

David Oakey and David R. Russell

21 Beyond single domains: Writing in boundary crossing

Abstract: The chapter explains the role of text production in intellectual, cultural, and social mobility in a digital age. Written communication is becoming increasingly important across the domains, where in order to produce text people must cross boundaries which are encountered neither during habitual practices of text production nor during formal education. The three boundary-crossings the chapter focuses on are (1) crossing professional domains through multi/inter/transdisciplinary text production, primarily in research settings, (2) crossing geographic frontiers through the globalization of education and work, and (3) crossing professional boundaries through personal career transitions due to unexpected changes. (This is in contrast to the studies of “lifelong learning” discussed in Poe and Scott, this volume.) The chapter emphasizes the newness of studies of boundary crossing and discusses the difficulties in formulating such studies, not least because the boundaries themselves are not totally fixed. We then outline the various theories, methods, and ideological orientations that have thus far informed boundary-crossing studies, the challenges that their problems and methods pose to applied linguistics, and some of the research needed.

1 A case of writing across borders

A hopeful immigrant, Ngota, at the border, filling out a form to explain why her documents are credible, her children and all she owns waiting behind her, their future in her trembling hand as it writes. Najib, 42, classed as illiterate, takes his first class at the local government-training institute. James, a professor of chemistry, must collaborate with an economist and a sociologist to compete for a career-making grant for a project to protect the water supply. A scientist in Brazil sends off an article that could mean keeping or losing his post, an article written in a language he never speaks.

These vignettes point to moments in people’s (and peoples’) lives when they must (learn to) produce text in unexpected – even unwanted – ways. All of these involve unexpected “boundary crossings”, moving from one “place” to another, where they must write differently, in ways that have important consequences for themselves and others. This is in contrast to the demands of text production in “lifelong learning” as described in Poe and Scott (this volume), though the lines between the expected and the unexpected are often blurry. Mya Poe and Mary Scott (this volume) discuss “vertical learning” (Daniels et al. 2009), particularly learning over a lifetime, as people move from preschool to school to career. But in this chapter, we discuss “horizontal learning”, particularly the unexpected context crossing that we see when people must

cross disciplines, switch careers, or deal with completely foreign bureaucracies as refugees.

The role of text production in life changes, people in transition in place or time, geographically or in terms of a metaphorical “field”, across time zones globally or across a lifetime – all have been studied in a range of different disciplines. To give an outline, synchronically, or a history, diachronically, is impossible in this space. Nevertheless, we will sketch moments from the main fields that have addressed these issues and at least mention some major historical developments and seminal studies in a few languages. Issues of boundary crossing are not recognized as a specific object of study or indeed a fact of text production within applied linguistics. So we will be ranging widely here and constructing boundary crossing as, in a way, a new category, for we pull together phenomena under this umbrella term that have not been classed together before. Even the most-studied boundary crossing phenomenon in applied linguistics, “interdisciplinary” text production, has been studied relatively little. So in the next part we attempt some definitions and a historical reconstruction of boundary crossing as a construct encompassing phenomena worth studying, even in relation to one another.

2 Definitions and history

There are many ways to cross boundaries, and many terms for the crossing. In general, we use the distinction outlined below: multi-, inter-, and trans- (disciplinary, national, etc.). *Multi-* suggests simply multiple parallel efforts without an attempt to cross boundaries beyond a specific project or function. *Inter-* suggests two or more interacting over an indefinite time. *Trans-* suggests an attempt to fully synthesize efforts, often leading to the construction of a new entity, such as a new discipline, with emergent norms and modes of expression.

Although firm distinctions are impossible to make, it is necessary to make some distinctions to limit the scope of our article. For example, the regular functioning of (including initiation of newcomers into) a regime of text production in an organization or institution (government agency, industry, discipline, profession, etc.) may be disturbed by changing conditions, as boundaries are broken and must be crossed. There may be conflicts, tensions, and contradictions felt by insiders as well as newcomers as they learn to write in new ways, as when there is an influx of immigrants. Similarly, unpredictable boundary crossing in text production may be an enduring feature of an institution, where there are unacknowledged contradictions that produce tensions over time. For example, in US higher education students must write in numerous disciplines as part of “general education”, but the teachers do not typically recognize that their disciplinary expectations for text production are perceived by the students as boundary crossings (McCarthy 1987; Yanez and Russell 2009). We will not,

however, take up the issue of collaborative writing in globalized work environments, as that is taken up in Jakobs and Spinuzzi (this volume) on text production for economic value and Schindler and Wolfe (this volume) on collaborative text production.

Yet the history of literacy – and particularly of text production – has increasingly been over the last century (and overwhelmingly now at the beginning of the 21st century) a history of boundary crossing. As Deborah Brandt points out in her masterful *Literacy in American Lives*, the mass literacy that was achieved in industrialized countries by the start of the 20th century “was principally a reading literacy, while the mass literacy demanded in the twenty-first century is a reading and writing literacy”, where for the first time text production is a ubiquitous requirement for participation, in both economic (see Jakobs and Spinuzzi, this volume) and civic life (Brandt 2001: 196).

However, in the 20th century (much less the 21st) writing, unlike reading, has not been “passed on explicitly from parent to child” as part of socially sanctioned and culturally assumed family roles and routines, as has been the case with reading (e.g. parents reading to the child). It is rather passed on through what Brandt calls “sponsors” of literacy: agents such as institutions other than the family, economic interests, etc., who have some advantage to gain through sponsoring some form of text production and withholding or forbidding or suppressing others. Writing, unlike reading, is thus more often associated “with secrecy, censorship, pain, and opprobrium” (Brandt 2001: 196). Writing, she points out, “was less readily embraced by traditional sponsors of literacy” such as schools, than reading was. And it “was more highly feared by suppressors of literacy”, such as colonial governments (Brandt 2001: 196). This often forced people to produce texts in new and unpredictable contexts, as they came under the aegis or control of some new sponsor of literacy for some new aspect or phase of their lives.

The number of sponsors of literacy proliferated in the 20th century, with the growth of economic specialization (advertising, knowledge work, reading materials as a commodity, etc.). People who cross boundaries “transport their literacy from one context to another or must adapt and amalgamate practices learned in one sphere to meet the new demands of another sphere. Global communications and increased migrations can only intensify this process in the future” (Brandt 2001: 198). This means “schools are no longer the major disseminators of literacy” (Brandt 2001: 198). And we could now include, emphatically, text production. Indeed, text production in the form of texting or Internet text (social media) is not thought of by the producers of it as “writing” at all (Lenhart et al. 2008).

As Brandt concludes, “More people now carry around in their life experiences accumulating strata of contact with multiple writing technologies and genres. Indeed, the twentieth century is a virtual junkyard of recessive and abandoned communication materials; the twenty-first century will be the same” (Brandt 2001: 202). Because text production is now sponsored by more and more agents for more and more purposes in more and more domains, people are called upon to write more and more when they cross boundaries – and more and more differently. Each sponsor of written literacy has

its own regime of text production that it has an interest in furthering – and often an interest in excluding other regimes of text production. As we shall see, these may be disciplines, governments, industries, religions, political movements, and so on. Each wishes to see its ways of writing powerful, even so powerful as to be normalized.

We begin with the most-studied phenomenon of boundary crossing, interdisciplinary cooperation in collaborative scientific research writing.

2.1 Interdisciplinarity: Definitions and distinctions

Collaborating researchers from different academic disciplines face problems when attempting to write about their work. An illustrative example is in the discipline-specific meanings of words which exhibit shifting semantic behavior when used in an interdisciplinary context. During a recent research collaboration on astronomical phenomena known as “brown dwarfs”, an astrophysicist and his collaborator, a high energy physicist, were discussing the “efficiency” of a particular statistical method. Both assumed that the other researcher shared the same understanding of the meaning of “efficiency”, while in fact neither realized that the meaning of “efficiency” to the astrophysicist was the polar opposite of its meaning to the high energy physicist. For the astrophysicist, “efficiency” meant “rejection efficiency”: how many non-useful astronomical sources (stars and galaxies, of which there are many) could be eliminated using their statistical method. For his co-author, the high energy physicist, it instead meant “selection efficiency”: how many useful sources (i.e. brown dwarfs, of which there are very few) could be included using the same method. It took these researchers two days of going round in circles before they realized that this mutual misunderstanding of a seemingly non-technical word was why they were held up writing their paper (Marengo and Sanchez 2009).

When collaborators are writing “away” from their home discipline, either within another traditionally recognized discipline, or one in which all collaborators are on unfamiliar ground, disciplinary discourse norms are in flux; this part of the current chapter accordingly examines the question of interdisciplinarity and interdisciplinary research, reviews research on disciplinary writing, and suggests how the analytical tools already developed in this area could be further applied to the study of interdisciplinary discourse in order to benefit writers of texts which cross disciplinary boundaries.

A tendency towards increasing interdisciplinarity has been a feature of scientific research during the last century, and so text production in many areas of inquiry has become more collaborative. Each generation of researchers has found collaboration between practitioners from different disciplines, thereby crossing traditionally recognized disciplinary boundaries, to be the best way to solve the important real-world problems of the time. For example in the 1970s, the thinking was that “a complex technological society requires interdisciplinary solutions to its problems [...] pollu-

tion, world-wide inflation, energy production and conservation” (Petrie 1976: 9). A pressing concern like the conservation and distribution of water resources was best addressed by “a mix of hydrology, geology, meteorology, biology, engineering [...] law and political science” (Freeman 1972: 94). Three decades on, the *New Biology* report of the National Research Council specified “sustainable food production, ecosystem restoration, optimized biofuel production, and improvement in human health” as examples of 21st century problems (no more global inflation!) to be solved by “closer collaboration with physical, computational, and earth scientists, mathematicians and engineers” (National Research Council 2009: 1).

The barriers to successful interdisciplinary writing of this kind have long been recognized: differences in underlying disciplinary cultures, methodologies, and epistemologies, in addition to obvious (and not so obvious) differences in terminology and word meanings, have all been found to impede progress during collaboration and the subsequent dissemination and writing up of results. The 2007 report of Working Group 2 of the UN Intergovernmental Panel on Climate Change, for example, contained a mistaken claim that “glaciers in the Himalaya are receding faster than in any other part of the world [...] and, if the present rate continues, the likelihood of them disappearing by the year 2035”. It was later reported that this claim relied on mistaken data, and that climate scientists “blamed ‘sloppy’ colleagues from other disciplines” for introducing the mistake (Adam 2010). One climate scientist was quoted as saying the mistake was made “not by climate scientists, but rather the social and biological scientists in Working Group 2 [...]. Clearly that WWF report was an inappropriate source, [since] any glaciologist would have stumbled over that number” (Adam 2010).

In keeping with the long tradition of interdisciplinary work, even as notions of disciplinarity themselves have been evolving (e.g., Becher 1989), there have been numerous attempts to characterize academic and professional interdisciplinarity. These attempts have described the fluid and evolving nature of disciplinary boundaries, the often-conflicting practices of the researchers who must cross these boundaries in their work, and the clashing epistemologies seen in the texts they produce with their collaborators. All these studies of interdisciplinarity recognize that the extent to which research can be said to be interdisciplinary is a matter of degree, and the classifications in the literature all involve the use of the aforementioned prefixes such as *multi-*, *inter-* and *cross-disciplinary*. Collaborative work has been observed to work on a cline of immersion by researchers in the discipline of their collaborators, with the prefix indicating the degree to which collaborators are seen, or come to see themselves, as working outside their own discipline. In Engineering, for example, Petrie (1976) discussed a simple two-part model, in which:

“[...] multidisciplinary projects simply require everyone to do his or her own thing with little or no necessity for any one participant to be aware of any other participant’s work [...]. Interdisciplinary efforts, on the other hand, require more or less integration and even modification of the disciplinary subcontributions while the inquiry is proceeding” (Petrie 1976: 9).

Multidisciplinary work here suggests that collaborating researchers' home disciplines are intact, and that writers maintain their own identities as psychologists, sociologists, or biologists, and so on, whereas *interdisciplinary* work involves the boundary crossing which is the subject of this chapter.

More recent work over the past 20 years (Thompson Klein 1990; Roberts and Good 1993; Thompson Klein 1996; Aboelela et al. 2007; Oakey, Mathias, and Thompson 2011) favors a three-part, goal-driven model of increasing intensity of collaboration where the amount of cooperation depends on the end towards which the *interdisciplinarity* research is the means:

- *Multi-disciplinarity* – specialists from two or more disciplines attach themselves to a common project in order to further their own separate interests. They may be interested in the same question but in different paradigms, or in different but related questions. Collaborators are likely to publish separately within their own disciplines: multiple authors' names will be attached to research articles but little co-authorship will take place.
- *Inter-disciplinarity* – where expertise from more than one discipline is required in order to achieve a common aim. It will involve two or more distinct academic fields and be described in the language of at least two fields, using multiple intersecting models. Text publications will be co-authored and written in language intelligible to all involved fields.
- *Trans-disciplinarity* – where individuals from different disciplines tend to get together because they have common interests. The problem will be stated in new language or theory that is broader than any one discipline, and be tackled using fully synthesized methods which may result in a new field. Text publications will be co-authored and will contain new emergent language not belonging to current disciplines (Aboelela et al. 2007: 340).

These categories represent an ideal, of course. Collaborating researchers need to be aware of epistemological conditions in other disciplines, such as how firmly doubt and uncertainty are attached to propositional statements by writers in other fields, and how to spot the relevant language. It may be that in the case of the Working Group report mentioned above – an example of *interdisciplinary* research where input from different disciplines is required in order to study climate change – an observation might be expressed appropriately for a social scientist but might be misinterpreted by a climate scientist as “sloppy”.

The above outline represents a summary of a small fraction of the theoretical work by *interdisciplinary* practitioners and scholars on *interdisciplinarity*. There have been far fewer studies by applied linguists of *interdisciplinary* rhetoric and the implications of such boundary crossing for text production (Oakey 2012), and this presents an opportunity to develop a research agenda for the study of *interdisciplinary* discourse. Part 3 below presents an overview of the descriptive and analytical

tools available to applied linguists, developed over many years of scholarship in different areas, which could be applied to future exploration of textual production in emerging interdisciplines.

2.2 Globalization: Definitions and distinctions

A tendency towards increasing globalization of text production has been a feature of the modern world. Indeed, multi-lingual, multi-modal texts for cultural boundary crossing have been produced since early in the colonial period. For example, Pratt (1991) tracked the early relation between text production and colonialism with a 1200-page letter by an indigenous Peruvian, Felipe Guaman Poma de Ayala, written in a mixture of Quechua and ungrammatical, expressive Spanish, to King Philip III of Spain in 1613. But recent studies of globalization and its influence on text production have come from a variety of directions.

One direction is what Blommaert (2004, 2008) has called “grassroots literacy”. These studies have illuminated the ways globalization – especially the differences between the economic North and South, as well as between the rural and urban economic South – has produced the need for a very literal boundary-crossing text production. Grassroots literacy, as Blommaert (2008: 7) has defined it, is “a wide variety of non-elite forms of writing [...] performed by people who are not fully inserted into elite economies of information, language, and literacy”.

This research has primarily come out of sociolinguistics, such as ethnography of communication in the tradition of Hymes (2004) and his work with ethnopoetics of native Americans, though much of the work depends primarily or exclusively on texts alone, as with the documents from Belgian authorities collected as part of legal proceedings of police or immigration (Blommaert 2004, 2008).

These non-elite forms of writing are, from one point of view, free of the constraints of elite forms and therefore, within the confines of the local context where they are produced, liberating. But when grassroots writing – and, often, the writers – move beyond the local context, the writing becomes disempowering and, in the hands of elites, often a tool of oppression.

For example, in Belgium persons arrested are required to write their version of events, which becomes part of the testimony the court considers. Immigrants whose grassroots literacy practices involve mixing languages, writing systems, non-elite spellings, and so on, are discounted, ignored, or dismissed as illiterate because they do not produce the conventions of the genre and regime of text production expected. Because of the massive movements of peoples and the massive diversity of regimes of text production, the problem of grassroots literacy in contact with elite literacies threatens to extend and deepen inequalities (Blommaert 2008).

In a globalized world, texts produced in one context flow into another, where they are stripped of their status, their authority, and devalued or dismissed outright.

So it is with the text production skills their writers possess. And this research challenges academics to broaden their concepts not only of text production but also of genres, language, and semiosis.

Another direction in ethnographic accounts of boundary-crossing text production comes from North American rhetoric and composition. The ethnographic turn in rhetoric and composition studies (now usually called writing studies) came in the 1980s in the US, where there was a lively debate on the nature of ethnography of composition in a post-modern world (Cintron 1993). These studies were profoundly influenced by Hymes and more specifically his student Shirley Bryce Heath (1983), who studied single communities closely, often in interaction with other communities. In Heath's study of children in three communities in a North Carolina town, there is relatively little focus on the interaction among the three communities she studied. But in later studies, her own and others, of urban communities, there is a globalizing element. Ralph Cintron's study of Latino gangs' text production of graffiti (Cintron 1997, 2005) in a community outside Chicago, sees text production as an assertion of not only identity but a very rhetorical human value, though the global dimensions are in the background.

John Duffy's *Writing from the Roots* (2007) pushes further in the direction of globalization studies of text production. This study of a Hmong American community in a small US town in Wisconsin combines traditional ethnography of one community with more recent tendencies in ethnography and anthropology to take into account the globalized and globalizing dimensions of communities, who are often scattered around the world. But Duffy also goes further, to trace the history of the Hmong in terms of their language and literacy, emphasizing their writing systems (Hmong was not a written language until recently). Globalizing elements in the "welter of political, economic, religious, military, and migratory upheavals" that make up their history, such as the Hmong's involvement with the CIA during the Vietnam War, figure into the literacy and text production in the community today (Duffy 2007: 4).

It is quite consciously a rhetorical ethnography, in the sense that it "views literacy development as a response to the symbolic activities of institutions, cultures, groups, or individuals" (Duffy 2007: 200) because "rhetorics offer the languages through which human beings come to understand a sense of the world and their place within it. Literacy is a constituent of rhetoric" (Duffy 2007: 200). Thus we see in his account the Hmong of this Wisconsin community acting creatively in their own interests through text production.

A similar pattern of exclusion due to globalization has been studied at the other end of the educational spectrum: "non-Anglophone-center" researchers writing articles for journals in English, particularly those deemed elite by commercial publishers of academic journals, the so-called "impact factor". English as academic lingua franca (EALF) has become dominant, so that "international" scholarship has become almost synonymous with English language publication.

For over 15 years a program of research has highlighted academic literacy in general (particularly second language writing) but also specifically issues of "periph-

ery scholars” and the geopolitics of academic publishing (Canagarajah 2002), such as their lack of material and other non-discursive resources for boundary crossing in text production (Canagarajah 1996).

Lillis and Curry (2010) studied researchers from countries where access to intellectual resources valued by the dominant Anglophone academic centers – and necessary to gain access to them – are difficult to obtain: books, journals, research funds, and so on (their data come from an 8-year study involving 50 researchers in Portugal, Spain, Slovakia, and Hungary). But more important, these researchers do not have access to the human resources necessary for text production in English to meet the expectations of the gatekeepers in the powerful centers. They must therefore rely on a range of “literacy brokers” to gain access: editors, reviewers, colleagues, and friends. Lillis and Curry go further, arguing that gatekeepers in the Anglophone centers exclude challenges to the dominant scholarly paradigms or, through the editorial process, transform findings that challenge into findings that confirm dominant paradigms. And they provide powerful specific examples (though no systematic survey) that this occurs.

This has intended and unintended consequences on knowledge production, both globally and locally, as researchers from non-Anglophone centers reserve their best research for Anglophone journals, leaving the less important research for local, national, or regional journals. And like the grassroots literacy studies, studies of the globalization of academic text production show how elites maintain their leadership and power, in this case as gatekeepers of knowledge globally, and affect the lives of the people involved.

In theory, new technologies of text production might make the task of boundary crossing easier. But recent research suggests that the “digital divide” applies across national boundaries as well, even at the level of scholarly publishing (Pandey 2006; Pandey, Pandey, and Shreshtha 2007).

It is important to note that pedagogical studies of immigrants learning to produce text have been quite frequent and important, in a number of countries, for the past three decades. Many of these have come of various “critical” approaches, such as Critical Discourse Analysis centered in the UK, and Critical Pedagogy originating in the US but profoundly inspired by the work in Brazil of Paulo Friere. Such analysis has unpacked the power relationships at work in perceptions – enforced by policy and at times violence – of what (legitimate or recognized) text production is and is not. Here the boundaries crossed are not only national, but also local – from home to school (e.g., Godley, Carpenter, and Werner 2007). These studies sometimes rely on theories of “grassroots literacy” (Blommaert et al. 2006). Others have theorized out of Vygotsky’s zone of proximal development a “third space” that allows multiple regimes of text production to interact productively (Gutiérrez 2008).

Since the turn of the millennium there has been interest in the globalizing consequences of technology. This area was pioneered by scholars in rhetoric and composition. The research has mainly been in the form of interviews and “literacy narratives” or autobiographical narratives of involvement with text production, drawing on

the work of Brandt. In the collection edited by Hawisher and Selfe, *Global Literacies and the World Wide Web* (2000), the authors critique “the global village myth” and provide dramatic accounts of people working outside the cultural narratives of the US and western Europe. *Literate Lives in the Information Age: Narratives of Literacy from the United States* (Hawisher and Selfe 2003) provides further accounts of the global in the local text production of Americans. (See also Hawisher and Selfe, with Guo and Liu 2006, *Globalization and Agency: Designing and Redesigning the Literacies of Cyberspace*.)

2.3 Lifetime text production: Definitions and distinctions

In the 20th century and, increasingly, the 21st, individuals change jobs and careers throughout their lives. Henry S. Farber, an economist at Princeton University, demonstrated that US workers born later in the 20th century stuck with employers for less time than those born earlier. As he said in a *Wall Street Journal* blog, “The declining job duration and declining probability of long-term employment clearly implies that individuals are changing jobs more” (Bialik 2010). Changes in technology, in immigration patterns, and in women’s participation in work suggest that an increasing number of workers are not only changing jobs but also careers, though problems in defining career change and collecting statistics on it make this difficult to quantify. In contrast to Jakobs and Spinuzzi (this volume), who describe how people develop along a single school-career track, this chapter takes up the issue of changing demands for text production for adults, which are largely unanticipated and where a long period of formal schooling is typically not available.

Unfortunately, there is little research on this issue specifically. Deborah Brandt (2001) again provides a starting point, as her study of adults who in the course of a lifetime make several big “horizontal” leaps from one literacy regime to another. Some studies of adult education (Hull and Schultz 2002) have taken up the problem. And there is some work on adults having to write new genres as part of their work. These will be taken up in the next part.

What happens if somebody has to move from one domain to another? This is a very interesting topic of growing interest. Examples abound, many if not all of them of more or less unexpected or unplanned horizontal leaps.

A first case: In many countries a growing number of adults need more than one job at the same time to survive, e.g., working in a shop for four hours, teaching in the afternoon, ghost writing at night – requiring text production in different domains, with different demands and practices. In most cases workers are not trained to the demands of different workplaces and related writing tasks, but must cross the boundary themselves.

A second case: Often migrants cannot work in their old profession (because of international variations in official qualifications, permissions, etc.). They must learn

to act in a world of different practices, demands, values, and writing tasks (e.g. a university professor is working as a taxi driver). In many cases, migration to another country and to another job domain is not planned, as with refugees.

A third case: In the course of their professional lives, many people change their profession (e.g., because they lost their old job, or because they are not able to handle heavy physical work, or because an entire industry or profession is dying or has become obsolete). They are confronted with new work tasks and related writing tasks and genres. As a participant in a study by Jakobs (2007: 37) put it: “From my profession I am a locksmith, or once was [...] I just undergo a process of adaptation to the administrative matters. The writing has become my profession [...]. As a locksmith you do not learn such things.” To work in a totally different profession and workplace means to cross the border from one domain to another.

3 Contribution of applied linguistics

Five decades of applied linguistic research have provided theoretical perspectives and practical tools that can be applied to research into interdisciplinary text production, and to suggest ways in which to ameliorate the linguistic difficulties contingent on writing that crosses boundaries. Such work is urgently needed: research funding agencies, an important driver of interdisciplinary collaboration, have highlighted the need for more understanding of linguistic issues between collaborators, but in terms which require investigation and elucidation by applied linguists. The 2004 report of the Committee on Science, Engineering, and Public Policy of the US National Academy of Sciences, for example, warned that “without special effort by researchers to learn the languages and cultures of participants in different traditions, the potential interdisciplinary research might not be realized and might have no lasting effect” (Committee on Science, Engineering, and Public Policy 2004: 21) and made specific mention of the area where applied linguistic research could help: “in their written and oral communications, researchers and faculty members can facilitate interdisciplinary research by using language that those in other disciplines are able to understand” (Committee on Science, Engineering, and Public Policy 2004: 81–82).

3.1 Interdisciplinarity and applied linguistics

The vast majority of applied linguistic research already conducted on academic discourse has focused within – or made comparisons between – discrete traditional disciplines. This part of this chapter surveys the much smaller body of applied linguistic work, in corpus linguistics, genre and register analysis, and writer practice, which

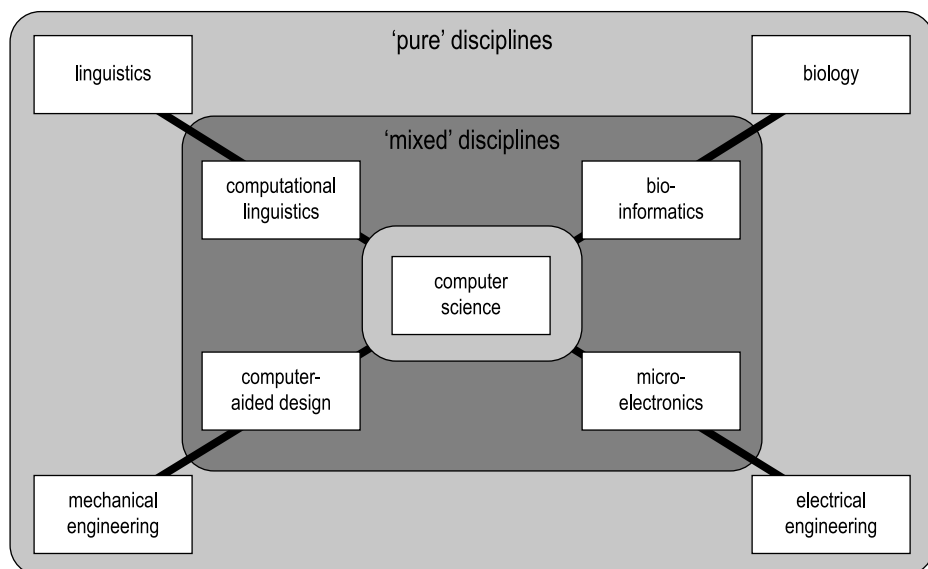


Figure 1: Computer Science and its contributory disciplines (based on Teich and Holtz 2009: 528)

has focused on interdisciplinary texts and text production. It then suggests further avenues for research.

One example of a corpus linguistic approach to the analysis of interdisciplinary discourse is that by Teich and Holtz (2009). They investigate the process by which writers in interdisciplinary research fields create their own linguistic identity and the extent to which they make use of the existing linguistic conventions of the contributory disciplines. the extent to which they make use of the existing linguistic conventions of the contributory disciplines. Teich and Holtz studied the emergence of an interdisciplinary register (in the Hallidayan systemic functional linguistic sense) by comparing language features in texts in the 'mixed' interdisciplinary field of computational linguistics with their use in texts from 'pure' contributory disciplines, e.g. computer science and linguistics (see Figure 1). They examined the process types (realized by verbs) found to occur around the domain-specific noun *algorithm*; differences between the material and mental processes used were large enough to suggest that the use of this word is indicative of a register shift. The results of studies like this are of relevance to interdisciplinary writers, since these observed uses extend the meaning of what an *algorithm* is and in turn what it can do and what can be done to it. Writers in computer science, for example, use *algorithm* in material processes 50% of the time, such as in:

(1) The Min algorithm **produces** the smallest number of misses on every sequence of references.

Writers in computational linguistics, on the other hand, use it more with relational, verbal, and mental processes such as:

(2) The algorithm **assumes** that there are no join-split control flow edges in the program.

This kind of awareness of how a word's semantic and collocational behavior is affected by its disciplinary context is crucial to successful text production in interdisciplinary contexts.

Another corpus linguistic approach is taken by Oakey, Mathias, and Thompson (2011) in a comparative study of the interdisciplinary field of Health and Social Care and its contributory disciplines, Medicine and Social Work. Instead of focusing on the behavior of lexical words like *algorithm*, they look at collocations of closed-class keywords, including prepositions such as *among*, *between*, and *within*. They argue that the words observed to occur near these prepositions can reveal the methodological and epistemological foci of an interdisciplinary field and its contributory disciplines. These can be used to reveal what Petrie (1976) called "cognitive maps": "the basic concepts, modes of inquiry, problem definition, observational categories, representation techniques, standards of proof, types of explanation, and general ideals of what constitutes a discipline" (Petrie 1976: 11). Unless interdisciplinary participants are aware of their collaborators' cognitive maps, "at least some of the discussion will be necessarily misunderstood for it will be processed in terms of the participant's own map which may not be the same as that of the person who offered the comment in the first place" (Petrie 1976: 11). So for writers of interdisciplinary texts, developing an understanding of the cognitive maps of disciplines from which their collaborators are drawn is one of the hallmarks of interdisciplinary experience; true interdisciplinary experience leads to significant cognitive and ethical change (Clark 1993).

Oakey et al.'s attempt to visualize such cognitive maps for interdisciplinary collaborators can be seen in Figure 2. This shows word cloud images known as "wordles" (Fineberg 2009) of the left and right-hand collocational environments of the closed-class keyword *within*. The font size of the words in the images is proportional to the frequency with which they collocate with *within*. The left-hand environments of *within* in Medicine and Social Work highlight participants such as *patients*, *children*, and *people*, and also underlying concepts such as *clustering*, *treatment*, *care* and *support*, whereas in Health and Social Care methods of knowledge building such as *working* and *learning* are also prominent. The most striking differences between Medicine and Social Work are for the right-hand collocational environments of *within*, for which there is almost no overlap. In Medicine measures of time are prominent: *years*, *months*, *hours*, *days*, and *weeks*, whereas in Social Work more concrete locations occur, such as *family*, *context*, *framework*, *system*, and *agencies*. In Health and Social Care locations are also frequent such as *team*, *community*, *context* and *group*.

Oakey et al. (2011) argue that these wordles are effective in highlighting differences between the three disciplines which need to be made apparent to collaborating writers in these fields. Health and Social Care is preoccupied with describing, reporting and drawing lessons about the nature of interdisciplinary work, making the actual focus of the interventions (mental health, treatment and recovery from a physi-

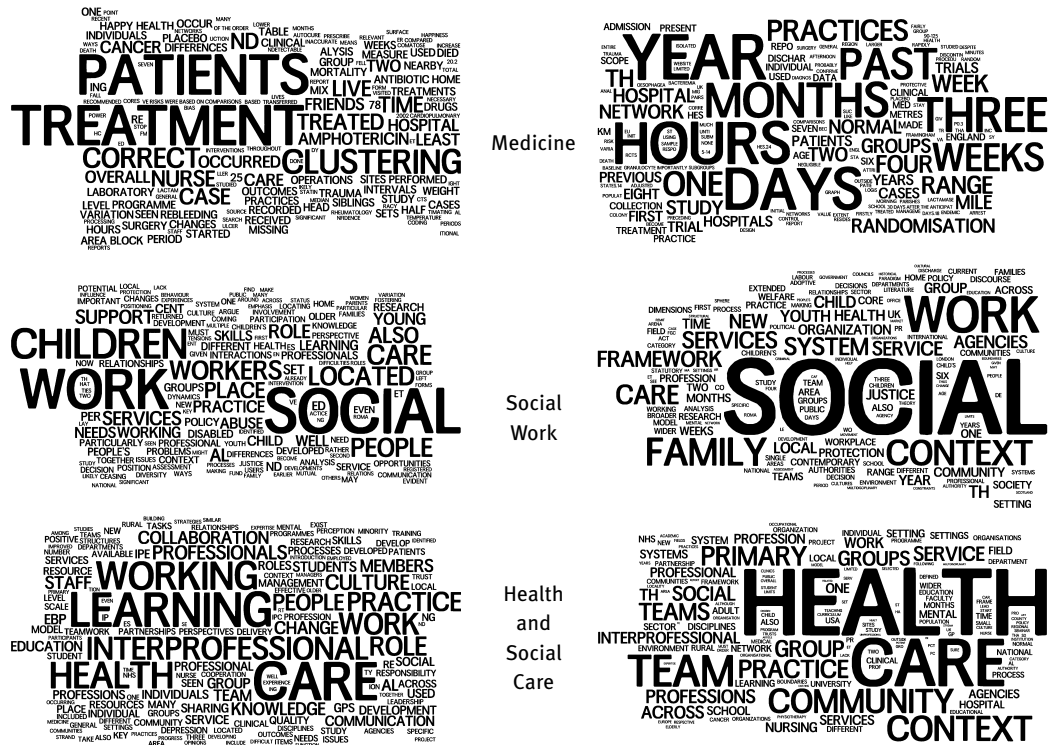


Figure 2: Wordles of the left- and right-hand collocational environments of *within* in the Health and Social Care Corpus (Oakey, Mathias, and Thompson 2011)

cal illness or trauma) seemingly secondary. Social Work and Medicine are concerned with intervention and practice, and the word clouds in Figure 2 indicate the overlaps and difference of clinical focus: people, patients, groups, and so on in Medicine, and the attention to roles in Social Work. These wordles begin to show writers where the main emphases of the disciplines of their collaborators may lie, and are thus useful tools for collaborating writers to learn what lies across their disciplinary boundaries before they attempt the crossing.

Corpus linguistic work, therefore, when applied to interdisciplinary texts, is likely to reveal much about the relationship between knowledge, meaning, and language in the interdiscipline by comparing textual features in interdisciplinary texts with texts from the disciplines from which collaborating writers are drawn. Its focus on completed texts, however, means that the factors involved in their production can only be inferred. Other applied linguistic research approaches can provide complementary insights into the writing process in interdisciplinary contexts, most notably Genre Analysis (Swales 1990; Bhatia 1993), also termed Academic Discourse Analysis (Flowerdew 2002).

The many insights into text production from genre analysis, based as they are on studies of existing genres, require revisiting in the case of interdisciplinary text production. Writers produce texts for particular purposes, and if the writer of a text belongs to a discourse community whose members also produce texts with similar communicative goals, then these texts constitute a genre. According to Swales (1990), the rationale behind a particular genre is determined by the expert members of the parent discourse community, who set the “constraints on allowable contributions in terms of their content, positioning and form” (Swales 1990: 52). A writer wishing to produce a text acceptable to the experts in the parent discourse community must therefore pay attention to content, organization and form in order to ensure his or her text is an allowable contribution. Writers who aim to join this discourse community and need to be able to produce these genres need to learn how to produce these genres.

Texts in interdisciplinary and transdisciplinary fields, however, as we argue in Part 2.1 above, are part of emergent discourses that lack discourse communities, expected rhetorical practices, and agreed barriers to entry. If there is no existing discourse community, a writer must reach out across the boundaries and adopt strategies likely to be acceptable to audiences in other disciplines. Journet (1993) terms this type of writing “boundary rhetoric”, one which “tries to transcend or at least accommodate the rhetorics of the various disciplines involved” (Journet 1993: 510). An example of this is Jellife’s early 20th century work in psychosomatic medicine. This crossed the boundaries between neurology, the discourse of which is characterized by a “quantitative analysis and logical exposition that presents neurology’s objective and general truth” (Journet 1993: 518) and psychoanalysis, the discourse of which employs a “qualitative subjective narrative that constructs the unique and individual case of psychoanalysis” (Journet 1993: 518). Jellife’s solution to this problem of clashing discourses during boundary-crossing text production was to swap discourses around in order to make his arguments more accessible to the relevant audiences. He “applied the narrative strategies characteristic of psychoanalysis to neurology, and the quantitative analysis, empirical observation, and exposition typical of neurology to psychoanalysis” (Journet 1993: 522). In terms of our three part model of boundary crossing, this would be an example of multidisciplinary text production, since, while Jellife crossed disciplinary boundaries, he had to write towards the expectations of an audience who were still firmly based in their home disciplines.

Other work on interdisciplinary text production has focused on how novice writers approach the need to write in interdisciplinary contexts. Samraj (1995) and Samraj and Swales (2000) conducted a genre analysis of writing by graduate students in a course in Environmental Studies. This could be seen as a more interdisciplinary writing endeavor since, at the time these studies were conducted, few researchers had Environmental Studies as a home discipline. Analysis of the grammatical Subjects of sentences in papers from three courses – Wildlife Behavior, Conservation Biology, and Resource Policy – revealed differing foci of the contributing disciplines. In Wildlife Behavior the negotiation of knowledge construction in the field was dominant,

while Resource Policy writing was concerned with the phenomenal world and with particular entities in it. Conservation Biology focused on both the phenomenal world and epistemic aspects of studying the environment (Samraj 1995; Samraj and Swales 2000).

The other strand of applied linguistic research with relevance to interdisciplinary text production is that on writer practice. When becoming a member of a disciplinary discourse community a writer takes on the identity of a member and learns its discourses (Ivanič 1998) but in interdisciplinary work the underlying disciplinary discourses, as we have seen in the case of Jelliffe crossing between neurology and psychoanalysis, are often contradictory. Where, in crossing the boundaries from one discipline to another in multidisciplinary work, or beyond recognized disciplines altogether in inter- and transdisciplinary work, does a writer see him or herself? Applied linguistic work has been conducted on how students cope with these challenges: Baynham (2000: 17) discusses how a student of Nursing may in different classes on the same course have to learn to write like a sociologist, philosopher, scientist, and reflective practitioner. Petric (2006) uses an ethnographic approach to exploring the identities of student writers to identify five patterns of disciplinary affiliation among students writing in the interdisciplinary field of Gender Studies:

1. Affiliation with the primary discipline and acceptance of the interdiscipline
2. Affiliation with the primary discipline and rejection of the interdiscipline
3. Affiliation with the interdiscipline
4. Integrative affiliation
5. Ambivalent relationship to the interdiscipline (Petric 2006: 122)

Instructive parallels can be drawn between this cline of writer identification and the three-part model of boundary crossing we discuss.

3.2 Globalization and Applied Linguistics

As we noted above, the work on globalization has come primarily out of linguistic anthropology, ethnography of communication, and allied areas that use observation and interview methods – not specifically out of those areas of applied linguistics where text analysis is the primary or exclusive method (though “maps” of the field differ greatly – see Hall, Smith, and Wicaksono 2011). In these traditions, the emphasis is on the local, situated, contextualized aspects of text production. And the formation and influence of the “New Literacy Studies” (NLS) or New London Group (1996) in 1993 made “multi-literacies” – and boundary crossings necessary to negotiate multiple literacies – an object of study. The group specifically had as a rationale for its focus proliferating forms of text production in the information society and multi-media revolution.

As Beverly Moss (2009) points out, critics of NLS noted a tension between the emphasis of ethnographic work on local, situated practices and the need for globalization studies to go beyond the local, the situated, to analyze boundary crossings.

In a provocative and much-cited article, “Limits of the local: Expanding perspectives on literacy as a social practice”, Brandt and Clinton argue that:

As indispensable as the social-practice perspective has been to our own research and teaching, however, we wonder if the new paradigm sometimes veers too far in a reactive direction, exaggerating the power of local contexts to set or reveal the forms and meaning that literacy takes. Literate practices are not typically invented by their practitioners. (Brandt and Clinton 2002: 338)

Although we must always study local literacies, we can ask what is localizing and what is globalizing in what is going on. We can better acknowledge how extensively literacy is involved in globalizing enterprises. What appears to be a local event also can be understood as a far-flung tendril in a much more elaborate vine. The perspective we are advocating would allow us to acknowledge the heavy hand literacy has had in building networks across time and space – in de-localizing and re-framing social life – and in providing the centralizing powers by which larger and larger chunks of the social world are organized and connected. (Brandt and Clinton 2002: 347)

The aspects of text production that are, in their term, “trans-contextual” are particularly important in understanding text production in global dimensions. As the neologism *glocal* suggests, in contemporary text production, at some level the global is in the local. NLS, as Blommaert (2008) as well as Collins and Blot (2003) argue, must not romanticize the local or ignore the global, points which some leading members of the NLS grant (Street 2003).

Recently, Lillis (2008) has proposed that the field of applied linguistics has taken context too little into account, and called for “Ethnography as method, methodology, and ‘deep theorizing’” in order to begin – as her subtitle says – “closing the gap between text and context in academic writing research” and by extension language for special purposes in general. The last five years have seen a growth in interest in applied linguistics research in professional practice, with two international conferences, as well as interest in what is called “integrated content and language” teaching, which again takes into account the disciplinary context(s) of the research (two recent international conferences) (Gustafsson 2011). This suggests an interest in boundary crossing within applied linguistics that may provide a richness yet unseen, as well as considerable controversy.

This chapter is limited to those boundary crossings that are not part of the routine work, normal educational paths, or normal life course. They are instances where writers produce texts in a context/genre that they may never – did not plan to – may not wish to – encounter again. But it nevertheless poses some fundamental challenges to applied linguistics as a field and as an enterprise.

First, boundary crossing text production points dramatically to the fact that texts have no function apart from that given them through their reception. They have no

meaning except through their uptake in systems or networks of human activity in which those texts circulate and are read and acted on. Studies of boundary crossing show that texts may be produced that are failures, complete and utter failures, in the sense that they have no meaning, no value, in some network of activity, some social formation, even where the intent of the writers is manifestly – even dramatically – to make meaning, to have an effect (Blommaert 2004).

Written texts, unlike many other modes of communication, may travel across time and space. They may cross thousands of miles and hundreds of years. But texts may not travel well, or at all, across boundaries of time and space, or across the social boundaries that separate people. They may lose their sense, their meaning, and their value or prestige. Texts are, as Bakhtin described them, dialogical. As Blommaert puts it, “like a second-hand car, a chunk of discourse is worth precisely as much as other people are willing to give for it” (Blommaert 2004: 659).

Second, studies of boundary crossing are highly dependent on an understanding of context. The focus of the studies of boundary crossing is to see how functions change across boundaries, across contexts. It is therefore necessary to have a theory of context or practice, whether that is conscious or unconscious. It is also generally necessary to have methods of understanding context that go beyond texts per se, or which at least bring into the analysis a range of texts that show the circulation, uptake, and reconstruction of texts involved. Meaning that is regularized in some local context is specifically disrupted in these studies.

Regimes of text production (and with them circulation and reception) are immensely varied, and boundary crossing is inevitably a process of recontextualizing, reinterpreting the “original” text produced. The value of texts is generally local. This belies the seeming transversality and portability of texts. What one group values another devalues or ignores. Thus, it is necessary to use ethnographic methods or at the least observational methods so as to avoid attributing some meaning or value to texts that those who are “across the boundary” do not share.

As a consequence, applied linguistics rapidly comes to confront issues in sociolinguistics or ethnography of communication. As Hymes put it, the question becomes, “what is the particular place of writing in the sociolinguistic repertoire of people?” (Hymes 1996: 36). (See also Lillis 2008 on the need for ethnographic approaches in applied linguistic study of academic writing.)

Third, the boundary crossing studies call into question the very notion of text. They point to the social fact that very different sorts of marks on surfaces count as writing in different contexts, different cultures, and different regimes of text production. As we noted earlier, when students produce text on their cell phones it does not count for them as writing. When the Belgian authorities were given the elaborate multi-modal texts written by African immigrants accused of crimes, the texts were not treated as writing.

Fourth and finally, it challenges what Blommaert has called “the general association of writing with opportunity and freedom” (Blommaert 2004: 659). Text produc-

tion is often seen as a status marker, but that depends on a local hierarchy of value for the particular regime of text production that is given status. There are existing in each context where text is viewed as a key to opportunity or freedom or voice and meaning, other regimes of text production that are markers of the opposite, of error or exclusion, of the “other” across the boundary. As Brandt put it, “Although rising literacy standards and new communication technologies potentially can expand the civil rights of all citizens, they just as easily can (and do) damage them” (Brandt 2001: 206).

Much earlier work (and much today) in the text production dimensions of “literacy” have subscribed to what Graff termed “the literacy myth” (Graff and Duffy 2008), the belief articulated by powerful institutions that literacy will inevitably lead to economic development, cognitive development, democracy, and/or social mobility. And the new work on globalization challenges these notions as myth even more “globally”.

3.3 Lifespan studies and Applied Linguistics

Applied Linguistics as a discipline does not yet have a term for such boundary crossing in lifespan studies. The term Language for Specific Purposes (LSP) describes a broad-based effort to understand texts produced for specialized contexts, where some boundary crossing to successfully produce texts in a new domain is necessary. LSP is mainly at the service of language teaching in second or foreign language learning settings in higher education. Although there have been important studies of non-academic texts (e.g. English for hotel maids, brewers, air traffic controllers), the great majority of studies have been of what is called Language for Academic Purposes (LAP) and the great majority of these on English for Academic Purposes (EAP). As we just discussed, studies of multi-, inter-, and trans-disciplinary text production have been done, as have studies of multi-, inter-, and trans-national text production. But despite the existence of writing in non-academic settings in LSP, there have been almost no studies, that we know of, looking at people who change careers or roles within an organization that come from LSP or, indeed applied linguistics more generally. As common as it is for people to change jobs or job duties or careers in such a way that it requires them to produce texts in different ways, this is surprising.

Brandt (2001) provides an important starting point in her case studies based on interviews with people who recall moving horizontally – often unexpectedly – from one “sponsor” of literacy to another. “What happens,” she asks, “when literacy itself is capitalized as a productive force? And what impact does such investment have on the course of individual literacy learning?” (Brandt 2001: 171).

Literacy, she continues “is the energy supply for the Information Economy”, and the production of texts, to continue, is therefore an economic resource. This is important to boundary crossing in text production because “systems of unequal subsidy and unequal compensation” (Brandt 2001: 181) are at play across various sites of text

production, which allow some boundaries to be crossed much more easily – or with much greater difficulty – than others. She illustrates with two case studies of workers in their late 20s who are each learning a new regime of text production outside formal schooling. One is an entrepreneurial programmer who “taught himself” to write programming languages, through informal user groups (supported indirectly by the computer industry), through a college short course, through access to computers (his family bought him one) and those who program them in the university town where he lives.

The other is the daughter of Mexican immigrants working as a maid in the same university town, who “taught herself” to write Spanish, which she and her immediate family speak but do not write. Her family bought her children’s books in Spanish, but the high school course she took was not at all geared to her needs (indeed, she experienced prejudice in taking it), and there were very few human or textual resources in the community. The young programmer’s new text production competence was highly rewarded, with prestige and money. The young maid’s new text production allowed her to become a low-status manager in a low-wage immigrant service industry, translating instructions for the other maids. Brandt concludes, “If these case studies are a guide, such congruity and, more troubling, such incongruity, can extend far beyond the school-home relationship. We must look to broader histories of economic relations to understand the contexts in which efforts at literacy learning are conducted”, to the “foundries of literacy production” in a culture (Brandt 2001: 186). We would add that the foundries of text production more specifically must be analyzed in order to make policies and design interventions that support more democratic text production across boundaries.

As Brandt’s (2001) conclusion suggests, most studies of changes have come in relation to formal schooling for adults, or to less formal adult literacy programs. These are focused on school-family relationships and provide interesting results, particularly in regard to reading. Fewer look at the transition from one career or function to another and almost none look at text production. One is a three-year longitudinal study in two UK further education colleges (similar to US community colleges) conducted by Ivanic, Edwards, and Barton (2009) in curricula such as childcare, catering, travel and tourism.

Many of the students had worked or were currently working in the sector they were studying (common in these types of institutions) and all the students got extensive practical experiences as part of their curriculum (test kitchens, laboratory crèches, etc.). The researchers found that students had extensive and often very demanding literacy tasks in their everyday or work lives outside higher education. “Students engaged not only in vernacular literacy practices – that is, those which arise from their own interests and concerns – but also in a wide range of bureaucratic, more formal literacy practices which are demanded by the practicalities of their lives” (Ivanic, Edwards, and Barton 2009: 180). Yet teachers and students rarely perceived these “outside” literacy practices as valuable.

What has become clear in our projects is that communication, which encompasses literacy practices, is an important part of the hidden curriculum in colleges. Yet all too often the communicative aspects of learning remain unacknowledged, literacies are treated as 'belonging' in college or out of college, and students' everyday literacy practices remain untapped as resources for learning. As long as these tendencies continue, literacy in colleges and in other educational institutions will remain a constant 'problem'. (Ivanic, Edwards, and Barton 2009: 190)

Ironically, students in vocational curricula were expected to produce a greater diversity of – and often linguistically more demanding – genres than students in academic courses where they wrote only one (the academic essay). For example, students in child-care wrote pamphlets for parents; in catering students wrote menu prose and business plans, as well as academic essays. And vocational students experienced a contradiction in purposes and often great difficulty writing, arising from this ambiguity in the curriculum.

The researchers concluded that college staff needed to become aware of the literacies which mediate learning (Ivanic, Edwards, and Barton 2009: 183). Based on the descriptive research, the teachers made changes in their practice to develop hybrid academic/workplace genres that engaged with students' everyday literacy practices. These "tended to increase their capacity for engagement and recall, and their confidence" (Ivanic, Edwards, and Barton 2009: 186). For the researchers, "It is diversification and multiplication of literacy practices which is the issue and not the lack of them. If one seeks to impose a standardised view of literacy, then diversity and multiplicity will inevitably be problematic, but they could be a source of strength" (Ivanic, Edwards, and Barton 2009: 181).

Yet another set of boundaries that text production crosses exist within workplaces themselves. What happens when experienced writers in the workplace encounter a new genre, or an entirely new regime of text production? This is a question Smart (2000) takes up in a case study of central bank analysts forced to write in a more popular genre (a magazine for the public explaining the bank's decisions) than the highly specialized technical analysis they are used to writing (in-house reports). From the analysts' difficulties in writing the new genre, Smart concludes that "writing expertise is not easily transferable from one domain of discourse to another, even by highly skilled professionals working within a single occupational setting." It means learning to play a role in an "unfamiliar socio-rhetorical 'game' (to use Wittgenstein's term) and requires development on many levels, which can come from experience alone" (Smart 2000: 245). Similarly, Paré's (2002) study of Inuit social workers working in the rural north of Quebec illustrates the difficulties and ideological struggles that may accompany text production crossing boundaries. The Inuit social workers struggled with and often resisted writing reports in the "impersonal, detached persona of professional life" from (and for) the urban south – and thus becoming representatives of the welfare state and in the "role of professional representatives of the colonial power" (Paré 2002: 63).

Recent changes in workplaces make text production a matter of boundary crossing in new ways, and in ways that have only recently been noticed and studied by researchers. For example, “co-working” is a form of “multi-”participant activity in which people choose to work together in the same location but for different organizations or clients. At co-working sites, professionals come together to work for social or networking reasons. Text production may be affected or even structured by these work arrangements where there is little or no “inter-”action toward a shared work task, as participants in a co-working site share their expertise and feedback on common genres such as contracts, invoices, and advertising (Spinuzzi 2012).

In a much wider sense, a new regime of text production called component content management (CCM) is transforming the ways text is produced. CCM goes beyond a technology of word processing. With CCM, short bits of text are produced under rigid protocols by people in various parts of an organization or multiple organizations, then stored in a database, and finally multi-purposed to produce (again through computerized means) multiple genres that perform various functions in and beyond the organization. For example, a sentence describing a feature of a product might be combined with other sentences from a database to produce several genres more or less automatically, as need arises: a catalog page, a product bulletin, a technical bulletin, or a user’s guide. The “writing” processes and the attendant coordinations and breakdowns are explored in Andersen’s (2011) case study of an organization transitioning to CCM. With this technology of writing, every act of text production is potentially a boundary crossing, in ways that the producer of the text may not even be able to imagine.

4 Needed research

The issues outlined in this chapter offer a number of avenues for further research by applied linguists, given that much previous work on interdisciplinary text production, as mentioned above, has been by scholars for whom linguistic issues are not the primary focus. Firstly, the terms *discipline* and *field* require clarification, since, even within a particular discipline such as Materials Science or Nursing, writers often identify themselves as already working in an interdisciplinary context. Embedded ethnographic studies of large-scale academic research collaborations will produce clearer descriptions of disciplines and the boundaries between them, together with a better understanding of how new fields emerge on the continuum from multi-, to inter- and transdisciplinary collaboration.

Second, provided that clear criteria for the collection of multi-, inter- and transdisciplinary corpora could be established from this ethnographic work, a corpus linguistic approach will lead to the identification of linguistic features from interdisciplinary text corpora. Genre and register-based discourse analyses, together with descriptions of differences and similarities in grammar and lexis, would allow investigation of the

extent to which the characteristic linguistic features of home disciplines cross over into multidisciplinary discourse – which features “survive the trip” and which do not. What do writers bring with them to interdisciplinary texts, and how are these affected by the crossing? And what new features can be seen to emerge during the process of transdisciplinary textual production?

Finally, the pedagogic implications of increasing interdisciplinary research need to be considered. What would an interdisciplinary academic writing course curriculum need to contain? How would co-authorship skills be addressed on English for Specific Purposes courses for non-native speakers?

As the work of Graff (1991), Brandt (2001), Hull and Schutz (2002) and many others have shown, there are many ways to develop literacy outside formal schooling, even though text production is associated with schooling more than reading has been. This suggests a bright future for research on adult learners. The work by Ivanic, Edwards, and Barton (2009) on further education provides a useful combination of studies of home, work, and schooling, as well as the writing regimes of all these. And the global aspects of such education deserve even more work.

“Sponsors”, “brokering”, “value”, “capital”, and other economic metaphors have been used in much theorizing and empirical research on text production in global environments, and the connections between the literal uses of text production for economic value (Poe and Scott, this volume) and the metaphorical deserve discussion, especially in light of the work on globalization of technical communication.

Further, the work on boundary-crossing text production highlights the relationships between economic value, regimes of literacy, and basic human rights. As Brandt puts it, “Just as economic change introduced instability into the potential worth and reach of literacy, literacy introduced instability into the potential worth and reach of basic rights” (2001: 206). New technologies of text production and circulation amplify the voices of some, and silence others. Lack of access to writing technologies poses fundamental challenges to free speech rights. She continues, “How might ‘literacy standards’ be expanded to address not just individual performers but all the forces and agents that sponsor (and profit from) literacy?” (Brandt 2001: 206). Blommaert (2008), Street (2003), and others have articulated a similar agenda for research into the ideological dimensions of literacy, and now, particularly, text production.

Finally, there is clearly great room for applied linguistic studies of lifespan text production, to bring the insights of the field to problems that have heretofore been discussed only in rhetoric and professional communication. Because of the nature of the phenomenon, it will require some longitudinal and ethnographic or case study methods, in conjunction with linguistic analysis. But this is a methodological challenge that applied linguistics is increasingly able and willing to take on, in order to provide answers to these important problems of text production in boundary crossing.

References

- Aboelela, Sally W., Elaine Larson, Suzanne Bakken, Olveen Carrasquillo, Allan Formicola, Sherry A. Glied, Janet Haas and Kristine M. Gebbie. 2007. Defining interdisciplinary research: Conclusions from a critical review of the literature. *Health Services Research* 42(1): 329–346.
- Adam, David. 2010. Climate scientists hit out at “sloppy” melting glaciers error. *The Guardian*.
- Andersen, Rebekka. 2011. Component content management: Shaping the discourse through innovation diffusion research and reciprocity. *Technical Communication Quarterly* 20(4): 384–411.
- Baynham, Michael. 2000. Academic writing in new and emergent discipline areas. In: Mary R. Lea and Barry Stierer (eds.), *Student Writing in Higher Education: New Contexts*, 17–31. Buckingham: SRHE and Open University Press.
- Becher, Tony. 1989. *Academic Tribes and Territories*. Milton Keynes: The Society for Research into Higher Education and Open University Press.
- Bhatia, Veejay K. 1993. *Analysing Genre: Language in Use in Professional Settings*. London: Longman.
- Blommaert, Jan. 2004. Writing as a problem: African grassroots writing, economies of literacy, and globalization. *Language in Society* 33(05): 643–671.
- Blommaert, Jan. 2008. *Grassroots Literacy: Writing, Identity and Voice in Central Africa*, (Volume 7). Abingdon: Taylor & Francis.
- Blommaert, Jan, Nathalie Muyllaert, Marieke Huysmans and Charlyn Dyers. 2006. Peripheral normativity: Literacy and the production of locality in a South African township school. *Linguistics and Education* 16(4): 378–403.
- Brandt, Deborah. 2001. *Literacy in American Lives*. Cambridge/New York: Cambridge University Press.
- Brandt, Deborah and Katie Clinton. 2002. Limits of the local: Expanding perspectives on literacy as a social practice. *Journal of Literacy Research* 34(3): 337–356.
- Canagarajah, A. Suresh. 1996. “Nondiscursive” requirements in academic publishing, material resources of periphery scholars, and the politics of knowledge production. *Written communication* 13(4): 435–472.
- Canagarajah, A. Suresh. 2002. *A Geopolitics of Academic Writing*. Pittsburgh: University of Pittsburgh Press.
- Cintron, Ralph. 1993. Wearing a pith helmet at a sly angle: or, can writing researchers do ethnography in a postmodern era? *Written Communication* 10(3): 371–412.
- Cintron, Ralph. 1997. *Angels’ Town*. Boston: Beacon Press.
- Cintron, Ralph. 2005. *Gangs and their walls. Youthscapes: The Popular, the National, the Global*. Philadelphia, P.A.: University of Pennsylvania Press.
- Clark, Phillip G. 1993. A typology of interdisciplinary education in gerontology and geriatrics: Are we really doing what we say we are? *Journal of Interprofessional Care* 7(3): 217–228.
- Collins, James and Richard K. Blot. 2003. *Literacy and Literacies: Texts, Power, and Identity*. New York: Cambridge University Press.
- Committee on Science, Engineering, and Public Policy. 2004. *Facilitating Interdisciplinary Research*. Washington, DC: National Academy of Sciences, National Academy of Engineering, Institute of Medicine.
- Daniels, Harvey, Anne Edwards, Yrjo Engeström, Tony Gallagher and Sten R. Ludvigsen. 2009. *Activity Theory in Practice: Promoting Learning Across Boundaries and Agencies*. London: Routledge.
- Duffy, John. 2007. *Writing from these Roots: The Historical Development of Literacy in a Hmong-American Community*. Honolulu: University of Hawaii Press.

- Fineberg, Jonathan. 2009. *Wordles: Beautiful Word Clouds*, www.wordle.net, last accessed on 25.04.2013.
- Flowerdew, John. 2002. Introduction: Approaches to the analysis of academic discourse in English. In: J. Flowerdew (ed.), *Academic Discourse*, 21–39. Harlow: Longman.
- Freeman, Monroe E. 1972. Multidisciplinary information sources. *Journal of Chemical Documentation* 12(2): 94–96.
- Godley, Amanda J., Brian D. Carpenter and Cynthia A. Werner. 2007. “I’ll speak in proper slang”: Language ideologies in a daily editing activity. *Reading Research Quarterly* 42(1): 100–131.
- Graff, Harvey. 1991. *The Literacy Myth: Literacy and Social Structure in the Nineteenth Century City*. New Brunswick, NJ: Transaction Press.
- Graff, Harvey and John Duffy. 2008. Literacy myths. In: Patricia A. Duff and Nancy H. Hornberger (eds.), *Encyclopedia of Language and Education*, 2nd edition, 43–52. London: Springer US.
- Gustafsson, Magnus (ed.). 2011. Collaborating for content and language integrated learning. [Special Issue]. *Across the Disciplines* 8(3).
- Gutiérrez, Kris D. 2008. Developing a sociocritical literacy in the third space. *Reading Research Quarterly* 43(2): 148–164.
- Hall, Christopher J., Patrick H. Smith and Rachel Wicaksono. 2011. *Mapping Applied Linguistics: A Guide for Students and Practitioners*. Abingdon: Taylor & Francis.
- Hawisher, Gail and Cynthia Selfe (eds.). 2003. *Global Literacies and the World Web*. New York: Routledge.
- Hawisher, Gail and Cynthia Selfe (eds.). 2003. *Literate Lives in the Information Age: Narratives of Literacy from the United States*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Hawisher, Gail E., Cynthia L. Selfe, Yi-Huey Guo and Lu Liu. 2006. Globalization and agency: Designing and redesigning the literacies of cyberspace. *College English* 68(6): 619–636.
- Heath, Shirley Bryce. 1983. *Ways with Words: Language, Life, and Work in Communities and Classrooms*. New York: Cambridge University Press.
- Hull, Glynda and Katherine Schultz (eds.). 2002. *School’s Out: Bridging Out-of-School Literacies with Classroom Practices*. New York: Teacher’s College Press.
- Hymes, Dell H. 1996. *Ethnography, linguistics, narrative inequality: Toward an understanding of voice*. London: Taylor & Francis.
- Hymes, Dell. 2004. *“In vain I tried to tell you”: Essays in Native American Ethnopoetics*. Lincoln, Nebraska: University of Nebraska Press.
- Ivanič, Roz. 1998. *Writing and Identity. The Discursive Construction of Identity in Academic Writing*. Amsterdam: John Benjamins.
- Ivanič, Roz, Richard Edwards and David Barton. 2009. *Improving Learning in College: Rethinking Literacies Across the Curriculum*. New York: Taylor & Francis.
- Jakobs, Eva-Maria. 2007. “Das lernt man im Beruf...”. Schreibkompetenz für den Arbeitsplatz. In: Erika Werlen and Fabienne Tissot (eds.), *Sprachvermittlung in einem mehrsprachigen kommunikationsorientierten Umfeld*, 27–42. Hohengehren: Schneider Verlag.
- Journet, Deborah. 1993. Interdisciplinary discourse and “boundary rhetoric”: The case of S. E. Jelliffe. *Written Communication* 10: 510–541.
- Lenhart, Amanda, Sousan Arafeh, Aaron Smith and Alexandra Rankin Macgill. 2008. *Writing, Technology and Teens*. Washington DC: Pew Internet & American Life Project Washington.
- Lillis, Theresa. 2008. Ethnography as method, methodology, and “deep theorizing” closing the gap between text and context in academic writing research. *Written Communication* 25(3): 353–388.
- Lillis, Theresa M. and Mary Jane Curry. 2010. *Academic Writing in a Global Context: The Politics and Practices of Publishing in English*. Milton Park, Abingdon/New York: Routledge.

- Marengo, Massimo and Mayley C. Sanchez. 2009. Ak-NN method to classify rare astronomical sources: Photometric search of brown dwarfs with *Spitzer*/IRAC. *The Astronomical Journal* 138: 63–75.
- McCarthy, Lucille P. 1987. A stranger in strange lands: A college student writing across the curriculum. *Research in the Teaching of English* 21(3): 233–265.
- Moss, Beverly. 2009. Writing in the wider community. In: R. Beard, D. Myhill, Martin Nystrand and J. Riley (eds.), *The SAGE Handbook of Writing Development*, 561–574. London: SAGE Publications.
- National Research Council. 2009. *A New Biology for the 21st Century: Ensuring the United States Leads the Coming Biology Revolution*. Washington, DC: National Academies Press.
- New London Group. 1996. A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review* 66(1): 60–92.
- Oakey, David J. 2012. *Colloquium on Approaches to the Discourse of Interdisciplinary Research – An Introduction*. Paper presented at the 2012 Conference of the American Association for Applied Linguistics (AAAL), Boston, MA, 26 March 2012.
- Oakey, David J., Peter Mathias and Tony Thompson. 2011. *Improving Inter-Professional Communication in Health and Social Care: Levels and Types of Cooperation, Corpus Linguistics and Professional Practice*. Paper presented at the First Interdisciplinary Conference on Applied Linguistics and Professional Practice, Health Communication Research Centre, in association with Centre for Language and Communication Research, University of Cardiff, Wales, 23 June 2011.
- Pandey, I. P. 2006. Literate lives across the digital divide. *Computers and Composition* 23(2): 246–257.
- Pandey, Iswari P., Laxman Pandey and Angish Shreshtha. 2007. *Transcultural Literacies of Gaming*. New York: Palgrave Macmillan.
- Paré, Anthony. 2002. Genre and identity: Individuals, institutions, and ideology. In: Richard Coe, Loreli Lingard and Tatiana Teslenko (eds.), *The Rhetoric and Ideology of Genre*, 57–71. Creskill, NJ: Hampton.
- Petric, Bojana. 2006. Interdisciplinarity and writer identity: Students' views and experiences. In: R. Kiely, G. Clibbon, P. Rea-Dickins and H. Woodfield (eds.), *Language, Culture, and Identity in Applied Linguistics*, 119–131. London: Equinox.
- Petrie, Hugh G. 1976. Do you see what I see? The epistemology of interdisciplinary inquiry. *Educational Researcher* 5(2): 9–15.
- Pratt, Mary Louise. 1991. Arts of the contact zone. *Profession* 1991: 33–40.
- Roberts, Richard H. and James M. M. Good. 1993. Introduction: Persuasive discourse in and between disciplines. In: Richard H. Roberts and James M. M. Good (eds.), *The Recovery of Rhetoric: Persuasive Discourse and Disciplinarity in the Human Sciences*, 1–22. Charlottesville, VA: The University Press of Virginia.
- Samraj, Betty T. R. 1995. *The Nature of Academic Writing in an Interdisciplinary Field*. University of Michigan, Ann Arbor.
- Samraj, Betty T. R. and John M. Swales. 2000. Writing in conservation biology: Searching for an interdisciplinary rhetoric? *Language and Learning Across the Disciplines* 3(3): 36–56.
- Smart, Graham. 2000. Reinventing expertise: experienced writers in the workplace encounter a new genre. In: P. Dias and A. Pare (eds.), *Transitions: Writing in Academic and Workplace Settings*. New York: Hampton Press.
- Spinuzzi, Clay. 2012. Working alone, together: Coworking as emergent collaborative activity. *Journal of Business And Technical Communication* 26(4): 399–441.
- Street, Brian. 2003. What's "new" in new literacy studies? Critical approaches to literacy in theory and practice. *Issues in Comparative Education* 5(2): 77–91.

- Swales, John M. 1990. *Genre Analysis: English in Academic and Research Settings*. Cambridge: Cambridge University Press.
- Teich, Elke and Monika Holtz. 2009. Scientific registers in contact: An exploration of the lexicogrammatical properties of interdisciplinary discourses. *International Journal of Corpus Linguistics* 14(4): 524–548.
- Thompson Klein, Julie. 1990. *Interdisciplinarity: History, Theory, and Practice*. Detroit: Wayne State University Press.
- Thompson Klein, Julie. 1996. *Crossing Boundaries: Knowledge, Disciplinarity, and Interdisciplinarity*. Charlottesville, VA: University Press of Virginia.
- Yanez, Arturo and David R. Russell. 2009. “The world is too messy”: The challenge of writing in a general-education liberal arts course. In: Joanna Castner Post and James A. Inman (eds.), *Composition(s) in the New Liberal Arts*, 43–75. Cresskill, NJ: Hampton Press.
- Parry, Martin L., Canziani, Osvaldo F., Palutikof, Jean P., van der Linden, Paul J. and Hanson, Clair E. 2007 (eds.), *Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. New York: Cambridge University Press

Recommended readings

- Blommaert, Jan 2001. Investigating narrative inequality: African asylum seekers’ stories in Belgium. *Discourse and Society* 12(4): 413–449.
- Cintron, Ralph. 2002. The timidities of ethnography: A response to Bruce Horner. *JAC-AMES* 22(4): 934–942.
- Johns, Ann M. 1997. *Text, Role and Context: Developing Academic Literacies*. Cambridge University Press.
- Scribner, Sylvia and Michael Cole. 1981. *The Psychology of Literacy*. Cambridge, MA: Harvard University Press.

