

A textual and visual metadiscourse analysis
# Contents

List of Abbreviations........................................................................................................... 9

Chapter 1: Introduction........................................................................................................ 11
  1.1 The poster session: the ‘open market’ of research ........................................ 11
  1.2 Rationale for the study ...................................................................................... 15
  1.3 Overview of the volume...................................................................................... 17

Chapter 2: Review of the literature.................................................................................. 19
  2.1 Overview of the chapter...................................................................................... 19
  2.2 The academic community, its disciplines and subdisciplines ................................. 19
  2.3 What is academic discourse? .............................................................................. 24
  2.4 What are academic genres? .............................................................................. 37
  2.5 What is an academic poster presentation? .................................................... 44
  2.6 What is metadiscourse? ...................................................................................... 59
  2.7 What is multimodality? ...................................................................................... 67
  2.8 Principles underlying corpus design .................................................................. 73
  2.9 Summary of the chapter and Research Questions .......................................... 77

Chapter 3: Data collected ............................................................................................... 81
  3.1 Introduction.......................................................................................................... 81
  3.2 Why a corpus of academic posters? .................................................................... 81
  3.3 Selection of subdisciplines ................................................................................ 82
  3.4 Principles underlying my corpus design .......................................................... 83
  3.5 The survey .......................................................................................................... 86
  3.6 Retrieval of posters ........................................................................................... 102
  3.7 Interviews with poster presenters ...................................................................... 106
  3.8 Naming and formatting of files ........................................................................ 110
  3.9 Summary of the chapter .................................................................................... 111
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AALS</td>
<td>Association of American Law Schools</td>
</tr>
<tr>
<td>ACE</td>
<td>Australian Corpus of English</td>
</tr>
<tr>
<td>ACM</td>
<td>Association for Computing Machinery</td>
</tr>
<tr>
<td>APA</td>
<td>American Psychological Association</td>
</tr>
<tr>
<td>ARCHER</td>
<td>A Representative Corpus of Historical English Registers</td>
</tr>
<tr>
<td>BASE</td>
<td>British Academic Spoken English</td>
</tr>
<tr>
<td>BNC</td>
<td>British National Corpus</td>
</tr>
<tr>
<td>BPS</td>
<td>British Psychological Society</td>
</tr>
<tr>
<td>CANCODE</td>
<td>Cambridge and Nottingham Corpus of Discourse in English</td>
</tr>
<tr>
<td>CDA</td>
<td>Critical Discourse Analysis</td>
</tr>
<tr>
<td>CERN</td>
<td>European Organization for Nuclear Research</td>
</tr>
<tr>
<td>CIP</td>
<td>Classification of Instructional Programs</td>
</tr>
<tr>
<td>COCA</td>
<td>Corpus of Contemporary American English</td>
</tr>
<tr>
<td>CP</td>
<td>Conference Presentations</td>
</tr>
<tr>
<td>CPsy</td>
<td>Interviewee from the Clinical Psychology subdiscipline</td>
</tr>
<tr>
<td>DDC</td>
<td>Dewey Decimal Classification system</td>
</tr>
<tr>
<td>DIPP</td>
<td>Digital Interactive Poster Presentations</td>
</tr>
<tr>
<td>DPS</td>
<td>Design &amp; Print Studio</td>
</tr>
<tr>
<td>EAP</td>
<td>English for Academic Purposes</td>
</tr>
<tr>
<td>ESL</td>
<td>English as a Second Language</td>
</tr>
<tr>
<td>FLOB</td>
<td>Freiburg–LOB Corpus of British English corpus</td>
</tr>
<tr>
<td>IMRD</td>
<td>Introduction Methods Results Discussion</td>
</tr>
<tr>
<td>INFN</td>
<td>Istituto Nazionale di Fisica Nucleare</td>
</tr>
</tbody>
</table>
ISI Institute for scientific Information
L1 First Language (native language)
L2 Second Language (non-native language)
LCD Liquid-Crystal Display
LCSH Library of Congress Subject Headings
LHCb Large Hadron Collider beauty experiment
LOB corpus Lancaster-Oslo/Bergen Corpus
MDA Multimodal Discourse Analysis
MeSH Medical Subject Headings
MICASE Michigan Corpus of Academic Spoken English
NNS Non Native Speaker
NS Native Speaker
PACS Physics and Astronomy Classification Scheme
PPHY High Energy Particle Physics
Pphy Interviewee from the High Energy Particle Physics subdiscipline
PSY Clinical Psychology
SCI Science Citation Index
SD standard deviation
SFL Systemic Functional Linguistics
SSK Sociology of Scientific Knowledge
TESOL Teachers of English to Speakers of Other Languages
UMLS Unified Medical Language System
Chapter 1: Introduction

This volume presents an intra-disciplinary analysis of academic poster presentations, considering the text and visuals that posters display, depending on the discipline within which they are created. Because the academic poster is a multimodal genre, different modal aspects must be taken into consideration when analysing it, a fact that has somehow complicated the genre analysis conducted, but has also stimulated the research work involved and, in the end, provided interesting results. The present chapter begins by introducing the poster session event, what it consists of and how it fits in the broader conference experience. The rationale for the present study is then presented, followed by an overview of the book’s chapters.

1.1 The poster session: the ‘open market’ of research

In almost every discipline, a student or young researcher is bound eventually to engage in the daunting task of presenting one’s research work through an academic poster. As discussed by Swales and Feak (2000) and Swales (2004), the poster session itself is often met with mixed reviews from both participants and viewers because of several physical limitations, (e.g., the often limited time and space to showcase posters, as well as the limited space that a poster makes available to writers, restricting the amount of text displayed), and the fact that still today certain research genres, such as poster presentations, are valued differently depending on the discipline. Poster sessions, on the other hand, do play an important part in academic conferences because they allow academics to present and discuss not only completed research work but also ongoing research and preliminary findings, which would often not be presented in a paper session. This fact alone distinguishes the academic poster from other genres, making the poster session an
interesting and engaging event to participate in and a valid alternative to other, more sophisticated genres, such as the conference plenary and the paper presentation.

The poster presentation, unlike the more sophisticated genres mentioned above, is a type of conference presentation that makes the use of visuals pivotal. Posters display text and visuals so that viewers can ‘glimpse’ into the research work of a colleague, having, in this case, the freedom of ‘reading’ the poster at one’s own speed, of lingering on a specific aspect of the work, a table, a graph or a picture displayed, and finally, of having the unique opportunity to engage with the author in a one-on-one discussion.

The poster session originates in and is unfortunately mostly limited to the conference that organises it. Often a daunting place to be, the academic conference and the poster session, in particular, are a remarkably rich arena where one can display one’s progress or findings in research, practice one’s oratory skills while presenting the poster, or simply participate as listeners/observers in the ever-flowing academic discourse. As Swales (2004) and Shalom (2002) have vividly described, poster presentations, paper presentations, and plenary lectures are not really extractable or detachable from the broader conference experience because they

[...] involve the travel to and from the venue, the meeting of old friends and the making of new acquaintances, the plenaries, receptions, and book exhibits, and the intangibles of the conference ‘buzz’ – its taut intellectual atmosphere, its rush from one talk to another, its gossip, its job interviews, its hot topics, and its ‘in’ people (Swales, 2004: 197).

In 1985, Dubois started researching conference presentations (CPs) (meaning here any oral presentation given during a conference, such as a plenary, a paper presentation and a poster presentation) from a discourse perspective, but it was not until the late 1990s that more work was published, studying the CP genre from a wide range of fields, including Applied Linguistics (Luukka, 1996; Shalom, 2002; Thompson, 2002), Engineering (Räisänen, 1999, 2002), Geology and Medicine (Webber, 2002), Physics (Rowley-Jolivet, 1999; Rowley-Jolivet & Carter-Thomas, 2005; Thompson, 2002), History (Ventola, 2002).
One feature of this research has been the considerable attention paid to the complex multimodal semiotics of modern CPs, especially in technical, medical and scientific arenas of enquiry. Dubois (1980) was the first to point out the central role played by visuals, and since her pioneering work, the attention to the non-verbal dimension of CPs has been substantial. Rowley-Jolivet (2000, 2002), who investigated CPs in petrology, oncology and physics at European conferences, for example, observes:

Between the lab or field, and the written genres of science, however, lies the relatively unexplored genre of the conference presentation [...]. In the scientific presentation, whatever the discipline, the visual channel of communication is a major resource for meaning making: visuals are omnipresent throughout the talks given, with slides or transparencies being continuously projected onto the screen during the speaker’s monologue. Any investigation of how the conference presentation genre makes and communicates meaning must therefore address its visual dimension. (2000:134)

In certain humanities’ areas, such as Applied Linguistics, History or Philosophy, the role of visuals may be minimal (Swales, 2004), but across much of the disciplinary spectrum, a conference presenter is expected to provide some visual support, whether in the form of a PowerPoint, a poster or, simply, a handout. Given the limited time allotted to CPs, the idea that ‘a picture is worth a thousand words’ is becoming more and more widespread (Swales, 2004: 199). Although Swales (2004) recognises that there are marked differences in the kind of visuals expected in and by different disciplinary fields, it is still not very clear if the spoken verbal commentary that the visuals evoke is markedly different depending on the discipline.

A second major strand of research has focused on the intermediate status of the CP, being somewhat a stage lying between the research work itself and the final product of the research article (Swales, 2004: 199). As early as 1980, Dubois observed of her Biology CPs: “One glimpses research as it is actually conducted, before it is sanitised to present a picture of straight-line progress toward public knowledge” (p. 143). Almost two decades later, Rowley-Jolivet reinforced the idea by stating that
[CPs] open a window, so to speak, onto the nature of scientific activity before its formulation in the discourse conventions of the research article, enabling one to draw a more precise topography of the ‘work’ accomplished by the latter (1999:188).

During this process, listeners may be

Drawn into the presenters’ worlds as they narrate unexpected problems, reveal various kinds of ad-hocery with materials and methods, and admit to the contingent nature of the research process itself (Swales, 2004: 200).

CPs in general have been said to have an ‘intermediate status’ (Swales, 2004: 199), meaning that unpublished research work is presented, discussed and then revised. The poster session itself can be viewed as an arena within the arena. Also in this smaller arena a number of research projects, whether ongoing or concluded, are displayed, presented, discussed and often challenged. Although academics generally view the poster session as less intimidating than the paper session (Crooks & Kilpatrick, 1998), it is undeniably in the poster session that presenters have to showcase their knowledge and defend their work. Paper presentations, for example, generally last between 20 and 30 minutes, whereas a poster session can last for several hours, and there is no limit to how long a single poster presentation can last because the interaction that takes place between a presenter and an interested viewer is spontaneous. It might end after a couple of minutes, or it might last for an hour, if not more (Dubois, 1985). All these aspects will be considered and discussed in section 2.5, but it is worthwhile to mention here that each poster, for example, if well designed, with clear content, can potentially have wide audience, much wider than a paper or PowerPoint presentation. Having a wide audience, however, means that inevitably, a very high number of questions and comments will be asked by interested viewers, and the poster presenter is expected to answer all the questions to the best of his/her knowledge and acknowledge all the comments, and they may either be positive or negative.

Fortunately, this smaller arena is also traditionally more informal than other sessions. It is here that the presenter can engage, if necessary, in longer discussions, describing the work done (or yet to be done), admitting to mistakes and doubts, asking questions and receiving
answers from the viewer, and, finally, where researchers socialise and the networking is done. Also, compared to genres with more rigid structures, such as the research article, these multimodal academic works (i.e. works that comprise text, visual elements and a spoken component) differ from most other academic genres because, although like the research article they aim to both inform and persuade readers, they also allow the author a certain amount of creativity, all the while lacking precise and universally accepted poster presentation guidelines.

As Miracle (2003) noticed, thanks to the Internet, there is now a great variety of material searchable online addressing issues in poster design and presentation. These guidelines provide easy-to-use information, which aids authors, even inexperienced ones, in presenting discourse clearly and coherently. Unfortunately it is unclear whether certain poster presentation rules and conventions are discipline-specific. Are posters in the hard sciences similar to the posters in the so-called soft sciences? Are there any unspoken rules and conventions that recur within single disciplines and should, therefore, be openly known to novice academics? These are the questions students and academics in general pose themselves when they start using the genre.

1.2 Rationale for the study

After an extensive literature search on sources available in English, I realised that a systematic linguistic and visual analysis had never been carried out on the genre of academic poster presentations, and the vision–language interaction has so far been overlooked in multimodal genre analysis, though the need for multimodal corpora is increasing more and more. Currently, a corpus comprising conference poster presentations created in different disciplinary fields and systematically collected and annotated does not exist. As a consequence, a consistent and reliable textual and semiotic analysis, that is also interdisciplinary, has been carried out yet on this ‘marginalised’ genre. The lack of conference poster presentation corpora made the need for such a study more
urgent and the creation of a poster corpus became vital to carry out a consistent analysis of the genre.

Online forums and websites such as Better Posters (Faulkes, 2015), Pimp my Poster (Purrington, 2014), the AALS Poster Project (Miller, 2013) and the Online Journal of Scientific Posters all gather and display posters presented in different disciplines, mostly within the hard sciences. These online resources are certainly a valuable resource because they represent a varied pool of data and a point of reference for the novice poster presenter who asks him/herself for the first time what a poster is and what it should look like. However, because a corpus gathering posters from different disciplines has never been devised and methodically implemented, there is a lack of reliable and representative data to carry out research on the genre. As a consequence, a thorough linguistic and visual analysis has never been carried out on the genre of academic posters.

Because of the lack of a systematic linguistic and visual analysis on the genre of academic posters, there is a need for a study of poster presentations that records and classifies the most common strategies employed by poster presenters across disciplines and subdisciplines. To carry out such analysis, an ad hoc framework of analysis must first be established, capable of classifying the linguistic and visual resources utilised by poster presenters.

Given the motivations above, the main aim of this volume is to investigate which textual and visual reader-oriented strategies are commonly employed in poster presentations in different academic disciplines, i.e. which elements are found in the text and in the visuals of posters that help the reader understand concepts better, help him/her follow the unfolding text and involve him/her in the evolving discourse. To explore this aspect of academic presentations, and answer these research questions, a corpus of 120 posters gathered from three subdisciplines has been produced, devised and analysed linguistically as well as visually, considering the most common guidelines and rules currently available online and offline to students and junior researchers.

The analyses have been carried out only on the visual and textual elements displayed in posters and not on the verbal presentation of the research, which is also part of a poster presentation. This provided
enough potential for research because of the lack of a well-established framework of analysis for visual elements and the lack of automatic tagging software capable of processing visual material.

1.3 Overview of the volume

In Chapter 2, where I carry out my Literature Review, I introduce and discuss the current theories evolving around academic discourse and academic genres. The chapter then focuses on the academic poster genre in particular and its visual and textual organisation. Metadiscourse is then introduced, followed by an overview of multimodality and an explanation of the main principles underlying my corpus design.

In Chapter 3, I introduce the corpus of academic posters that was collected for the study and I explain in detail the various reasons and principles behind the design of the corpus. Fundamental corpus design principles such as purpose, representativeness, balance and size are discussed, and the chapter explains/illustrates how these principles have been applied to the present corpus. It is here that I explain how I conducted my survey, how I selected the respondents for the survey as well as how I selected and retrieved the academic poster presentations that make up my corpus. Finally, I explain how I carried out the interviews that accompany the corpus of poster presentations and how I named and formatted the files collected.

In Chapter 4, I propose a framework for the analysis of academic posters. I identify the textual resources in posters which can be classified as interactive or interactional metadiscourse elements (Hyland, 2004a, 2004b) and the visual resources that can be classified as interactive metadiscourse elements (Kress 2010; Kress & van Leeuwen, 2001, 2006). I continue by explaining how I searched for textual and visual metadiscourse resources in the corpus. The chapter concludes by expressing the limitations of the framework of analysis used.

Chapter 5 focuses on the analyses carried out and the results obtained. Here I analyse the textual interactive and interactional resources
and the visual interactive resources found in three subdisciplines: High Energy Particle Physics, Law, and Clinical Psychology. After a brief introduction, I discuss the textual interactive and interactional resources found in each subcorpus, followed by a discussion of the visual interactive and interactional resources utilised by poster authors. Finally, a cross-disciplinary comparison of academic posters is carried out, focusing on wordiness, orientation, layout and the use and recurrence of textual and visual metadiscourse.

In Chapter 6, I carry out a Discussion drawing on the results obtained and the interviews conducted with High Energy Particle Physicists, Lawyers, and Clinical Psychologists. I discuss here the use and recurrence of textual and visual metadiscourse across subdisciplines, based on the results obtained in Chapter 5. Finally, I conclude the book with a review of the research limitations and a few suggestions for further research.
Chapter 2: Review of the literature

2.1 Overview of the chapter

In this chapter, I review the past and current research literature on aspects pertaining to academic writing with a particular focus on issues relevant to conference posters. I start by introducing the idea of an academic community and its disciplines, followed by five main questions I pose myself and that I answer:

- What is academic discourse?
- What are academic genres?
- What is an academic poster presentation?
- What is metadiscourse?
- What is multimodality?

I attempt to explain the concepts relating to academic discourse, academic genres, academic posters, metadiscourse and multimodality, and for each single topic mentioned, the current literature available is discussed. I conclude the chapter by presenting and discussing the main principles underlying corpus design.

2.2 The academic community, its disciplines and subdisciplines

Universities and Colleges are important organizations of higher learning, dedicated to research and the dissemination of knowledge. A definition of the academic world is provided by Caplow and McGee (2001), who have described the university as a unique type of organization that goes back to the Middle Ages and is organized hierarchically in such a
way that it can count on more know-how than any other type of organization.

This highly structured academic community comprises scholars, researchers and teachers involved in research and teaching, affiliated to a public or private institution (i.e. university, research institute/centre, college, etc.). It is within this academic community that disciplines are born, defined and researchers are formed. However, as Becher and Trowler (2001) have recognised, it is very difficult to find a definition valid for all disciplines, as each discipline is very different from the rest. Also, as Krishnan (2009) noted, teaching a subject within a higher learning organization does not alone confer the status of ‘discipline’ on it. He goes on to suggest a list of characteristics to recognise whether a field of research is indeed a discipline. He suggests checking if researchers work within this research field, which they may or may not share with other disciplines, if they have a specific body of literature, if they base their research work on theories and methodologies developed specifically for that discipline, if they use specialist language and finally, if the discipline can count on a number of subjects taught at university level, as well as on a Department and a number of associations that promote its research (Krishnan, 2009). As Krishnan (2009) specifies, an area of study might not comply with the above characteristics, but the more it does, the more it can be recognised as a discipline.

Biglan (1973) also tried to explain the existing differences between disciplines by interviewing its members and noting what their beliefs were, regarding their own discipline. He consequently developed a classification scheme that divides ‘hard’ disciplines from ‘soft’ disciplines, denoting a difference between natural sciences and the humanities. He also distinguished between ‘applied’ disciplines (e.g., Engineering), ‘pure’ disciplines (e.g., Mathematics), disciplines that comprise ‘living systems’ (e.g. Biology) and those that comprise ‘non-living systems’ (e.g. Art).

What is particularly interesting about Biglan’s (1973) analysis is that he combines the epistemological and the cultural dimension of disciplines, noting that, for example, ‘hard’ sciences are respected more, researchers in the hard sciences publish articles in academic journals, and there is a higher connection between specialists in these fields than
in others. On the other hand, he believes ‘soft’ sciences are valued less, researchers within these fields are more focussed on publishing monographs as well as teaching and are not as connected as researchers in the ‘hard’ sciences.

Hyland (2000) and Fløttum et al. (2006) have also provided a relatively simple classification of disciplines. Hyland (2000), for example, selected material from eight disciplines to compile his corpus and he divided these disciplines into pure sciences, applied sciences, humanities/social sciences and applied social sciences. The researchers at the University of Bergen (Fløttum et al., 2006), working on the KIAP corpus, instead divide disciplines in only three categories: the natural sciences, the social sciences and the humanities. They argue that the natural sciences are objective and highly standardised, whereas the humanities are subjective and favour the interpretation of texts. The social sciences instead stand midway between the social and the natural sciences, because they are sometimes based on an objective body of literature, and sometimes they rely on a more subjective and interpretative methodology.

As Giannoni (2010) states, the way disciplines are classified and recognised shows us just how difficult it is to force disciplinary fields into rigid inventories and how problematic it is when we consider fields that lie in an intermediate position. Giannoni (2010) depicts this situation skilfully when he states that if white and black represent the humanities and the natural sciences, the social sciences can instead be represented by a new, in-between colour, which is grey. Although it is still unclear how to define a discipline (Hyland, 2009a, 2009b; Mauranen, 2006) and the concept itself is still often questioned (e.g. Gergen & Thatchenkery, 1996), linguists have focused on distinguishing between disciplines by carrying out studies of rhetorical practices. As Hyland and Bondi (2006) recognise, this is because writing within the academic world means adapting one’s own way of thinking, researching and communicating research to the rules and conventions established by a wider scientific community. Furthermore, disciplines can be perceived as communities that use language to produce, discuss, support, express collegiality, and spread knowledge. By taking part in the discussion of our research community, we as academic writers and readers, gradually
acquire the competencies necessary to participate in a specialised dis-
course (Hyland & Bondi, 2006). Each scientific discipline has learned
to, over the years, see and understand the world differently, putting in
practice different procedures and conventions. The idea that each dis-
cipline develops its own type of discourse and sets its rules and con-
ventions, rendering texts meaningful, becomes then pivotal, and fuels
research into discourse analysis (Wells 1992, cited in Hyland, 2009a: 8).

If defining what a discipline is can be difficult, classifying disci-
plines and subdisciplines proves to be an even more complicated ordeal.
If a discipline is defined as ‘a branch of knowledge or teaching’¹, a
subdiscipline can instead be referred to as ‘a specialist field of study or
work within a broader discipline’². As simple as these definitions may
seem, the act of classifying science into a disciplinary (and subdisci-
plinary) structure is as old as science itself and centuries of construc-
tive research on this topic have unfortunately led to inconclusive results
(Glanzel & Schubert, 2003). Klein (1993) in fact writes that no matter
the numerous studies carried out on the subject over the years, delimit-
ing disciplines and subdisciplines based on the methodologies used, the
type of organization set and the background literature is still extremely
difficult if not impossible. It is also important to understand that dis-
ciplines and subdisciplines are far from static: although they may be
focussed on a particular school of thought, they are far from isolated
and constantly evolve with time thanks to sporadic contacts between
disciplines, or constant interdisciplinary work. Thanks to these contin-
uous (or sporadic) disciplinary contacts, disciplinary and subdiscipli-
nary fields may influence one another with different points of view and
methodologies (Easton & Shelling, 1991) and gaps and overlaps can
occur (Becher & Trowler, 2001). Boundary lines among disciplines and
subdisciplines therefore become ‘[… ] ambiguous, flexible, historically
changing, contextually variable, internally inconsistent, and sometimes
disputed’ (Klein, 1993: 186).

¹ American Heritage Dictionary of the English Language, Fifth Edition. Copy-
Nonetheless, it seems we cannot manage without conceptually organizing academic subjects into disciplinary and subdisciplinary fields, because these help determine what exactly we can or cannot study, the methodology we should or should not use and the amount of interpretation allowed (Messer-Davidow et al., 1993). At one point therefore, it was necessary to somehow provide academic institutions, communities, publishers, encyclopaedias and libraries with a classification system that classified disciplines and their related subfields in a more detailed way than the Biglan’s (1973) classification system did (Glanzel & Shubert, 2003). The classification by Biglan in fact, although it offers a good point of reference to analyse academic diversity and has been revisited since its initial appearance (Stoecker, 1993), it is not sufficient to categorize all the existing disciplinary subfields.

Since the 1970’s, a number of systems have been developed, such as the Science Citation Index (SCI), the database of the Institute for scientific Information (ISI) (today also known as ‘ISI Web of Knowledge’) (Thomson Scientific, PA, USA), the UCSD map of science and classification system (Börner et al., 2012), the Classification of Instructional Programs (CIP) and the more famous US Library of Congress (LCSH) system and Dewey Decimal Classification system (DDC). Focusing on the UCSD map of science and classification system (Börner et al., 2012), which draws from the Web of Science database and the Scopus database, with subdisciplines assigned by SciTech Strategies (Börner et al., 2012), we see that researchers have identified 554 journal clusters and the relative subdisciplines were aggregated into 13 high level disciplines. Furthermore, many disciplines have their own official classification system. For example, the Association for Computing Machinery (ACM) system is used in computing; in medicine we find that the MeSH (Medical Subject Headings) or UMLS (Unified Medical Language) systems are widely used and in physics, the PACS (The Physics and Astronomy Classification Scheme) has now become popular (Fox et al., 2014). Having attempted to provide a definition of an academic discipline, let us now turn to another challenging term relevant in this context: academic discourse.
2.3 What is academic discourse?

Academic discourse can be regarded as one of the many ways specialised discourse is realized textually (Bhatia, 2002; Flowerdew, 2002). It is used within the academic world to communicate and disseminate ideas to a specialised audience, which is capable of interpreting this discourse unambiguously. As Hyland (2004a) and Jolliffe and Brier (1988) underline, academic discourse allows not only universities to carry out teaching and research duties, but it allows researchers and students to create roles and relationships that are vital to the survival of disciplines and related knowledge. Academic discourse becomes indispensable, in particular, to disseminate ideas, educate students and construct knowledge through articles and essays, lectures and conference presentations. It can also be considered the most important aspect of the academic world, because it enables individuals to cooperate but also compete with one another, to create new know-how, all the while outlining academic allegiances (Hyland, 2009e). It is impossible to separate the academy from its discourses, because it is only through its discourses, i.e. published material that is made public and available to the wider scientific community, that a discovery becomes significant.

Before considering academic discourse and the most recent literature on the subject, it is worthwhile to first approach the concept of ‘discourse communities’, which is an abstract, complex, and still contested term.

2.3.1 Discourse communities

To understand what the term ‘discourse community’ means, and most of all, what it entails, one can picture a group of people sharing a language and its grammatical and lexical rules, as a result of their continuous contact. The construct of discourse community has many definitions indeed, but what all of these have in common is the idea that a language is what holds a group together, acting as a sort of glue. A shared language contributes to the creation of shared beliefs held by a community,
as well as the creation of shared expectations and common and accepted ways of expressing oneself (Rafoth, 1990).

The term ‘discourse community’ therefore is often used in the literature to emphasize the fact that we write differently depending on characteristics such as our gender, our level of education, our discipline as well as the genre and the register we use (see Bazerman, 1990; Berkenkotter & Huckin, 1995; Porter, 1992; Swales, 1990a, 1998). A discourse community can also be regarded as a group of individuals with specific aims and commitments, that has commonly agreed to use distinctive genres in order to fulfil these commitments (Swales, 1990a). In particular, the following characteristics have been identified (Swales, 1990a), to define a community of discourse:

1. a community of discourse has a number of goals that are commonly shared and are known to the outside world;
2. a community of discourse has members that are able to communicate with each other (e.g. through a newsletter, emails and journals);
3. a community of discourse has members that use genres to disseminate research;
4. a community of discourse has members that are able to offer feedback as well as information to peers;
5. a community of discourse has its own specialized lexis and its own genres;
6. a community of discourse can count on a minimum number of specialized members having an adequate and suitable qualification in the area.

As Borg (2003) notes, the notion of ‘discourse community’ is closely tied to the concepts of ‘speech community’ (Gumperz, 2001; Labov, 1989) and ‘interpretive community’ (Fish, 1980). On the one hand, the term ‘speech community’ relates to communities that share the same language variety, as is the case of different varieties of English. ‘Interpretive community’ instead refers to a network of people, scattered around the world, who share a common way of interpreting texts produced within the same community. What also distinguishes a ‘speech community’ from an ‘interpretive community’ is also the fact that the
latter makes willingly the choice of sharing a common discourse and common goals (Borg, 2003). To describe a typical discourse community, Swales (1990a) uses a very simple yet effective image: he compares a discourse community to a group of stamp collectors spread around the world, who are interested in collecting one particular type of stamp. They may never meet physically, but they share the same interest and probably a specific means of in-group communication, such as a newsletter. This genre is what they use to communicate, to reach their goals and ultimately is what keeps them united.

The notion of discourse community has also triggered a vast research effort within the Writing for Specific Purposes (WSP) field (see Killingsworth & Gilbertson (1992), Olsen (1993), Orlikowski & Yates (1994) among others) as well as the English for Specific Purposes (ESP) field (see, for example, Offord-Gray & Aldred, 1998). However, the notion of discourse community is still igniting numerous questions and discussions regarding, for example, its optimal size and stability; whether oral discourse is necessary to a discourse community and finally, whether or not the goals and genres shared by the members define the discourse community itself (Borg, 2003).

Some of these questions find an answer in the study carried out by Swales (1998), who recognised that ‘place discourse communities,’ unlike simple ‘discourse communities,’ are characterized (and united) by both oral and written language. This suggests the idea that a community is maintained through written and oral discourse and that new members need to learn these written and spoken languages to comply with the shared norms and expectations of the community. Lave and Wenger (1991) vividly describe the process that students experience once they arrive on campus as a metamorphosis that allows them to gradually distinguish between different discourse communities, different tools, meanings and ways of interpreting texts. Ultimately, students are able to enter a specific discourse community by learning its language.

Different levels of discourse communities also exist, depending at what levels professionals decide to affiliate. When they do affiliate at a higher, more heterogeneous level, they also have to share language as well as background knowledge, never forgetting the smaller, more specialized group they belong to (Johns, 1997). A linguist, for example,
may be interested in genre analysis and belong to a particular research
group, but he or she may also be a member of a wider association,
such as the British Association of Applied Linguistics, which gathers
experts in different aspects of linguistics and language studies. Also,
although a linguist works within a specific discipline, s/he also shares
a number of linguistic and rhetorical rules (e.g. the use of the IMRD
format, the use of hedges and boosters, citation rules, etc.) with the rest
of the scientific community, regardless of the disciplinary field (Hyland,
2009a). After providing a working definition of ‘discourse community’,
the closely related concept of academic community and its importance
will be introduced and discussed.

2.3.2 Working definition of ‘discourse community’

For the present study, I will use the definition of ‘discourse community’
coined by Rafoth (1990):

If there is one thing that most of [the discourse community definitions] have
in common, it is an idea of language [and genres] as a basis for sharing and
holding in common: shared expectations, shared participation, commonly (or
communicably) held ways of expressing. Like audience, discourse community
entails assumptions about conformity and convention. (p. 144)

The term ‘discourse community’ in the present work thus identifies a
group of people who share common rules of language, because of their
continuous contact and communication activities.

2.3.3 The academic community and the importance
of academic discourse

Over time, academic discourse has not only dominated the university
world but has also colonized very different non-academic domains
(Hyland, 2011), so much so that the way academics communicate in
the world has changed. Examples of academic discourse can be found
everywhere, from advertisements to documentaries, to periodicals and
leaflets. Those who are able to use this type of discourse are regarded
as experienced and knowledgeable academic writers and hold a prestigious position within the community (Hyland, 2011).

Hyland (2011) also identifies three main reasons that caused, within a period of 20 years, a greater interest in academic discourse, especially academic writing in English. The first reason is that writing skills have become more important due to a number of changes in higher education; the second reason is that English has become the language of research, so much so that in order to publish and succeed academically, one has to publish in English. Finally, linguistic theories have recognised the importance of academic discourse in the development of knowledge (Hyland, 2011). Each of these three main reasons for the development of academic discourse will be discussed more thoroughly hereafter.

First of all, the changes in higher education mentioned above are actually the result of a great expansion of higher education in countries within Europe, Asia and Australasia. An increasing number of students are now travelling abroad, often covering very long distances and paying full fees, to receive a university education. If the number of international students is rising fast, so is international migration. These elements together can help account for the creation of a linguistically and culturally heterogeneous student body in many countries (Hyland, 2011).

This international student body needs to be aware of the linguistic competencies required by students, whether native speakers of English (NS) or speakers of English as a second language (ESL). Their skills in written English must be adequate so that they are able to demonstrate they fully understand the subjects taught at a University level (Hyland, 2011). In other words, because students come from different cultures and have different competencies and also different ways of interpreting reality, teachers need to verify if students have the abilities and competencies to successfully follow a university course. EAP (English for Academic Purposes) programmes have thus been reinforced, expanded and researched in order to better help students reach the required language level (Hyland, 2009a, 2009c, 2011).

The second reason mentioned above for this increased attention in EAP and TESOL pedagogies is the fact that English language has an enormous influence in the ‘publish or perish’ dilemma experienced by researchers around the world. As many recognise, the only way to
climb the academic ladder and gain recognisance in one’s disciplinary field is to publish in English, because these publications get cited more frequently than if they were written in the L1 of the author (Bakewell, 1992; Curry & Lillis, 2004; Burrough-Boenisch, 2006; Lillis & Curry, 2010; Hyland, 2011). The fact that online journals are now widespread also fuels publications in English, since it is thanks to these online publications that researchers become highly visible. For example, a study by Björk et al. (2009) has shown that in 2007 alone, a total of 1,350,000 peer-reviewed research articles were published globally in English, and the growth rate is estimated to augment by 4% annually. Also, the number of papers published in English by NNS of English is far higher than the number of papers published by ESL authors (Lillis & Curry, 2010; Swales, 2004). As a consequence, researchers wishing to publish in English often seek highly specialized courses that train writers in academic English (Burrough-Boenisch, 2006; Cooke, 1993).

The third major reason for studying academic discourse lies in the sociology of scientific knowledge (SSK). As Hyland (2011) explains, in the last few years, SSK has challenged the traditional view of academic discourse: it is now no longer considered an objective demonstration of absolute truth. The world is always filtered through the eyes of the researcher, and there are multiple ways of seeing and interpreting things, and it is up to the writer to argue his/her claim, anticipating possible challenges from readers. In this sense, studies on academic discourse have analysed how academic writers use persuasion to induce readers to accept an idea, all the while shaping and changing the entire disciplinary community (Stubbs, 1996).

2.3.4 Research into academic discourse

Discourse analysis studies the way texts function and are written depending on the social context. In academic contexts, in particular, discourse analysis has focused on academic genres such as the research article (Hartley, 2008, 2012; Hyland, 1998a, 2001; Swales & Feak, 2000; Thompson, 2001; Thompson, 2005), conference presentation (Swales, 2004), book review (Hartley, 2006), Ph.D. thesis (Hyland, 2004; Thompson, 2005, 2009a, 2009b, 2012a, 2012b), student essay
(Thompson, 2009b), and final reports (Hyland, 2012). Academic genres will be discussed more in detail in Section 2.4, but it is important to note here that within the wider field of discourse analysis, genre analysis examines recurrent lexical and grammatical patterns found in language. These patterns are of interest to linguists because they reveal the rhetorical practices in use in different academic communities. Hyland (2011) uses a perfect metaphor when he writes that genres are like contracts between writers and readers: writers adhere to a standardized form and a set of rhetorical forms, so that readers know exactly what to expect.

Genre analysis, therefore, highlights what emerges as typical in collections of texts gathered from different disciplinary communities and academic genres. As Hyland (2011) explains, genre analysis is mainly influenced by Halliday (1994) and Swales (1990), who believe that deliberate lexico-grammatical and rhetorical choices made by authors connect texts to particular social contexts and discourse communities, whose members share the same purposes. The exploration of the lexico-grammatical regularities found in particular genres has been one of the most fruitful applications of discourse analysis to academic texts (Hyland, 2011).

By analysing these recurrent rhetorical forms and linguistic features, researchers have acquired a more thorough knowledge of academic genres, i.e. how they are formed and used. In this sense, Swales’ (1990a, 1990b) move analysis has been a pioneering work, followed by many others, such as Hyland (2004c), who analysed dissertation acknowledgments and Bruce (2009, 2010), who analysed the methods sections in research articles. Other researchers have instead concentrated on particular linguistic features, either functional, grammatical or rhetorical, found in different genres, such as hedges in research articles (Hyland, 1998a), circumstance adverbials in student presentations (Zareva, 2009) and evaluation in book reviews (Hyland & Diani, 2009).

To easily identify these recurrent linguistic patterns in different types of texts, researchers have been using corpora, which, as Hyland (2009c) notes, enable the researcher to carry out more informed analyses, based on a much greater number of texts. The use of specific corpus linguistics software and tools also contribute to more precise and accurate results. Because of the data collection and the possibility to quickly scan through the corpus in search of frequent linguistic patterns, corpus
linguistics provides important insights in discourse analysis, highlighting disparities across disciplines, genres and languages (Biber, 2006; Hyland, 2004a, 2005; Swales, 2004). If the quantitative analysis, Hyland (2011) adds, is accompanied by a qualitative analysis, the linguistic and rhetorical patterns found will be better interpreted because of the personal insights researchers provide.

Aside from corpus linguistic analyses, since the 1980s, several ethnographic-oriented studies have explored the cultures of academics and have provided a more accurate and authentic description of the language they use (Dressen-Hammouda, 2013). Swales’ (1998) study on the different discourses coexisting within one single building at the University of Michigan is perhaps the best known of these. Thanks to ethnographic/linguistic tolls such as field observations, recordings, surveys and interviews, Swales was able to paint a detailed picture of academics working in different fields, all coexisting within the same building. The analysis of these different types of data allows us to understand how diverse academic practices are as well as the fact that the roles played by mentors, supervisors and peers have an influence on the writing process of academics. These written and oral texts are far from detached and impartial and, as Critical Discourse Analysis (CDA) has demonstrated, they work to create academic knowledge, identity and power (Paltridge, 1995, 1996, 2002, 2008).

These approaches and strands of research have been producing interesting results that inform us of how academic communities function and how we should educate university students to enable them to participate in the on-going disciplinary discourses. The volume of this research makes it inevitably difficult to summarise, but Hyland (2011: 177) was able to identify four main findings:

1. That academic genres are persuasive and systematically structured to secure reader’s agreement;
2. That these ways of producing agreement represent disciplinary specific rhetorical preferences;
3. That language groups have different ways of expressing ideas and structuring arguments;
4. That academic persuasion involves interpersonal negotiations as much as convincing ideas.
2.3.5 Academic discourse across disciplines

As the Biglan (1973) classification presented in section 2.2 demonstrates, the epistemological and cultural dimension of disciplines is not only varied but is also unstable, as discipline and subdiscipline classifications change and evolve over time and are subject to continuous debate. It is under this influence that research in academic discourse has evolved, giving light to a number of schools of thought or approaches to the study of disciplines (Lillis & Scott, 2007).

For example, in the USA, the teaching of writing can count on a long tradition and different disciplinary and epistemological frameworks that guide the study of discipline-specific rhetoric (Ede, 1999; Flower, 1994; Horner and Lu, 1999; Russel, 2002). In Australia instead, interest in the way students and academics write is a recent phenomenon and has been influenced mainly by two approaches: the systemic functional linguistics approach (Skillen, 2006) and the New Literacy Studies approach (Candlin and Plum, 1998). In the UK, in the last few years, there has been on the other hand a marked interest in EAP (e.g. Hyland, 2004a, 2004b; Hyland & Bondi, 2006), an area of research, which has been fuelled by a growing influx of international students to Anglophone universities who now have an easier access to higher education institutions (Crowley, 1998; Horner & Lu, 1999). These international students, who join the already growing local student body, are the force behind a widely recognized ‘globalization’ of higher institutions (Lillis & Scott, 2007). This ‘globalization’ of higher education forces universities to face evident literacy and language problems (McKinney and van Pletzen, 2004; Thesen and van Pletzen, 2006). At the centre of attention of literacy activities we find student writing, because on the one hand, the written text produced by a student is still the most valuable form of assessment in the hands of teachers and, on the other hand, because learning to write within one’s academic discipline means being able to participate in a specific scientific community (Lillis & Scott, 2007; Swales & Feak, 2004).

The EAP approach has been influenced by research in applied linguistics, genre analysis (Dudley-Evans, 2000; Swales, 1990, 2004) and discourse analysis (e.g., Hyland, 2000, 2004; Thompson, 2005) focusing on specific textual features of academic texts. Research on
academic discourse was able, in particular, to reveal the distinctive ways disciplines have of asking questions, addressing a literature, criticising ideas and presenting arguments. The literature on cross-disciplinary analyses is vast and varied and much could be said on the research that has been carried out in this field. Hereafter I will provide examples of research studies that have enriched cross-disciplinary comparisons of academic discourse in the last three decades.

In experimental sciences, for example, Hyland (2009e) has revealed that the IMRD format is used to present findings, starting from an Introduction section, followed by a Methodology, Results and Discussion section. In the humanities, in contrast, writers rely on strength of argument and the rhetoric of persuasion to make claims, whereas in the social sciences writers can rely on scientific methods but still need to pay attention to the interpretation of less-predictable human data. Looking at genres such as scientific letters (Hyland, 2004a), writing assignments (Gimenez, 2009) and Ph.D. dissertations (Hyland, 2004c), research has discovered considerable rhetorical variation across disciplines. For example, Hyland (2011) notes that an example of how language is used differently across fields is the use of hedges such as possible, might, probably and so on. Because in the humanities writers cannot count on experimental data and controlled variables, they seem to avoid making strong claims regarding their assumptions and tend to recognize possible alternative views (Hyland, 2009e). In the hard sciences, instead, Hyland (2008, 2011) has found that writers tend to be linguistically objective, in the sense that they let their data speak for themselves, and they limit the author’s presence in the text. A milestone in cross-disciplinary comparisons of academic genres is Hyland’s (2004) work, which considers five different genres produced in eight different disciplines, totalling 1,426 texts. This work has revealed numerous disciplinary variations when it comes to, for example, citation practices (researchers in the hard sciences taking a more neutral position than writers in the soft sciences); evaluation (soft discipline writers being more critical than writers in the hard sciences) and the structure of abstracts (soft scientists including the Introduction move and hard scientists focussing instead on the Methodology move).
Nesi and Gardner’s (2012) work is also an important contribution as it compares student writings that have been distinguished in 13 different genre families, all represented in the BAWE corpus. These assignments have been produced in different disciplines, belonging to four main disciplinary groupings: Arts and Humanities, Life Sciences, Physical Sciences and Social Sciences. Nesi and Gardner (2012) were able to develop a detailed classification of university writing and group genres together depending on the similarities they displayed across disciplines, thus constructing genre networks. Their impressive work demonstrated that although Essays have traditionally been considered the main genre utilized by students across disciplines, actually all 13 genre families are used across the curriculum. Students therefore have to be able to modify the way they write depending on the discipline they belong to, the genre they are experimenting with and the task at hand (argumentation, evaluation, personal reflection, etc.).

Further interesting work has been carried out by Samraj (2002, 2005), who researched the differences in the organization and lexi-co-grammatical features of research abstracts and research article introductions drawn from two related fields: Wildlife Behaviour and Conservation Biology. In his first work, as far as rhetorical moves are concerned, some differences do appear between the abstracts collected from the two disciplines. For example, although all four moves considered by Samraj (2002) are utilized in the two sets of abstracts, the ‘Results’ move occupies more space and is present in all abstracts. The ‘Conclusion’ and ‘Methods’ moves are utilized less in both disciplines, whereas the ‘Situating the Research’ and ‘Purpose’ moves are utilized more in Conservation Biology abstracts than in Wildlife Behaviour ones. In a later work, Samraj (2005) revealed that the structure and function of research article introductions and abstracts in Conservation Biology are very similar, something that does not happen in Wildlife Behavior.

Bunton (2002) concentrated on the moves present in 45 Ph.D. thesis introductions (written by native and non-native speakers of English), drawn from the Faculties of Science, Engineering, Arts, Education and Social Sciences. In this work, the author confirmed that all 14 steps of Swales (1990) and Dudley-Evans (1986) moves model are present in his corpus and he identified 10 additional steps. Another interesting
finding was the disparity found between the introductions written by NS and NNS of English. More specifically, in the Arts and Education faculties the Introductions written by NS of English displayed a wider range of steps than NNS of English, whereas in the faculties of Science and Social Sciences the situation is reversed: NNS of English have been found to use more steps than NS of English. Bunton (2005) continued his research on PhD theses and dissertations by analysing the concluding chapters of 45 PhD theses drawn from various disciplines. The majority of the chapters have been found to follow the same functional moves such as restating the purpose of the research, consolidating a research space, recommending future research and stating implications and recommendations. A small number of these however displayed a problem-solution move structure instead.

Another author interested in cross-disciplinary analyses is Bruce (2008), who investigated the organization of Methods sections found in research-reporting articles published within the Social Sciences and the Physical Sciences. His study revealed that Methods sections employing a means-focused discourse structure are common in the Physical sciences, whereas Methods sections following a chronological and non-sequential descriptive structure are found mostly in the Social sciences. A year later, utilizing the cognitive genre model, Bruce (2009) focused on the Results sections of research-reporting articles from two disciplines, Sociology and Organic Chemistry, and found that Sociology papers mainly employ the Report cognitive genre, whereas Chemistry papers mainly employ the Explanation cognitive genre.

Holmes (1997) focused instead on the Discussion session found in research articles belonging to the disciplines of History, Political Sciences and Sociology and established that these three disciplines displayed different moves. In particular, History texts displayed a markedly different move structure to Sociology and Political Sciences texts. Groom (2005) compared research articles and book reviews collected from two different disciplines (History and Literary Criticism) and analysed them from a phraseological point of view. His main finding is that the two grammar patterns it v-link ADJ that and it v-link ADJ to-inf consistently vary across the two disciplines and the two genres considered.
Research on writing within the medical field is abundant and sees numerous publications focusing on genres such as the research article, the abstract and even personal statements. For example, inspired by Swale’s (1981, 1990) genre analysis model, Nwogu (1997) developed an eleven-move schema to analyse medical research papers. Another interesting and more recent analysis of medical research articles has been carried out by Li and Ge (2009) who have considered how the 11 moves identified by Nwogu (1997), as well as the use of verb tenses and first person pronouns has changed from 1985 to 2009. Also analysing medical abstracts is the work by Salager-Meyer (1990) who carried out a move analysis of 77 ME abstracts and found that half of the abstracts considered were missing a fundamental move, two or more necessary moves were incomplete, or displayed an illogical order of moves or an overlapping paragraph structure. In a later study, Salager-Meyer (1992) concentrated on the use of finite verb tense and modality and revealed that the past was the predominant tense in her corpus, whereas the present tense was utilized mostly in the conclusions and in reviews. The present perfect was the third most frequent tense found in the corpus and was utilized to mark the author’s disagreement with previous findings. Finally, modality was more frequently noticed in review articles.

Anderson and Maclean (1997) also carried out a study of medical research abstracts, comparing them with the abstracts described in textbooks. The abstracts were drawn from four different medical fields (Clinical Medicine, Surgery, Epidemiology, Basic Sciences) and the author focused on the structure of the abstracts and the different linguistic elements present. The study indicated that research article abstracts and abstracts in textbooks are similar but the latter tends to be simplistic, rigid and lacks several linguistic elements.

Ding (2007) carried out instead a hand-tagged move analysis and a computerized analysis of lexical features in personal statements written to apply to medical and dental schools. Five moves were identified by Ding (2007: 368): “explaining the reason to pursue the proposed study”, “establishing credentials related to the fields of medicine/dentistry”, “discussing relevant life experience”, “stating future career goals”, and “describing personality”. Genre lexical-grammatical analyses have also considered single disciplines, all the while contributing
to the mapping of academic discourse. Just as an example of the wide literature available, I mention here Badger (2003), who carried out a study focusing on the lexicon, grammar and text structure of newspaper Law reports, a genre that is particularly important for Law students and teachers. The author here first identified important social and cultural factors influencing newspaper reports, and then tried to understand whether these social and cultural factors could be linked to textual factors. The lexico-grammar and text structure of newspaper Law reports were analysed in particular to determine if and how they guided the identification of the ratio decidendi (2003: 251). Gerofski’s (1999) work instead is a discourse and genre analysis of mathematical education texts. The author first establishes that there is a relationship between this type of texts and word problems, parables and riddles and then reveals that there are substantial similarities between the language of initial calculus lectures and the language of the conjurer, the salesperson and even the nurse. Finally, Flowerdew (2000) concentrated on the organizational structure of engineering undergraduate project reports, using Swales’ (1990) genre-based framework. The Problem–Solution pattern was recurrently found in these texts and examples of exercises to expose students to the genre structure and the Problem–Solution pattern were proposed.

2.4 What are academic genres?

The term ‘genre’ is utilized to group texts together depending on how these texts are constructed and where and how they are utilized by writers, depending on the situation (Hyland, 2005, 2006; Martin & Veel, 2005; Swales, 2004;). Each genre has a number of characteristics that are shared by all users of the genre and that make it unique from the point of view of its purpose, its structure and the linguistic elements present (Hyland, 2009a). Persuasion is at the heart of every academic text, may it be a research article, a book review or a poster. Whatever the genre employed, writers tend to draw on the same repertoire of linguistic resources for each genre again and again, because readers also draw