Journeys to the centre: case studies of German-L1 novice scholars writing for publication in English.

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Abstract

International scientific publication is dominated by high-impact Anglophone journals that account for around 90% of frequently-cited information. The dominance of these journals results in an increasing pressure on novice multilingual scholars to publish in English. Failure to publish in these journals has implications for individual novice scholars' future careers and for the global dissemination of scientific knowledge. Despite the importance of the topic, there is a lack of "bottom-up" research investigating the experiences of novice multilingual scholars engaged in the process of learning to write for publication in English.

This thesis presents three longitudinal case studies of German-L1 novice scholars writing their first article for publication in English and analyses text histories, interviews, feedback comments and writing logs to construct a picture of the linguistic and socio-cultural challenges facing this particular group of multilingual scholars. This text-oriented ethnographic approach portrays *both* the socially-situated story of the novice writer *and* the linguistic story of the text from first draft to final publication and shows how successful scientific publication is dependent on the support of pivotal actors (supervisors, peers, language professionals and reviewers), who intervene following critical incidents in the trajectory towards publication to keep the text on track. With the help of pivotal actors, these critical incidents can become opportunities for novice scholars to more fully engage with the practice of scientific writing and move from a peripheral to a more centrally-located role within their local community of practice (COP) thereby gaining confidence to operate more autonomously within the global scientific discourse community. The ability to respond to dialogic feedback from pivotal actors, as well as persistence, motivation and tenacity can be seen as key success factors in the writing for publication process. The thesis outlines implications for EAP professionals involved in teaching courses in writing for scientific publication.

(298 words)

I hereby declare that, except where explicit attribution is made, the work presented in this thesis is entirely my own.

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Starting the EdD programme

In spring 2006 I received a wake-up call telling me I needed to do something to develop my career. Having applied for the post of Head of English at the language centre of ETH/Uni Zurich, where I had been working for about 6 years as an EAP lecturer, I felt fairly confident about my chances of getting the job. I had a good reputation as a teacher of academic writing courses and several years of previous management experience. However, the job went to an external candidate who had no background in academic writing instruction but did have a PhD. This event made me realise that I had hit some kind of glass ceiling in my career.

Following this disappointment, I started to think about pursuing a course of study that would improve my career chances and give me a better understanding of research in my field. I felt the EdD would suit me well because of the sense of motivation coming from being part of a cohort. I compiled an outline research proposal and sent it to the IOE, where I had taken my MA in TESOL. The outline focused on the problem of writing readable texts for scientific publication. Initially, perhaps because I teach English courses to natural scientists with a predominantly positivist outlook, I thought about doing a quantitative study of how peer feedback could be used to improve scientific texts, believing it would be possible to quantify whether one text was more readable as a result of peer review than another.

Four taught modules

In the Foundations of Professionalism module I had my first taste of writing at doctoral level. The assignment gave me a chance to really reflect on my job and the role of fellow EFL professionals in Switzerland and further confirmed to me the necessity of doing the EdD. Examining the role of EFL lecturers in a Swiss HE context, I concluded this group was being de-professionalized as a result of changes brought about by the Bologna Process, and that EFL practitioners needed to raise their professional status by getting more involved in research.

In the Methods of Enquiry 1 (MOE 1) module I began to explore the topics of readability and feedback in the teaching of writing for scientific purposes. In the course of this assignment, I read widely in order to connect my ideas about readability and feedback through the Vygotskian notion of the Zone of Proximal Development (ZPD) and began

to explore the idea that peer feedback can provide a ZPD for scientific writers, allowing them to obtain a better conception of their audience.

The reading that I did for MOE 1 eventually led me to abandon my original notion of trying to quantify whether one type of feedback led to a more readable text than another. Through my reading, I began to shift from a positivist theoretical perspective to more of a constructivist one. I knew from my own experience of teaching and writing academic texts that writing in a readable way is related to awareness of audience expectations. Consequently readability is not easily quantified, but depends on the writer and reader constructing meaning together in a kind of internal dialogue. During MOE1 I started to become more and more interested in the journey my students were undertaking in order to become successful and fully autonomous scientific writers. In particular, I wanted to try to find out what types of feedback were most useful to them on this journey. For the purposes of the MOE 1 assignment I decided to frame a questionnaire focusing on how former students of my writing courses perceived, experienced and used different sources of feedback on their writing.

In my MOE 2 assignment I developed, piloted and carried out an online questionnaire to explore my former students' perceptions of their difficulties when writing and the usefulness of different sources of feedback in this process. The findings confirmed that there were differences in the feedback preferences of novice and more experienced scientific writers and suggested that peer feedback was an important way of helping novice writers to be more autonomous and less dependent on expert feedback. These findings were later presented at the European Association of Teachers of Academic Writing Conference in July 2009 and are being published in the EATAW Journal of Academic Writing (Armstrong, 2011).

Institutional Focused Study (IFS)

In my IFS, I decided to dig down deeper to explore the journey undertaken by this group of German-L1 scholars by conducting interviews with four novice scientific writers and four more-experienced scientific writers. I wanted to know more about how the two groups differed in their perceptions of their difficulties in writing for publication and how useful or supportive they found feedback from different sources to be. The results revealed that the two groups had different conceptions of the writing process. The group of novice writers appeared to have a narrower conception of the writing process than their more-experienced colleagues. The four novice writers tended to see writing a scientific article as being mainly about replicating a "perfect" model from their

supervisors or following a set of guidelines from a language course. They characterised progress as mastering "rules," "guidelines" or "models" for scientific writing. Although they recognised outcomes from the writing process, these were more related to narrowly-focused improvements in their general L2 writing skills and to small-scale textual and organisational changes they had made between earlier and later draft texts.

For the four novice writers, translating from their L1 was a major problem in writing in English. Although they were aware that writing in an understandable way was important, they were less aware of writing texts fitting the requirements of a particular discourse community than those in the more-experienced group. In addition, the novice group assigned a greater role to expert feedback than did the more-experienced writers, and was generally less positive and more suspicious about the potential benefits of peer feedback. In this sense they resembled novice academic writers in earlier studies (Leki, 1991; Saito, 1994; Zhang, 1995). In general, the novice group of writers saw writing as less of a socially-situated practice and were less aware that writing a scientific article took place in a social environment, in which knowledge might be contested or contestable (Hyland, 2004). In addition, they appeared to have a less developed sense of ownership of their texts and found rewriting and appropriation of their texts by their supervisors harder to resist than the more-experienced writers.

By contrast, the more-experienced group of writers generally had a more complex and wider "process-oriented view" of scientific writing. They saw writing a scientific article as partly a social process involving negotiation with co-authors, peers, reviewers, editors, and the wider discourse community, not just as mastering and applying a set of rules. The more-experienced writers were more aware that successful academic writing involves mobilisation of different linguistic resources to negotiate with prior texts and persuade the community to accept and accommodate new or conflicting claims (Bazerman, 1992; Hunston, 1994; Hyland, 2004). The more-experienced group were generally less dependent on their supervisors, professors or language instructors for feedback. Three out of four of these writers explicitly referred to feedback from peers and friends as being very important for them. Sometimes this group of writers actively sought out feedback from colleagues in a related field to represent the audience of the target journal, suggesting peer feedback was a useful and motivating form of support in this context and contrasting with previous studies which have downplayed the role of peer feedback in academic writing (Zhang, 1995).

Following the MOE 2 survey (Armstrong 2011) and the IFS interviews (Armstrong, 2010) I felt I had provided a series of snap-shots of German-L1 scholars engaged in writing scientific texts for publication in English. Despite a sense of achievement at having successfully completed these two pieces of research, I was left with a nagging sense that I had failed to provide a fuller picture of individual novice scholars writing for publication. I agreed with one of the readers of my IFS, who felt that the study was "a little one-dimensional." I felt this criticism reflected the fact that I had not portrayed the respondents' individual stories in a meaningful way. I was also aware that, although the MOE survey and the IFS interviews supported each other's findings, both studies drew on only one form of data. I decided that in subsequent research I would adopt an in-depth case study approach, providing better triangulation by drawing on more sources of data and a longitudinal element to show individual writers' development over time.

The EdD and my professional life

Reflecting on my learning on the EdD, I realise I have become more realistic and aware regarding what is involved in educational research. Prior to the EdD, I had a fairly naïve conception of what research really entailed, believing it was more straightforward and more glamorous than in reality. Now, after five years of the course, I am more aware of the difficulties and practicalities of research, such as the problems of obtaining ethical approval and informed consent, and the difficulties of getting things to run smoothly to schedule. One example of this was the problem I had with my employing institution, which required me to obtain special legal approval from the university legal department before I began the research; another was the low rates of return due to administering an online questionnaire prior to the Christmas holidays. I know that I have made some mistakes along the way, but I feel that these have been useful for my subsequent development as a researcher. I have learnt about allowing more time for respondents to return questionnaires, the importance of sending out reminders to respondents to ensure a higher rate of returns, and the necessity of informing and maintaining lines of communication with gatekeepers throughout the research process

At this point in the process, I realise that in many ways the journey that I have been researching mirrors my own journey as a novice scholar. Like my students, I have begun to find my own voice and am no longer so dependent on feedback from supervisors and tutors. I can also see that having been part of a cohort has given me a similar feeling of serving an apprenticeship in a community of practice. It has been an opportunity to have a go at developing my own theories: a chance to try to find out something new for myself and about myself. Being involved in a similar process as that

of my students also provides me with more of an insider perspective and an additional source of motivation to continue the research. It has also been interesting to develop a new identity and perspective as a practitioner-researcher. I now read research about L2 writing in a different way than previously, focusing on the methods that are used and being more critical in my assessment of whether the conclusions are justified or sustainable than previously.

The future

In terms of my future career development I feel the EdD has helped me to find a direction. In my Foundations of Professional assignment I described a common view of EFL teachers being "burnt out wrecks at 40 facing a future of oblivion". As a result of my journey over the last five years on the EdD I no longer feel that this sentence relates to me and can see a clear future direction to follow. At the same time, I feel that I am now a more knowledgeable teacher of scientific and academic writing because I have first-hand experience of doing a doctoral degree and reporting my own research, which I did not possess before. In this way I hope that the EdD will continue to inform and influence my professional practice and that I will continue to explore opportunities for further research and dissemination of my findings.

Chapter 1: Introduction: motivation for this research

1.1 Global dominance of English in scientific publication

In the last 30 years international scientific publication has become increasingly dominated by the English language. As long ago as 1986, Eugene Garfield calculated that high-impact Anglophone science journals accounted for 90% of frequently-cited scientific information (Garfield, 1986), and by 2008 more than 95% of natural science articles and 90% of social science journals tracked by the Institute for Scientific Information used all or some English (Lillis & Curry, 2010). In a range of publications from the late 1980s until today, John Swales has followed the increasing "Englishization" of scientific publishing (Swales, 1987, 1990, 1996, 1997, 2000, 2004). The dominance of English in science is connected by Swales to the global dominance of US scientific research: according to Swales (2004), scientists from US institutions writing in English were responsible for 30% of all papers appearing in mainstream scientific journals in 2004. More recent figures show that international academic writing for publication in English currently involves more than "5.5 million scholars, 2,000 publishers and 17,500 research/higher educational institutions" across the globe (Lillis & Curry, 2010:1).

As a result of this increasing dominance of the English language in scientific publication, there has been a corresponding growth in the pressure on scholars using English as an additional language (EAL) to publish in Anglophone journals (Canagarajah, 1996, 2002; Flowerdew, 1999a, 1999b; Tardy, 2006). This pressure has two major effects. Firstly there is a growing concern that "smaller" languages are being devoured and undermined by the domination of English in academic, scientific and cultural domains (Gunnarsson, 2000; Oakes, 2005). Secondly, several studies have claimed that EAL scholars are disadvantaged in their efforts to achieve publication in the high impact, international journals written in English because of their language proficiency (Ammon, 2001, 2006; Flowerdew, 2000, 2001; Canagarajah, 2002; Carli & Ammon, 2007). Statistically, these EAL scholars are said to have greater problems publishing in the mainstream Anglophone journals than their Native English-Speaking (NES) counterparts (Marusič & Marusič, 2001), and many EAL scholars certainly feel that weaknesses in their English writing skills put them at a disadvantage (Marusič et al, 2002).

Several previous studies have argued that EAL scholars face greater difficulties achieving publication than their Anglophone-centre counterparts, due to language

problems such as less facility of expression and a less rich vocabulary (Flowerdew, 1999a, 1999b; Shaw, 1991). Other studies have revealed that EAL scholars may be disadvantaged by problems with convoluted syntax and unclear modality (Flowerdew, 2001), and inappropriate or incorrect use of idiomatic expressions (Kaplan & Baldauf, 2005; Liu, 2004).

In addition to linguistic weaknesses, previous studies have shown how novice EAL scholars also need to develop an awareness of writing conventions and stylistic practices operating within the dominant Anglophone discourse community (Berkenkotter & Huckin, 1995; Drury & Webb, 1991; Freedman, 1987). Berkenkotter et al. (1991: 211) traced how novice EAL scholars had to change their perceptions and develop a wider awareness of the "appropriate discourse practices" in order to move from addressing the local disciplinary community to the more global discourse community when writing an article for publication. Lillis and Curry (2010: 141) also showed how a "politics of location and scale" impacts on EAL scholars attempting to publish research from outside the Anglophone-centre: in crossing from local to international publication EAL scholars face the challenge that "what is valued at one point on the scale (in the local context) is not valued at a higher point on the scale (in the Anglophone-centre context)." In order to cross this local to global divide some EAL scholars draw on support from a variety of actors such as NES language professionals, "text shapers" (Burrough-Boenisch, 2003) and "literacy brokers", (Lillis & Curry, 2006: 4) who can have a significant impact on the text on its "trajectory towards publication" (Lillis & Curry, 2006: 8).

1.2 Role of English in Higher Education in Switzerland

As Switzerland has four official languages and an increasingly multilingual population in its major cities, the role of English has grown in importance, becoming a *lingua franca* in a variety of settings. Switzerland can be said to belong to the "Expanding Circle" of English language use (Kachru, 2001) in that English is a foreign language but a key tool in education and business. In Swiss HE the English language frequently functions as an academic *lingua franca* (Murray & Dingwell, 2001). As a result of changes brought about by the Bologna reforms of European Higher Education (La Fauci, 2008), Swiss HE has become increasingly international, particularly in the sciences. Universities across Switzerland now frequently offer Master's courses for natural sciences and engineering in English and around 30% of Master's theses in the sciences are now written in English (Murray, 2006). At doctoral level Swiss HE regulations allow publications in English to be incorporated into a PhD thesis in all

fields (Report of Executive Board of the Swiss Federal Institute of Technology Zurich, 2008) and in the natural sciences around 60% of PhD students have to publish articles in English as a requirement of doctoral graduation (Kochen & Himmel, 2000). These changes reflect the fact that Swiss HE has an expanding body of international students and a higher proportion of non-resident PhD students and researchers working in Swiss scientific institutions than any other country in Europe, according to a recent report in the Swiss national daily paper *Tages Anzeiger* (Nussbaumer, 2011). At Switzerland's top science institution, the Swiss Federal Institute of Technology (ETH) in Zurich, 60% of the professors, PhD students and researchers now come from outside Switzerland (Swiss Federal Institute of Technology, Master Programme Prospectus, 2010). In this respect, Switzerland resembles several countries in Northern Europe such as the Netherlands, Belgium and Scandinavia, where English has become "the language of doctoral education and PhD dissertations" (Lillis and Curry, 2010: 6).

Science in Switzerland is ever more international, ever more competitive and ever more published in English. Between 2005 and 2009, league tables of the Science Citation Index (Thomson Reuters, 2010) showed that 96,306 scientific papers were published with at least one author address in Switzerland. This result placed Swiss scientists in 2nd place behind those from the USA (Nussbaumer, 2011) and revealed that Switzerland exceeded the world average in all scientific fields with notably strong performance in computer science (110% above the world average), physics (87% above), and environment/ecology (80% above). If these figures are expressed as citations per capita, then Switzerland is actually number one in the world with 79% more citations per capita than the USA (Murray & Dingwell, 2001; Burrough-Boenisch, 2003). In 2010, scientists from Swiss institutions received the fourth highest number of research grants from the European Research Council, (Nussbaumer, 2011) behind Britain, Germany and France. Measured by size of population Swiss science occupies an extremely high international position and competes at the highest level with much larger nations.

The impressive publication record of Swiss scientific institutions is, however, not achieved without costs. Like novice scholars in some other non-Anglophone centre countries, e.g. the Netherlands and Japan (Burrough-Boenisch, 2003), which have now adopted a US-style doctoral thesis consisting of a compilation of three or four published research articles (Dong, 1998), PhD students in Swiss scientific institutions are faced with an enormous challenge. As an EAP lecturer teaching writing courses for novice doctoral researchers, I see that many of my students are now under pressure to publish articles in high-impact Anglophone journals as a requirement of doctoral

graduation. However, many of them do not have the English language skills, awareness of writing conventions and stylistic practices, or sufficient awareness of how knowledge claims are constructed in their field to do so.

Although these predominantly German-L1 novice scholars are not "oppressed" in the traditional understanding of the term (e.g. Freire, 1970; Canagarajah, 2002) I believe they are disadvantaged compared to scholars from the Anglophone centre, who are able to publish in their first language. From my 13-year experience teaching courses to these writers, I notice differences in organisational preferences, argumentation, style, and reader awareness compared to Anglophone centre writers. Like Clyne, (e.g. 1985, 1987, 1991) I believe that some of these features may be the result of cultural differences related to what constitutes good academic style in German. Clyne argues that "digressions from a linear structure are tolerated much more in German-language countries, as are repetitions" (Clyne, 1985: 116) and that German-L1 academic writers demonstrate a lack of "reader-friendliness," putting the onus more on the reader to dig out meaning from the text (Clyne, 1987). Hinds also considers German to be a "reader-responsible language" compared to English, which is a "writer-responsible language" (Hinds, 1987).

In Switzerland, scientific publication in Anglophone journals is a high-stakes game with important consequences for the global dissemination of knowledge and the future careers of individual EAL scholars. Because they are evaluated by the number and quality of their publications in high-impact Anglophone journals, these scholars are under tremendous pressure to publish – the so called "publish or perish" law (Garfield, 2000). The novice scholars must quickly learn "the rules of the publishing game" (Casanave, 2002: 2) if they are to succeed in the increasingly competitive and globalised academic environment.

1.3 Rationale

Despite the importance of the topic, with its potential impact on the global dissemination of scientific knowledge and the careers of individual EAL scholars, there has been relatively little bottom-up research focusing on the experiences and perceptions of novice EAL scholars engaged in the writing for publication process. Of the few previous studies dealing with scientific writing for publication, most have focused on dyadic mentoring relationships between novices and their supervisors (e.g. Dong, 1996; Blakeslee, 1997; Flowerdew, 2000; Li, 2006b; Li, 2007a; Li & Flowerdew, 2007). A few other studies have taken into account the impact of reviewers on the

process of scientific writing for publication (e.g. Gosden, 1996; 2001; 2003; Belcher, 2007), and a further group of studies have focused on the impact of language professionals on scientific publication (e.g. Burrough-Boenisch, 2003; Lillis & Curry, 2006, 2010)

However, there is a need for more in-depth case study research portraying a fuller picture of all the different actors impacting on novice EAL scholars and their texts as they move along a trajectory towards publication. Only by considering *both* the socially-situated story of the novice writer *and* the linguistic story of the text can writing for publication teachers and researchers obtain a fuller understanding of the challenges facing novice EAL scholars.

Moreover, as most of the previous studies have focused on interactions between NES supervisors and novice EAL scholars in Anglophone-centre contexts (Shaw, 1991; Dong, 1998; Blakeslee, 1997) or on interactions between Chinese scholars and their Chinese speaking supervisors (Li, 2006a, 2006b, 2007a, 2007b; Li & Flowerdew, 2007; Flowerdew, 1999a, 1999b; Flowerdew & Li, 2007) there is a real need to conduct case studies of multilingual scholars in other settings from other language areas. To my knowledge there is no previous study of German-L1 novice scholars trying to publish a paper as first author for the first time.

In my previous EdD research I explored German-L1 scholars' perceptions of their problems in writing for scientific publication (Armstrong, 2011) and later conducted follow-up interviews comparing the views of novice and more-experienced German-L1 scientific writers (Armstrong, 2010). However, I believe a series of longitudinal ethnographic case studies of German-L1 novice scholars writing their first article in English would provide a more in-depth and fuller account of the journey being made by this group of multilingual writers. Such a study would help achieve a fuller understanding of the disciplinary and institutional contexts impacting on successful academic writing for publication and would have implications for the practice of TESOL professionals teaching academic writing courses in related areas.

In Chapter 2 I present a review of previous literature in the field and position my study in relation to this previous research before describing my methodological approach in Chapter 3. Chapters 4, 5 and 6 present and discuss individual case studies of novice scientific writers writing for publication in English. Chapter 7 draws out several key themes emerging from the case studies and concludes with implications and recommendations for teachers of scientific writing for publication courses.

Chapter 2: Literature review and research questions

As outlined in the previous chapter, learning to write for publication in Anglophone journals is an essential skill for many EAL novice scholars with important implications for their future careers and for the global dissemination of scientific knowledge. In an effort to explore the issues surrounding this topic in more detail I draw on and review literature from three main areas: literature about academic writing as a socially-situated practice, literature about the socialisation of novice writers into this practice, and literature about the role of mediation and feedback in this process.

2.1 Academic writing as a socially-situated practice

In the last 30 years approaches to research and teaching of L2 academic writing have moved away from focusing on the individual cognitive processes behind learning to write (Flower & Hayes, 1981) to increasingly focus on "a more context-sensitive perspective" (Hyland, 2006: 16). Lea and Street (1998) argue that since the 1980s these approaches to L2 academic writing can be placed into three main perspectives or models: *study skills, academic socialisation,* and *academic literacies* (ACLITS). Lea and Street (1998: 158) claim that these three models "are not mutually exclusive" and should not be seen in a "simple linear time dimension" but have developed in succession with later views taking account of earlier ones so that the academic socialisation model encapsulates study skills and the "academic literacies model incorporates both of the other models." From my perspective as a teacher of academic writing for the last 20 years, I believe the study skills perspective, which sees successful academic writing as the acquisition of a set of technical skills and strategies, such as learning to use citation systems or to format dissertations, no longer holds wide currency in the field and has been more or less superseded by the two latter approaches, both of which emphasise the socially-situated nature of academic writing. The key concepts of these socially-situated approaches are reviewed below.

2.1.1 The social-constructionist perspective of L2 academic writing

Bizzell (1982) was one of the first L2 writing researchers to point out that process approaches to teaching academic writing, which first developed in North American composition classrooms in the 1970s, neglected any sociocultural context. Bizzell argued that academic writing should be seen as an acquired response to the discourse conventions of a particular academic community. Johns (1986, 1990) and Horowitz

(1986) also criticised the process approach for neglecting the sociocultural domain and for bearing little relation to what academic writing students would experience in reality in their disciplines.

Studies of writers operating in particular academic contexts (Bazerman, 1988; Myers, 1985, 1988; Berkenkotter et al, 1991; Leki, 1995; Leki & Carson, 1997), helped to develop a "social-constructionist perspective of academic writing" which sees academic writing as a social act occurring in a specific context. Such a perspective stresses the importance of a social milieu in helping an individual novice scholar to construct his or her knowledge of academic discourse. In a social-constructionist perspective, L2 academic writers are seen as acquiring knowledge about academic discourse in a similar way to children acquiring their first language - through interaction with more expert users (Vygotsky, 1978).

2.1.2 The concept of discourse community in L2 academic writing

Since the 1980s researchers adopting a social-constructionist perspective have drawn heavily on the notions of "discourse community" (Bizzell, 1982; Bartholomae, 1986) and "genre" (Swales, 1990). The term discourse community refers to the linguistic norms, rhetorical conventions, and stylistic practices which are common to a distinct academic discipline (Bazerman, 1988; Berkenkotter et al. 1991; Bizzell, 1982, 1992; Swales, 1990). For Swales (1990: 24-27) discourse communities are characterised by "common goals," "participatory mechanisms," "information exchange," "community-specific genres," "highly specialized terminology," and a "high general level of expertise". Discourse communities are usually seen as sharing common communicative conventions and approaches to interpreting experience. Bizzell (1982: 217), for example, describes discourse communities as having "traditional, shared ways of understanding experience" and Bartholomae (1986) argues that students entering academic disciplines need to acquire the genres and conventions that are commonly used by members of their disciplinary discourse community.

While members of these "academic tribes" (Becher, 1989) share common goals, genres and terminology, discourse communities are generally conceptualised as not completely homogenous. As Bazerman (1992: 63) has pointed out, they are more likely to be "locales of heteroglossic contention", where scholars debate the strengths and weaknesses of research findings and theories. Hyland and Hamp-Lyons (2002: 7) also warn against seeing discourse communities as "static, autonomous and predictable" and Hyland (2004: 9) argues that discourse communities are "not monolithic and

unitary" but are "composed of individuals with diverse experiences, expertise, commitments and influence."

Although discourse communities may not be homogenous unified entities, the fact that they have distinct rhetorical conventions and stylistic practices affects the way in which novice scholars from different fields learn to use language appropriately. When novice scholars write for publication for the first time, they have to learn how to construct disciplinary knowledge, how to position their texts in a context with previous literature in the field, and how to use language to persuade the wider discourse community to accept new and possibly conflicting claims (Bazerman, 1992; Hunston, 1994; Hyland, 2004).

2.1.3 Academic literacies (ACLITS) approaches to L2 academic writing

In recent years the term "academic literacies" (ACLITS) has come to be applied to research focusing on the literacy practices associated with academic study and scholarship using a social practice approach (Lillis & Scott, 2007; Russell et al, 2009). Like the social-constructionist perspective, ACLITS approaches conceptualise academic writing as rooted in specific cultural traditions and ways of constructing knowledge (Bazerman, 1988).

Although ACLITS claims to take account of and build on insights developed by previous approaches to academic writing (Lea & Street, 1998), it also distinguishes itself from previous approaches by drawing more explicitly on critical linguistics (Fairclough, 1992; Ivanič, 1998) and critical education traditions such as new literacy studies (Street, 1984; Barton & Hamilton, 1998; Baynham, 1995). For Lea and Street (1998: 159) an ACLITS approach focuses particularly on the role of power and discourse in the institutional settings in which academic practices take place. As a result, ACLITS research challenges any "simple distinctions between academic texts and the contexts in which they are rooted and points to the need to look into detail at how texts are generated, by whom and with what consequences" (Lillis & Curry, 2010: 21).

Researchers using ACLITS and related critical approaches emphasise the role of power at all levels of the writing-for-publication process. Drawing on Bourdieu's (1986) notion of "social capital", Lillis and Curry (2010: 60-75), for example, see publishing in English as "a powerful form of symbolic capital" and emphasise the "asymmetrical power relations" between individual EAL scholars and Anglophone-centre journals. For Canagarajah (2002: 43) "academic publishing gains from and complements the

politico-economic dominance of the Anglo-American communities": the linguistic demands of key Anglophone journals "shape the knowledge that gets constructed" serving the interests of Anglophone-centre nations rather than nations at the periphery.

Other researchers such as Gore (1998) and Benesch (2001) use Fairclough's (1992) critical discourse analysis and Foucault's (1977, 1980) conception of power to analyse and question power relations in academic settings. According to Gore (1998: 245) no educational site is free of power relations and no site escapes "the use of techniques of power." Pennycook (1992, 1996) also sees disciplinary settings as sites dominated by power relationships, shaped by powerful brokers and gatekeepers who exercise their authority within disciplinary settings. Pennycook (1996: 213) points out "the common practice of senior academics (particularly in the sciences but also in other areas) putting their names at the head of papers in the writing and researching of which they have had little or no role" as one example of how power is used in disciplinary settings. Such practices throw up questions about the "origins of academic ideas and who gets credit for them" (Pennycook, 1996: 213).

ACLITS also differs from previous approaches by emphasising the relationship between academic writing and issues of identity (Clark & Ivanič, 1997; Ivanič, 1998; Lea, 1998; Hermerschmidt, 1999). Ivanič (1998: 32) claims writing and identity are closely connected and defines four aspects of writer identity: "autobiographical self," "discoursal self", "self as author" and "possibilities for selfhood". While the first three of these aspects are evident within the act of writing a text, the fourth is a more abstract concept relating to the way in which different sociocultural and institutional contexts shape or constrain individual acts of writing (Ivanič, 1998: 28). The "autobiographical self" relates to the novice writer's previous life experience and the way this is represented in their writing. The "discoursal self" refers to the impression of themselves writers wish to convey through the use of various discourse features of a written text, such as the use of personal pronouns. The "self as author" relates to the notion of authorial "voice" and the stance the writer adopts in their writing, for example either conceding to the authority of others or taking up a stronger authorial position. According to Clark and Ivanič (1997:151) novice academic writers "take on the identities inscribed in the particular conventions they draw on, and these conventions position them...in their own eyes and the eyes of their readers."

Put simply these concepts mean that when a novice enters a new discourse community or encounters a new social practice this may involve the construction of a new writer identity. From an ACLITS perspective the practice of academic writing and

the writing classroom itself are sites for the construction of new identities (Hermerschmidt 1999). Novice academic writers are faced with conflicts between the identity they bring to the act of writing based on previous life experiences and a new scholarly identity related to the "privileged discourses" of the academy (Ivanič 1998). For L2 writing researchers adopting an ACLITS approach to explore doctoral writing (e.g. Kamler & Thomson, 2006) scholarly texts such as research articles and doctoral theses are sites where both disciplinary knowledge and the writer's identity are negotiated and constructed. In this way "the text becomes the medium through which both knowing and knower are made together" (Kamler & Thomson, 2006: 19). According to Kamler and Thomson (2006: 17), this process of identity formation takes place "in a series of moves" rather than as a seamless movement.

The socially-situated approaches to academic writing and the concepts of discourse community, power, and writer identity outlined so far in this chapter have been extremely useful in helping me to understand the social context surrounding the practice of academic writing and I draw on them further in my methodological approach to this research outlined in Chapter 3. Below I focus more specifically on how these socially-situated concepts can be related to the particular case of EAL novice scholars seeking to publish articles in Anglophone science journals.

2.2 The discourse socialisation of novice EAL scholars

2.2.1 Discourse socialisation as an apprenticeship

In an attempt to describe the complex series of processes by which novice scholars acquire the disciplinary conventions and social practices of their discourse community, many previous researchers have drawn on the metaphor of apprenticeship (Swales,1990; Gee, 1990; Berkenkotter & Huckin, 1995) This notion of apprenticeship has its roots in constructivist theories of learning (Brown et al., 1989; Jonassen, 1991) which emphasise the social context in which learning takes place as an essential element. Learners engage in activities which closely resemble real-world tasks, and make deliberate use of both the social and physical context, just as an apprentice would do.

In focusing on novice scholars, Berkenkotter and Huckin (1995), for example, refer to a "cognitive apprenticeship" whereby these writers learn the linguistic norms and stylistic practices of their discipline. They argue that this process is similar to the process of second language acquisition, "requiring immersion into the culture and a lengthy period of apprenticeship and enculturation" (Berkenkotter & Huckin, 1995: 13). Swales (1990)

also argues that to acquire membership of a discourse community, an individual has to undergo some form of formal or informal apprenticeship. Similarly, Gee (1990: 147) asserts that "discourses are not mastered by overt instruction, but by enculturation ("apprenticeship") into social practices through scaffolded and supported interaction with people who have already mastered the discourse."

More recently Berkenkotter and Huckin's (1995) cognitive apprenticeship model has been criticised by some researchers as an oversimplification of the process of discourse socialisation. Conducting a series of interviews and focus groups with psychology students Candlin and Plum (1999) found little evidence that students perceived themselves as "apprenticed" into the discipline. Candlin and Plum (1999) used the term "induction" instead as a way of describing the process of educating novice academic writers into the linguistic conventions and social practices of their academic discipline.

2.2.2 Discourse socialisation as stages in a novice – expert continuum

Several L2 and L1 writing researchers have defined the discourse socialisation of novice academic writers as a series of steps along a developmental continuum. For MacDonald (1994) this consists of four stages on a continuum from novice to expert academic writer. The four stages consist of "non-academic writing", "general academic writing", "novice approximation of disciplinary writing", and "expert insider writing". In MacDonald's view, undergraduates beginning their university careers should be defined as novices engaged in *general academic writing*. Academic writers at this stage have to demonstrate their L1 academic literacy and move from school literacy practices to ones that more closely resemble expert academic practices. As academic writers progress in their undergraduate studies, MacDonald argues many of them will proceed to the next stage in academic literacy: *novice approximation of disciplinary writing*. In this stage, writers adopt a basic set of disciplinary discourse conventions that the academy requires of them with the L1 research paper becoming an important genre for expressing field-specific knowledge. MacDonald claims that at the final stage of development, *expert insider writers* are able to communicate knowledge in ways that reflect "disciplinary specific conventions" and "scholarly standards of the discourse community". The ability to write and publish an article as first author in the key Anglophone journals dominating the field arguably belongs to this final stage of development.

Spack (1988) also sees novice academic writers becoming more expert in a series of stages and argues that it may take several years to acquire the expert knowledge and understanding to recognise the issues which dominate the field. Spack (1988: 38) argues that novice L2 scholars are often confronted with difficulties in relation to various kinds of genre conventions and specific field expectations, for example "how to logically develop an argument, how to support a claim with evidence, and what counts as proof in a specific field and how to present scientific data."

Focusing on L1 scientific writing, Bereiter and Scardamalia (1987: 12) argue that novice writers differ from more-expert writers in regard to their communicative intentions. Bereiter and Scardamalia characterise novice academic writers' intentions as consisting of "knowledge telling" whereas more-experienced writers' intentions are "knowledge transformation" or "knowledge building." In addition, Scardamalia and Bereiter (1991: 190) argue that experienced writers can be distinguished from novices in that they are able to control both "domain expertise" and "rhetorical expertise" in a "dialectical process that serves to advance domain knowledge." As a result, novice scientific writers are involved in a "two-way interaction," having to learn academic writing genre conventions and at the same time develop their knowledge of the field.

Similarly, Yore, Hand and Florence's (2003: 347) L1 study of scientists' views of science found that expert scientific writers were able to use writing to "inform, persuade and establish themselves in the scientific community", whereas novice scientific writers tended to see writing as "simply telling about what was discovered." Warschauer, (2002) also sees novice academic writers facing a choice between learning to write by mastering forms or learning to consider writing as a developmental process. Warschauer argues that novice academic writers have to "network" their way into academic discourse "both as an individual and as a member of the community" (Warschauer, 2002: 57). This process is usually interpreted as being similar, though not identical, to the one Lave and Wenger (1991) refer to as "legitimate peripheral participation" (LPP) in "communities of practice" (COP).

2.2.3 Discourse socialisation as centripetal movement with a community of practice (COP)

In the last 20 years some L2 academic writing researchers have drawn on the notion of "community of practice" (COP) first described by Lave and Wenger (1991: 33-37) and later expanded by Wenger (1998). In their studies of situated learning, Lave and Wenger (1991) showed how newcomers in a range of different fields use legitimate peripheral participation (LPP) to move along a centripetal pathway in their COP,

eventually taking on the roles of more-experienced members. The idea of LPP is that newcomers first participate in low-risk "peripheral" tasks that are nevertheless legitimate and productive for the goals of the community. In a disciplinary context this might mean that a novice scholar first contributes to a literature review or prepares slides for a presentation for their supervisor before beginning to write their own research. Through these peripheral tasks novices learn more about the inner workings and organising principles of the community and eventually become more centrally located within the social practices of the community. Lave and Wenger (1991) point out LPP means more than just learning by doing but involves being an active participant in a social community and constructing an identity in relation to this community. From Lave and Wenger's perspective learning is a process of enculturation into a domain. To be successful this process requires engagement in authentic and legitimate activities.

The notions of LPP and COP also drew on conceptualisations of learning as increased access to participating roles in an expert performance (Vygotsky, 1978) rather than acquisition of structures. Neo-Vygotskian researchers such as Moll (1990) and Wertsch (1985) promoted a perspective of learning centred on the ancient notion of "praxis": the idea that we are what we do (Bourdieu, 1977). Applying Lave and Wenger's (1991) theory of LPP to an academic writing context, a novice scientific writer writing for publication can be seen as a peripheral participant seeking fuller participation in a COP.

Although the idea of a community sounds positive, Wenger (1998: 212) points out that COPs are "not necessarily peaceful". A COP involves power relations in a social structure which can be used by individuals either as a source of power or a source of powerlessness. For Lave and Wenger, (1991: 57) there is a fundamental contradiction in this process because "centripetal development" of newcomers also "implies the *replacement* of old-timers". Furthermore, because a COP is based on "interrelated forms of participation" the centripetal development of one member has an impact on other members of the COP as "generational discontinuities spread through multiple levels of the COP in a cascading process" (Wenger, 1998: 90). As "young masters" eventually become "old-timers" so last year's novice replaces this year's young master. Wenger (1998: 90) specifically states that as participants take on new roles within a COP they "forge new identities" based on their new perspectives. Such comments show how Lave and Wenger define LPP as a dynamic concept involving power relations and potential conflicts as well as mutual collaborative endeavour. When it is enabled, LPP can be an opening, a "way of gaining access to sources for understanding through growing involvement" (Lave & Wenger, 1991: 37). At the same

time a novice who is denied an opening can be kept in a disempowering peripheral position.

Several previous studies of scientific writing have used a COP framework to depict the centripetal movement of novice scholars. Flowerdew (2000) and Li (2006a) focused on Chinese novice scientific researchers writing for publication in English. Flowerdew's (2000) case study of "Oliver", a Chinese-L1 researcher from Hong Kong writing for publication in an Anglophone journal after returning from doing a PhD in the United States, revealed some of the difficulties facing non-Anglophone scholars seeking publication in high-impact journals. The study showed how successful publication was dependent on Oliver's prior knowledge of the publishing "game" and in particular his decision to resubmit his article to a second and third journal. Other significant factors included his willingness to accept "radical cutting and rewriting" from reviewers and language experts (Flowerdew, 2000: 145).

Similarly Li's (2006a) case study of "Chen", a Chinese L1 doctoral student of physics, explored the power relations between Chen and his two supervisors, Prof. Liu and Prof. Yang, who were also Chinese-L1 speakers. The study showed how the two old-timers helped the newcomer Chen to achieve publication by making several contributions to the positioning of his draft paper. Due to the power-inequality between himself and his supervisors, Chen felt obliged to incorporate and comply with the changes. In addition to focusing on the interactions between Chen and his supervisors, Li's study explored the impact of feedback from Anglophone journal reviewers, who initially rejected the article and urged Chen to seek the help of a colleague "more fluent in English." During the process Chen became increasingly autonomous and independent in his responses to the reviewers.

2.3 The role of mediation and feedback from different sources

Within the general framework of academic writing socialisation and the concept of the COP several L2 writing researchers have emphasised mediation and feedback as important aspects in the way scholars learn academic writing and academic literacy practices. Mediation can be defined as "the range of ways in which people are involved in helping others interact with written texts, whether formally or informally, paid or unpaid" (Lillis & Curry, 2006: 12). Lillis and Curry (2010: 22) point out that "academic writing is rarely an individual process but is mediated in a number of ways at both immediate and more distant levels."

Mediation has its roots in sociocultural theories of learning, which see social interaction as one of the main ways the adult human mind is "mediated" into higher forms of thinking, for example, logical reasoning, planning, and problem solving (Vygotsky, 1978). Vygotsky argued that the best scenario for this kind of intellectual development was the *Zone of Proximal Development* (ZPD), which he defined as a gap between what a learner can do without help and what he or she can do with help.

L2 academic writing researchers have been increasingly interested in the role of different forms of feedback in helping novice writers develop their academic literacy. Moving from an initial concern with language accuracy and study skills in the 1970s and 80s, feedback is now usually seen as a form of "scaffolding." Scaffolding can be understood as a process through which a teacher or more experienced peer gives aid to a novice writer in his or her ZPD as necessary, and tapers off this support as it becomes unnecessary, in the same way as a scaffold is first erected and then dismantled during the construction of a building.

Feedback on writing can be used to achieve different purposes. Broadly speaking, feedback serves an informational and an interpersonal role (Hyland & Hyland, 2006). Informational feedback consists of teachers' or supervisors' responses or reactions to the text, which are used by learners to facilitate improvements and consolidate their learning. Such responses may make learners change performance in a particular direction, or prevent learners from repeating prior behaviour (Nelson & Schunn, 2007).

However, Hyland and Hyland (2006: 206) point out that although the informational content of feedback is extremely important for a novice academic writer, feedback should also engage with the writer on an interpersonal level, giving the writer the impression that it is "a response to a person rather than to a script". Hyland and Hyland argue that the interpersonal feedback strategy chosen by teachers or supervisors, e.g. using praise, making suggestions, or giving criticism, can have a significant impact on novice writers' motivation and subsequent writing development. In this way feedback plays a "pedagogical role" helping a novice to discover a text's potential, to understand the context surrounding it, and to obtain a better sense of their audiences. Appropriate interpersonal feedback thus empowers students to produce texts that address the expectations needed to succeed in a particular discourse community (Hyland & Hyland, 2006).

2.3.1 The impact of mediation and feedback from supervisors and mentors

As stated above, the majority of previous research looking at scholarly writing for publication has focused on "dyadic" relationships between novice scholars and their supervisors and the way in which feedback from supervisors helps novice writers to be socialised into the dominant practices of their disciplinary discourse community (e.g Belcher, 1994; Dong, 1996; Blakeslee, 1997; Prior,1998). Some of the key concepts that have emerged from these studies are the role of power in supervisor-supervisee relationships, and issues of "ownership" and "appropriation" of texts. The term "appropriation" is used here to describe the phenomenon of a supervisor taking control or extensively revising a text to such an extent that the original author no longer feels they own it.

Belcher (1994) and Dong (1996) both focused on dyadic relationships between EAL doctoral students and their Anglophone supervisors. Belcher (1994) studied the nature of the relationships between three supervisors and their three doctoral students and showed how overly hierarchical relations could impact on the subsequent success of the novice writers in each case. Belcher found that the two less successful dyads (both featuring relationships between male Chinese PhD students and their male NES supervisors) were characterised by their hierarchical nature. In particular, one of the PhD students, "Li", repeatedly resisted the extensive critical comments on his manuscript from his supervisor and eventually withdrew from his PhD. By contrast, the more successful relationship (between a female Korean student, "Keongmee", and her female supervisor) was characterised by a less hierarchical relationship and more collaborative style of feedback. Belcher suggested that the problems occurring in the two less successful dyads may have been the result of different conceptions of the academic community and of the aims of research writing.

Similarly Dong (1996) used interviews, analysis of draft texts, and observations during writing conferences to explore the relationships between three Anglophone supervisors and their three EAL doctoral students. Dong's study revealed that the supervisors were instrumental in helping the three doctoral students learn how to construct new knowledge claims in the writing of PhD theses in the sciences. In addition the study showed that the novice scholars' native language and culture was not a hurdle to their acquisition of academic language and conventions.

Blakeslee (1997) also focused on dyadic supervisory relations, attending meetings at a US university between a NES physics professor called Swendsen and his sixth year PhD student, Bouzida, whose L1 was French. Bouzida was given the task of writing the

first draft of a collaborative journal article by Swendsen, who gave written and oral feedback on Bouzida's subsequent drafts. Blakeslee analysed 22 drafts of the article and interviewed both participants over the course of a year. Blakeslee found that Bouzida had problems interpreting the feedback he received from Swendsen on drafts of his text. Swendsen became increasingly frustrated by Bouzida's inability to revise the text appropriately and eventually took control of the text rewriting it in a way he considered to be more suitable for the target discourse community. The case illustrated the fine line between guidance and appropriation, as well as problems coming from an overly hierarchical supervisory relationship. Blakeslee argued that by exercising his authority over the revision process and placing Bouzida in a subordinate position, Swendsen effectively stopped Bouzida from developing his own voice and autonomy.

Prior (1998) studied the relationships between a doctoral student "Moira" and her female professor "West" as they worked together preparing a conference paper in the field of sociology. Prior (1998: 216) analyzed drafts of Moira's text to show how West's responses and feedback changes were initially "routinely incorporated" by Moira in subsequent drafts. Follow-up "discourse-based interviews with both participants revealed how they perceived the "response-initiated revisions." During the interviews both participants were offered clean copies of the text and asked to choose from anonymous alternative revisions, some of which were taken from earlier drafts that had been revised. When the alternatives were presented to Moira in an anonymous form, she only accepted five out of 16 opportunities to replace revisions West had written. West was offered nine of the same alternatives and chose to keep her own revisions seven times. As the process went on Moira grew in confidence and became more able to resist West's changes. Prior argued that West mediated Moira's authorship through her written response but also shaped her participation in the research project helping her "disciplinary enculturation" and allowing her to move from being "an employee engaged in logistical support...to one of two students West thinks of as 'on the verge of entering their academic careers'". According to Prior (1998: 244) Moira's case supported the idea that disciplinary enculturation is "a continuous heterogeneous process of becoming" rather than just the transmission of specialized knowledge and discourse to novices.

Focusing on dyadic relationships between master's students and their supervisors at a Norwegian university, Dysthe (2002: 494) identified three models of supervision, each of which used feedback in a slightly different way: In the "teaching model" of supervision supervisors follow traditional student-teacher relationships, maintaining status difference. In this model feedback is seen as correction, and tends to be

directive, even to the extent of taking control of the text. In the "apprenticeship model" supervisors have a clear authority role but students learn tacitly by watching and performing tasks in the company of a "master" or more-experienced person, rather than through explicit instruction. Feedback is from multiple sources and includes peer feedback. Dysthe found this model most frequently in the natural sciences. In the "partnership model" supervisors adopt more symmetrical relationships and try to encourage independent thinking by using cooperative strategies. In this model feedback is more dialogic and students have more authority over their own texts.

Tardy (2006) also focused on the role of feedback in helping novice EAL scholars develop their disciplinary writing skills at an American graduate school. One of Tardy's case studies concerned a Thai-L1 doctoral student in engineering called "Chatri" and his relationship with his supervisor "Roberto". Chatri and Roberto collaborated together on a conference paper, Chatri independently writing the first draft of the paper and Roberto subsequently making changes in the electronic file as the two sat together. Generally Chatri was able to tell Roberto when he disagreed with his changes and Roberto helped Chatri to express his ideas using more appropriate language. Chatri was initially happy to let Roberto make language revisions to his text but became increasingly uneasy when Roberto took greater control of the text and recontextualised the scientific claims, creating a meaning that Chatri had not intended. Due to time pressure, Chatri found it difficult to resist some of Roberto's changes but as the process went on Chatri gained more confidence and eventually was able to resist some of Roberto's corrections. The case illustrated some of the problems of ownership and appropriation of a text within a collaborative writing-for-publication context.

Kumar and Stracke (2007) also analysed written feedback from a supervisor on the first draft of a PhD thesis, classifying feedback comments into three categories – "referential" (providing information), "directive" (telling the supervisee to do something) and "expressive" (expressing feelings). The study showed the importance of the expressive comments, which were viewed by the supervisee as the most beneficial and most important for the revisions, again supporting Hyland and Hyland's (2006) notion of the significance of interpersonal aspects of feedback in a novice writer's subsequent development.

2.3.2 The impact of feedback and mediation from peers

Although Lave and Wenger (1991:56) emphasise the importance of "triadic sets of relations" in most COPs, very few L2 writing researchers using a COP framework have

explored the role of feedback from peers and near peers in a disciplinary setting, concentrating instead on dyadic relationships between supervisors and supervisees. One of the few researchers to look at peer interactions in a writing-for-publication context was Knorr-Cetina (1981), who studied interactions between three experienced NES authors writing an article in the field of biotechnology. Even though the authors were experienced writers with at least 40 papers in the field, Knorr-Cetina found that the most senior author took a lead in the editing process, making extensive changes to the text, reorganising paragraphs, reshuffling sentences, weakening or strengthening claims by modifying modal verbs etc., suggesting that even in collaborative peer interactions status and authority still play an important role.

Most of the previous studies exploring the role of peer feedback in becoming a successful academic writer have focused on peer interactions within EFL or EAP undergraduate writing instruction settings rather than on a doctoral writing-for-publication context. Many of these studies claim peer feedback can provide valuable opportunities for learners to receive support and scaffolding of their writing (Jacobs et al, 1998) which can constitute a ZPD (Vygotsky, 1978) for novice academic writers. Several researchers see peer feedback as a way of providing "an authentic social purpose" (Mehlenbacher et al, 2001: 168) and "an increased audience awareness" (Mendonça & Johnson, 1994), helping student writers develop their learner autonomy and move away from dependence on teacher feedback (Tsui & Ng, 2000). Other benefits include encouraging independent problem solving; (de Guerrero & Villamil, 1994) and raising awareness of appropriate revision strategies (Hedgcock & Lefkowitz, 1992). Other researchers emphasise the benefits in text quality both for the writer receiving feedback (Min, 2006) and for the feedback provider (Rijlaarsdam & Couzijn, 2000).

Despite these claimed advantages, several researchers have highlighted potential difficulties with the process of peer feedback. Some of these studies have shown how inexperienced L2 peer revisers tend to focus on surface level corrections to a peer's text rather than commenting on content and text organisation (Leki, 1990; Mangelsdorf & Schlumberger, 1992). Leki (1990: 9) showed how EFL student peer reviewers focused on grammatical errors as opposed to "the more difficult question of meaning". Mangelsdorf and Schlumberger (1992: 235) found that the majority of EFL student comments focused on correction of forms rather than on "the communication of meaning". Similarly, Fitzgerald (1987) and Cho and MacArthur (2010) claimed that when reviewing their peers' writing, novice academic writers focused on word and sentence-level corrections and did not identify organisational problems.

Most previous research considering the feedback preferences of L2 academic writers found that novices may initially be suspicious of peer feedback, tending to be concerned about the credibility, quality and sincerity of comments from peers (Saito, 1994; Zhang, 1995; Zhang, 1999). At the same novice L2 academic writers greatly value teacher-written feedback and consistently rate it more highly than alternative forms of feedback (Leki, 1991). Some novice L2 academic writers even feel that peer feedback may lead them to reinforce each other's problems (Partridge, cited in Leki, 1990).

2.3.3 The impact of feedback and mediation from NES language experts, and other NES literacy shapers and brokers

In addition to the feedback from supervisors and peers, some L2 writing researchers have focused on other sources of feedback and mediation which might impact on and help shape the texts on a trajectory to publication. Ventola and Mauranen (1991) studied changes made by NES language specialists to the texts of Finnish scholars written in English. Their results showed how this group of NES actors had a minimalistic approach to editing texts: correcting grammar but ignoring problems of cohesion and text organisation. In a later study Mauranen (1997) revealed graduate student NES revisers's reluctance to correct the texts of more-experienced Finnish scholars, suggesting the significant role played by the status of the writer in such interactions.

Other L2-writing researchers (Burrough-Boenisch 2003, 2002; Lillis & Curry 2006, 2010) have examined the impact of language professionals or "literacy brokers" such as "correctors" and "author's editors," on texts written for publication. Burrough-Boenisch (2003) described the typical journey of an academic article written by Dutch-L1 scientists and showed how numerous actors may be involved in "shaping" the text on its journey from submission to publication. Burrough-Boenisch claimed that as a result of the number of text shapers some of the changes made might be "contradictory or arbitrary" (2002: 273). Lillis and Curry (2006, 2010) compiled and analysed multiple text histories (THs) of southern and eastern European EAL scholars writing for publication. Their study revealed the involvement of "literacy brokers" such as "friends, editors, reviewers, academic peers and translators" who impact directly on academic texts during the publication process. The study demonstrated how EAL scholars writing from outside the Anglophone-centre may be forced to reposition themselves regarding centre knowledge claims.

2.3.4 The impact and mediation of journal reviewers

Even less attention has been given to the impact of feedback and mediation from journal reviewers in the process of writing for publication. As reviews are usually anonymous and unpublished, this form of feedback remains to some extent an "occluded genre" (Swales, 1996). Gosden (1995; 1996; 2001, 2003) is one of the few researchers to have focused in detail on this area of L2 scientific writing research. Using retrospective interviews with a group of Japanese novice scholars, Gosden (1995) explored how they wrote their first scientific research articles and made revisions based on feedback from reviewers. The study revealed that these novices had cross-cultural problems understanding the workings of scientific research communications, linguistic problems connected with a tendency to translate from their L1, and difficulties with conceptualising their audience. Gosden's subsequent research (1996, 2001; 2003) focused on describing and analysing a corpus of referees' comments using the meta-functional organisation of language into ideational, interpersonal and textual components developed by Halliday (1994) and Halliday and Hasan (1989). Gosden (2001; 2003) revealed the underlying function of many reviewer comments to be interpersonal in nature. Gosden's research shed some light on the "occluded genre" of peer review (Swales, 1996) and made clear the challenge for novice scholars to respond to comments appropriately.

Kourilova (1996) also studied a corpus of scientific research article reviews to analyse the communication strategies using Brown and Levinson's (1987) notions of politeness theory and "face-threatening acts" (FTAs). Kourilova explored the frequency of compliments, criticisms and FTAs and found that reviewers used more than four times as many unmitigated criticisms as mitigated criticisms, a finding she attributed to the anonymous nature of peer-review and the asymmetrical nature of power relations between reviewers and writers seeking publication.

Belcher (2007) studied a sample of 75 accepted and rejected manuscripts submitted to an applied linguistics journal from Anglophone-centre scholars and their non-Anglophone counterparts and found that 83% of those originating in the US were accepted, compared to only 24% of articles originating in China. In addition to the apparent advantage enjoyed by the Anglophone scholars, those manuscripts which were eventually accepted by the journal received more positive and genuine-sounding encouragement rather than just polite praise. Belcher also claimed that a key factor in achieving publication was the persistence of the author in revising and resubmitting.

2.4 Chapter summary and research questions

This chapter has reviewed three main bodies of literature relevant to the problem and rationale outlined in the Chapter 1: literature about socially-situated approaches to academic writing, literature about novice scholars' disciplinary socialisation, and literature about the impact of feedback and mediation from different actors and how this helps novice scholars become successful scientific writers. The research outlined in this chapter has provided important insights into the socially-situated nature of scientific writing and shown how novice EAL scholars are socialised into their local disciplinary COP and thereby gain confidence to operate in the global discourse community. Much of the previous research has concentrated on dyadic supervisor-supervisee relationships in this process (e.g. Dong, 1998; Blakeslee, 1997) and some studies have attempted to define the impact of different supervisory styles on novice scholars and their texts.

In Table 2.1, below, I summarise the roles of different supervisors identified in the research discussed so far in this chapter.

Table 2.1. Summary of supervisory roles identified in previous research

Role of supervisor	Example from previous research	Impact on scholar or text
Partner	Keongmee's supervisor in Belcher (1994)	Partnership and collaboration, joint responsibility (Dysthe, 2002)
Enculturator	West in Prior (1998)	Disciplinary enculturation
Master	Dysthe (2002)	Apprenticeship model
Old-timer	Lave and Wenger (1991)	LPP in a COP model
Teacher	Swendsen in Blakeslee (1997)	Direction and instruction (Dysthe, 2002)
Broker	Several examples in Lillis and Curry (2010)	Acting as an agent for publication, connecting or bridging one COP and another (Wenger, 1998: 109)
Academic editor	Prof Liu in Li (2006a)	Editing academic content, argument or "rhetorical machining" (Swales, 1990)
Text corrector	Prof Yang in Li (2006a)	Working on sentence level linguistic corrections, revising or "polishing" (Gosden, 1995)

Table 2.1 shows how at one extreme of interaction supervisors can adopt a partnership approach, working together on the writing task in a collaborative way. More typically supervisors may adopt a master-apprentice style of supervision seeking to socialise or enculturate the novice scholar into the disciplinary practice through a tacit process, similar to that outlined by Lave & Wenger's LPP in a COP. At a third level of interaction supervisors can function as teachers who explicitly direct and instruct novices about the practice. In the three lower levels of the table the role of supervisors may be more restricted to an impact on the text, acting as an agent or broker for publication, as an academic editor or as a text corrector. The table forms a useful basis for discussion of supervisory styles and roles identified in the main body of this research.

Despite the usefulness of previous writing-for-publication research outlined in so far in this chapter, there are still a number of underexplored areas which call for further investigation. Firstly, although Lave and Wenger (1991: 56-57) specifically describe "the importance of near peers in the circulation of knowledgeable skill" and the significance of "triadic sets of relations" featuring "apprentices," "young masters," and "old timers" as a frequent feature of a COP, there is a lack of L2 writing-for-publication research focusing on the role played by "young masters" or "near peers".

Secondly, while some previous studies have explored the contribution of actors other than supervisors in a writing-for-publication context, such as NES "text shapers" (Burrough-Boenisch, 2003), NES "literacy brokers" (Lillis & Curry, 2006; 2010) and journal reviewers (Gosden, 1995; 1996; 2001; 2003) there are only a handful of studies considering all the actors impacting on the novice scholar and the text throughout the entire writing-for- publication process. There is a need for more in-depth, longitudinal case study research which portrays *both* the socially-situated story of the novice writer *and* the linguistic story of the text from first draft to final publication. Such an approach would allow writing-for-publication teachers and researchers to obtain a fuller picture of the socially-situated and collaborative processes by which novice scholars learn to write for publication.

To my knowledge the only studies that consider all the actors impacting on a scientific text from first draft to publication are Li (2006a) and Li and Flowerdew (2007). Li's (2006a) case study of Chen explored the impact of feedback from two EAL supervisors, Anglophone journal reviewers and a NES friend, while Li and Flowerdew (2007) conducted interviews with doctoral science students and their supervisors at a research university in China to consider the role of supervisors, peers and language professionals in helping EAL authors overcome language weaknesses in English.

Despite the strengths of Li (2006a) and Li and Flowerdew (2007), both studies focused on interactions between Chinese scholars and their Chinese-speaking supervisors. As scientific writing for publication is an international phenomenon occurring in diverse settings around the globe I believe there is a real need for similar non-Anglophone studies in language areas other than Chinese. Despite the productivity of scientific research based in German-L1 settings, there are no previous studies of German-L1 novice scholars trying to publish a scientific paper as first author for the first time.

In an effort to address the gaps outlined above I aim to answer the following research questions:

1) *How does feedback from different actors impact on German-L1 novice scholars as they progress on a centripetal journey in a disciplinary COP?*
2) *How does feedback from different actors impact on the text on its trajectory towards publication?*
3) *What sources and styles of feedback are most effective in helping German-L1 novice scholars develop and achieve successful publication in Anglophone science journals?*

Chapter 3: Methodology

3.1 Epistemological and theoretical perspective

In this research I draw on the social-constructionist (Bazerman, 1988) and ACLITS (Lea & Street, 1998) perspectives of L2 academic writing outlined in Chapter 2. In particular this study uses the concepts of COP and LPP (Lave & Wenger, 1991; Wenger, 1998) and takes the form of a socio-politically oriented case study (Casanave, 2003). Below I explain these theoretical perspectives in more detail.

With a basically social-constructionist epistemology, I see academic writing as a socially-situated practice in which writers and readers engage in a kind of internal dialogue out of which meaning or knowledge is constructed. This means that in order to be successful, novice EAL scholars have to gear their texts towards their target readers' expectations (Nystrand, 1986) taking into account the conventional textual patterns of development and the "expectations of the culture in which the writer is operating" (Huckin & Olsen, 1991: 406).

In this research I wanted to explore how different forms of feedback from different sources impacted on novice scholars and their texts on a trajectory towards publication. I believe social interaction and forms of feedback on writing that take into account social expectations and allow opportunities for discussion, negotiation and explanation best allow novice scholars to progress on this journey, moving from a peripheral position to a more central one within their disciplinary COP (Lave & Wenger, 1991). I feel that to find their "disciplinary voice" (Hyland, 2005: 191) novice scholars have to participate fully in a disciplinary community and connect with its socially determined beliefs and values.

Like Casanave (2003) I am also aware that the centripetal journeys of EAL scholars have social and political consequences. The texts of novice EAL scholars have a social dimension because they are "material objects fashioned by people" and a political dimension because they are "used to further political as well as intellectual and instructional agendas" (Casanave, 2003: 87). As the texts are produced in power-suffused settings such as classrooms and discourse communities they can be said to reflect hierarchical, institutional and power relationships (Casanave, 2003). In order to explore these aspects I decided upon a fine-grained case study approach. Below I explain the advantages of a case study approach in greater detail.

3.2 Case study research

A case study is defined by Nisbet and Watt (1984: 72) as "a specific instance of a phenomenon that is designed to illustrate a more general principle". Because case studies focus on detailed description of one individual or a small number of individuals, case studies have a "higher degree of completeness, a greater depth of analysis and are more readable than many other forms of research" (Duff, 2008: 43). Because case studies tell a chronological narrative and blend description and analysis, they allow readers to understand more easily how ideas or abstract principles fit together and relate to "real people in real situations" (Cohen et al, 2007: 253).

In the field of L2 academic writing Casanave (2002: 31) has argued that the advantage of this kind of approach is that it provides a "detailed examination of one setting or of a limited number of people in one setting over a period of time that is long enough for the people to get to know each other as more than distanced and disinterested researcher and observed subject." Researchers using this approach can thus "interact with, analyse, and depict real people" in a recognisable situation (Casanave 2002: 33).

Despite the undoubted benefits of this type of in-depth case study research, there are several weaknesses or limitations to consider. Duff (2008: 47) describes concerns about generalisability in case study research, meaning that researchers should be careful not to draw generalised conclusions from an individual case study or attempt to construct models of typical behaviour based on an a-typical case. In addition case study researchers should ensure credibility by providing "thick description" and "triangulation" wherever possible. According to Geertz (1973: 6) "thick description" means explaining with as much detail as possible the reasons behind human actions. On a practical level, thick description means that the amount of data from different sources to be analysed can become overwhelming. Researchers have to be well organised and "methodical about managing, sorting, analysing and interpreting the data, and reporting the findings" (Duff, 2008: 55). Researchers have to strike a balance between providing extensive examples and elaborating on emerging themes.

Another potential problem is the objectivity of the researcher. Because the researcher is the main "research instrument", there is a risk of becoming too close to the case and the data. Like many other forms of qualitative enquiry, case studies in the social sciences require the researcher to conduct interviews, analyse data and interpret findings. In so doing, qualitative researchers draw on their own world view, values and perspectives and can never claim to be entirely objective. However, most qualitative researchers argue that such subjectivity is not necessarily a failing. Hesse-Biber and

Leavy (2006: 79), for example, argue that "most qualitative paradigms agree on the importance of subjective meanings individuals bring to the research process." As long as researchers are open and honest about their own subjectivities and provide sufficient detail about decision making, coding and analysis of data, concerns about unprincipled subjectivity can be guarded against.

Finally, case study research is by its nature "emergent". This means it is difficult to know from the beginning precisely how much and what sources of data may emerge from the research design (Simons, 2009: 38). When investigating the process of writing a scientific article for publication, for example, it is impossible to know from the outset how long the writing process from first draft to submission will be or how many actors may be involved in the process.

3.3 Methods of data collection

3.3.1 Text history

In this study, in order to construct a picture of the trajectory of the novice scholars texts from first draft to final publication, I drew on Lillis and Curry's (2006, 2010) concept of text history (TH) as a main method of data collection. Lillis and Curry (2010) argue a TH should comprise: face to face interviews with the main author, collection of as many drafts as available, collection of correspondence between authors and brokers, and email correspondence and informal correspondence with authors. Bearing in mind the nature of writing activity, Lillis and Curry (2006, 2010) argue that no TH can ever be totally complete, as drafts may be overwritten or discarded by authors.

In this study I collected THs that were as complete as possible and triangulated each TH by including sources of data not included in Lillis and Curry's list above. In addition to the elements mentioned above, I asked the scholars to keep writing logs and draw diagrams of their writing network during the writing process. I also included all the feedback comments made by different actors within each TH. As a result the THs in this study are based on the following sources of data:

1) three semi-structured interviews in English with each of the novice scholars at the beginning, middle and end of the writing process

2) multiple drafts of each scholar's article: maximum 17 - minimum 6 drafts

3) email correspondence between the novice researchers main actors or brokers involved in the writing process

4) individual novice scholar's writing logs or diaries written during the writing process

5) written feedback on each of the articles from actors involved in the writing process, e.g., peers, co-authors, supervisors, language experts, journal editors and reviewers

3.3.2 Semi-structured interviews with first authors

As stated above, three interviews in English were conducted with each of the novice scholars. The interviews ranged in length from 45-90 minutes. The interviews were conducted at three points in time: 1) within the first month of beginning the article writing process, 2) following initial submission, and 3) towards the end of the process following feedback from the journal reviewers. The interviews were used to construct a picture of the writers' changing perceptions of the writing process and the role of different sources of feedback on the development of their texts.

The first interviews in each case drew on the interview schedule (Appendix C) developed in my previous research (Armstrong, 2010). I resisted completely structuring these interviews for fear of making the process too mechanical and presupposing what responses the interviewees might have. Like Kvale, (1996: 84) I believe that "the virtue of qualitative interviews is their openness". Consequently, each of the participants was asked the main questions from the interview schedule but the order of responses was not exactly the same in each case, as I attempted to make the interview as much like a natural conversation as possible.

With the second and third interviews I abandoned a pre-arranged interview schedule and instead asked each of the participants to talk about the different drafts of the text and the feedback they had received from the different actors. Through the discussion of the different drafts of their text, I tried to ascertain how participants perceived the impact of feedback from different actors. All the interviews were recorded and later transcribed by me.

3.3.3 First author's logs/ diaries and mind maps

In order to obtain a fuller picture of the process each author was engaged in and as a further basis for discussion in the interviews, I requested each of the authors to keep a writing log or diary during the writing process. Before the first interview I sent each participant a copy of guidelines regarding these writing logs (Appendix E) along with

the information letter (Appendix A), and consent form (Appendix B), which accompanied the study. Key questions which the participants were asked to reflect on included the following:

1. *What progress if any, have you made on your article today?*
2. *What difficulties (in terms of language and / or content) are you having now?*
3. *How are you trying to overcome the difficulties?*
4. *How do you feel about your article now?*

To obtain a better idea of how the authors saw their relationship with other actors, I asked them to sketch a map or diagram showing the relationships from their perspective. These maps or diagrams provided a useful triangulation of the data from the point of view of each author.

3.3.4 Feedback comments and correspondence from actors

In addition to the various drafts of their articles, I also collected all the written feedback on the novice scholars' writing and all email exchanges between the novice scholars and the different actors: supervisors, peers, NES language professionals and reviewers. I added the feedback comments to the heuristic and tried to relate comments made by various actors to the changes being made in the various drafts of the texts. I also asked the authors how they interpreted and tried to use the feedback comments that were made on their writing during the subsequent redrafting of their texts.

3.4 Methods of data analysis

3.4.1 Analysis of changes across drafts

The above methods of data collection resulted in extensive THs of between circa 90,000 and 250,000 words, as some of the writers wrote up to 17 drafts of their texts. In order to analyse the impact of various actors on each of the texts as they progressed towards publication, I tracked the various changes that had been made. For this purpose, I adapted the "text-oriented heuristic for tracking changes across drafts" developed by Lillis and Curry (2010: 89).

Lillis and Curry's heuristic is based on a number of previous textual and rhetorical frameworks (e.g Berkenkotter & Huckin, 1995; MacDonald, 1994; Swales, 1990;

Ventola & Mauranan, 1991; Knorr-Cetina, 1981; Gosden, 1995). Many of these frameworks draw in turn on Michael Halliday's Systemic Functional Linguistics (SFL) and the division of written language into three broad areas or "metafunctions". Halliday (1994) defines these three areas as: "the ideational" relating to the *field* aspects of a text, its subject matter and content; "the textual" relating to the *mode* of a text, its internal organisation communicative nature, grammatical complexity, lexical density and cohesion; and "the interpersonal" relating to a text's *tenor*, the way in which the writer communicates a positive or negative attitude, social distance or proximity to the reader.

Although Lillis and Curry's heuristic was a useful starting point for analysing changes to the texts I found it necessary to adapt and more precisely define some of the categories it contained. Lillis and Curry (2006: 9) point out that several of the categories in their heuristic may "overlap or may be subordinate to another category in a specific instance" but I wanted to reduce this subordination as much as possible in order to make analysis more straightforward and efficient. The adaptations I made to the heuristic are described below and my adapted heuristic is presented overleaf in Table 3.1. The adaptations were in part influenced by Gosden (1995) who distinguishes between changes to argument, which he defined using Swales' (1990) term "rhetorical machining" and those to the surface level, which Gosden (1995) refers to as "polishing".

My first change to the heuristic was to add a column for feedback comments so that I could analyse the relationship between comments made by actors and changes made by first authors. Lillis and Curry (2006, 2010) focused primarily on changes made to the text and did not include feedback in their heuristic. However, I felt it was extremely important to include these comments as an important aspect in the novice writer's enculturation into the target discourse community.

Table 3.1. Heuristic for tracking changes adapted from Lillis and Curry (2010)

Focus on text data				
Changes made to draft	**Article section Draft number**	**Made by? Date if known**	**Feedback comment Yes/No**	**Response of first author Accepted/ Rejected**
1. Addition Complete sentence or paragraph added.				
2. Deletion Complete sentence or paragraph deleted.				
3. Reformulation Changes to words and phrases within sentences or paragraphs.				
4. Re-shuffling Changes to the order of words or sentences within paragraphs.				
5. Change to argument Degree of hedging/emphasis on claims made, changes to amount of evidence provided, changes to what is fore-grounded or backgrounded."Rhetorical machining" (Swales, 1990).				
6. Change in positioning Explicit reference to position of paper / research in relation to field e.g. CARS, claiming centrality (Swales, 1990).				
7. Change to discipline specific lexis Changes to discipline or field-specific vocabulary.				
8. Change to register Change in level of formality.				
9. Sentence level changes / corrections Changes to sentence level syntax, vocabulary, grammar, spelling, or punctuation. "polishing" (Gosden, 1995)				
10. Change to cohesion markers Changes to ways in which sentences are linked, e.g. use of conjunctions, pronoun repetition, linking phrases,				
11. Change to publishing conventions Changes to specific journal or organizational conventions (such as APA).				
12. Change to visual representation of text Changes to formatting, diagrams, bullets.				

In addition, I classified comments about the overall organisation of the text and strength of claims made as primarily language comments. As some of the actors in these case

studies switched between German and English in their feedback comments I added a column to record which language the comment was made in to see if some actors switched between languages more than others and a column to record the novice author's response to the comment.

My second change to the heuristic was to split category 7 in Lillis and Curry's original heuristic, *"changes to levels of formality, field specific vocabulary,"* into two separate columns as I saw these changes as two separate phenomena. From my point of view, *"changes to level of formality"* implied any change to the register of the text and did not necessarily relate to field-specific terminology. An example of a change to the level of formality would be to replace the phrase "got good results" with "obtained significant data." A change to field specific vocabulary would be to change the word "contaminant" to "target compound". Such a change does not necessarily affect the formality of the text but may make it more precise for specialist readers.

Finally, in an effort to improve the data analysis, I defined some of Lillis and Curry's potentially overlapping categories more precisely. Consequently, I used the categories *"addition"* and *"deletion"* only where complete sentences or paragraphs were deleted, not individual words or phrases. Where individual words or phrases were added or deleted within a sentence or paragraph, I categorised these changes as *"reformulations"*. Where actors corrected grammar, spelling or punctuation or changed sentence level syntax without additions or deletions, I categorised this as *"sentence level changes"*.

After I had categorised all the changes from the different drafts of the text, I added the written feedback comments made by each of the actors who had commented on each draft to the column I had included in the heuristic. I then examined whether the first author had accepted or rejected the changes suggested by the actor in subsequent drafts of the text. During the second and third interviews, I asked the first author why certain changes were accepted or rejected and how they saw the text developing. Following the interviews, I added comments from the authors about various changes.

For purposes of triangulation I also included comments from the first author's log to the text history, where I found specific references to changes made to the text. At the end of this process I was left with an extensive TH for each writer. These THs were summarised (Appendix F) and discussed with the authors in the final interviews in a respondent validation procedure (McCormick & James, 1988) to confirm that they represented an accurate picture of the major changes that had been made to the text from initial to final drafts.

3.4.2 Analysis of feedback comments

In order to analyse the information the novice writers obtained from the feedback comments from each actor I drew on previous studies of reviewer feedback by Gosden (1995, 2001, 2003), Kourilova (1996), Belcher (2007), and Mungra and Webber (2010). I analysed feedback comments by first dividing them into two broad categories: "comments relating to content" and "comments relating to language" following Mungra and Webber (2010). My categorisation of comments into content and language is presented in Figure 3.1 below.

Figure 3.1. Classification of written feedback comments

A. Focus of Feedback Comment

1. Focus on ideational or content features of text

a. Scientific reasoning, errors of own data
b. Define terms
c. Incomplete literature
d. Procedural infelicities or lack of rigour
e. Statistical irregularities
f. Incorrect scientific interpretation of other authors
g. Lack of association between claim and prior research
h. Lack of association between claim and data
i. Explain why data are unusual
j. Accuracy or details of tables/figures
k. Fuller explanation of table/figures
l. Other technical detail

2. Focus on the textual or language features of text

a. Problems with whole text organisation
b. Problems with paragraph organisation
c. Problems with information flow
d. Wrong section (e.g. move to discussion)
e. Incoherent or lack of clarity
f. Problems with readability
g. Problems with verbosity
h. Use particular specialist terminology
i. Repetitions
j. Typos, spellings
k. Up-tone or give more salience to novelty feature (Strengthen claim)
l. Down tone or hedge (Reduce strength of claim)

B. Language of Comment

1. **English**
2. **German**

C. Response of Author

1. **Accepted**
2. **Rejected**

Drawing on Halliday's SFL I defined "content comments" as those comments which seemed to focus on the "ideational aspects of the text". Like Gosden (1995; 2003) content for me was primarily the "scientific reasoning" and the "technical details" presented in the text, as well as the citations of previous work. I defined "language comments" as those remarks which seemed to relate primarily to "textual aspects" in a SFL framework. For me "language comments" included remarks about the text's internal organisation, communicative nature, grammatical complexity, lexical density, cohesion, coherence and clarity.

As I see writing as a social process I felt it was necessary to consider the feedback from different actors *both* as a source of information about writing *and* as a resource for motivating and encouraging the novice scholars. To classify the feedback comments from an interpersonal perspective I drew on classification schemes developed by Hyland and Hyland (2001) and Kumar and Stracke (2007). Hyland and Hyland (2006) divided interpersonal aspects of teacher written feedback into three major categories: praise, criticism and suggestion. When I began to analyse the feedback comments using these three categories I found that there were comments which contained interpersonal elements but were not covered by these three categories alone. In order to classify these comments I added some additional categories from those used by Hyland and Hyland. For this purpose I drew on the categories used by Kumar and Stracke (2007) in their analysis of a PhD supervisor's feedback comments on a thesis. Kumar and Stracke divided these comments into "referential", "directive" and "expressive" categories and included aspects such as "suggestions", "questions", "instructions", "praise", "criticism" and "opinions". I also included whether the actor addressed the writer directly by name, as I believe the use of such forms of direct address suggest the actor is responding to a person rather than only correcting a text. In German, with its distinction between informal "Du" and more formal "Sie" modes of address, I felt that this feature of language could significantly reflect the sense of proximity or distance between the actor giving the feedback comment and the author. Figure 3.2 below shows the categories I used to analyse the interpersonal aspects of the feedback.

Figure 3.2. Categories used to analyse interpersonal aspects of written feedback

Interpersonal aspects of feedback

a. Praising
b. Making suggestions
c. Criticising
d. Raising questions
e. Explaining reason for changes made to text
f. Instructing or directing writer to make changes
g. Providing models to help writer
h. Addressing writer directly with "Du"/ "Sie"/ "you"
i. Addressing writer directly by name

3.4.3 Interview analysis

In addition to the construction of THs and analysis of feedback comments, the data collection resulted in interview transcripts of between 15,000 and 25,000 words for each case. I transcribed the interviews, and then manually coded them based on the main themes which emerged from my research questions and from the developing THs (see Appendix G for example of initial coding). Wherever comments in the interviews related directly to changes in the texts or feedback comments from different actors, I added these comments to the THs as a form of triangulation.

As I analysed the interview transcripts further I attempted initially to keep my codes as discrete as possible. Once I had assigned initial codes, I read and reread the transcripts to become thoroughly familiar with them and to see if any inconsistencies or contradictions emerged. Having performed the first round of coding, I attempted to group codes into clusters or groups to form thematic categories or domains (see example in Appendix H). Based on these thematic categories I began to detect patterns and themes within the interviews and started to be able to make generalisations about the meaning of the data. This process helped me to explain what was significant about the obtained data by looking at the themes and categories that emerged from the data itself, rather than predefining the data analysis.

At all times I tried to adopt a constructivist approach to the data analysis, fitting with my theoretical perspective. In order to illustrate my findings I used quotations from the transcripts and examples from the THs. I obtained written permission in advance from the participants for use of these quotations and text extracts.

3.4.4 Diagrams of text trajectories, social interactions and influence of actors

In order to represent the text trajectory, the social interactions and the degree of influence that each actor had on the text, I developed various diagrams from the THs (see Appendix I for examples of some initial diagrams). As a form of triangulation I asked the authors to draw their own sketches of how they saw their relationships with other actors and then tried to incorporate elements of their sketches into my diagrams. The final versions of my diagrams were discussed with the first authors in the final interviews to ensure they represented the case in an accurate way. In particular I discussed the size of the circles in each of these diagrams to ensure that each circle represented the approximate amount of influence that each actor had on the text. The size of the circles was based on the amount of feedback or changes each actor had made to the text and on the first author's perception of which actor was the most influential on the text. The diagrams are obviously only a representation of this influence rather than a precise quantification but serve to provide the reader with a visual overview of the complete trajectory of the text and the impact and interrelation of the chief actors in each TH.

3.5 Reliability and validity

It is debatable whether "reliability" and "validity" are appropriate terms for discussing qualitative case studies like those presented in this thesis. For Cohen et al. (2007: 149) "reliability in qualitative research can be regarded as a fit between what researchers record as data and what actually occurs in the natural setting that is being researched," rather than its use in quantitative studies where it is more connected with whether findings can be replicated. Many qualitative researchers prefer to use other terms when talking about the trustworthiness of their research. Lincoln and Guba (1985) for example prefer the terms "credibility," "transferability" or "dependability."

Guba and Lincoln (1989: 237) argue that "credibility" in qualitative research is based on the researcher's consultation with the key stakeholders of the investigation to show that the results adequately represent the "constructed realities of respondents". Likewise "transferability" is defined by Guba and Lincoln (1989: 241) as the researcher's responsibility to describe the research context and participants in such a way that readers of the research can judge whether the findings apply to other contexts or not. To ensure "dependability" Guba and Lincoln (1989) ask the researcher to document each stage of the research process to show clearly and exactly how research findings were arrived at.

Throughout this research I have tried to ensure the trustworthiness of my study by describing all phases of the study to the stakeholders involved in an open and honest way, by documenting each stage of the process, and by consulting with the participants at each stage. As already mentioned, I incorporated a respondent validation procedure (McCormick & James, 1988; Hammersley & Atkinson, 1991) in the final interviews to see if the participants recognised the authenticity of the analysis being developed. In addition I offered to share the results of the research with the participants if they were interested and explained the potential benefits for teaching practice coming from my research results (Cohen et al, 2007).

3.6 Research ethics

In planning a longitudinal case study there are numerous ethical issues to be considered, such as the degree of disruption caused to individual participants and issues of anonymity and confidentiality. Before undertaking the research, I familiarised myself with the Revised Ethical Guidelines provided by the British Educational Research Association. In order to ensure confidentiality and anonymity all the actors are referred to by pseudonyms and the institutions and journals concerned have been anonymised. On the request of the participants I omitted extracts from final published versions of the texts which might identify them. In addition, I tried to be honest, open and fair in my analysis and report my data in an accurate and reliable way. Throughout the process I was aware of the need for reflexivity in order to minimise my personal bias, as outlined by Thomas et al (2000) and Griffiths (1998).

3.7 Overview of cases

3.7.1 Selection and recruitment of cases

Six German-L1 novice scholars were initially recruited as participants in these case studies. As two of this group experienced significant delays with their research data and were not able to begin writing a research paper in the planned time-frame of this study and one further participant dropped out due to changes in his personal circumstances, I was left with a group of three participants, illustrating the unpredictable and emergent nature of case study research.

The three scholars were recruited by me after they took part in an online survey I conducted in the second year of my EdD (Armstrong, 2011). The three participants were selected as representative of novice scientific writers located in the latter stages of MacDonald's (1994) novice-expert continuum, described previously (see section

2.2.2). All three were doctoral researchers who had not yet completed their PhD studies and were employed in scientific institutions in the German-speaking part of Switzerland. All three participants were seeking to publish a journal article in English as first author for the first time. All the writers were German-L1 speakers and were assessed by me as having approximately upper intermediate to advanced level English (B2-C1). Although the participants were native German-L1 speakers, all three came originally from outside Switzerland, reflecting the high proportion of non-Swiss researchers and the increasingly globalised nature of Swiss scientific research.

Two of the participants were male and one female, reflecting the predominance of male researchers in natural science and engineering disciplines in the institutions concerned. The cases were chosen to represent different scientific disciplines, ranging from more traditional areas of natural science to newer interdisciplinary fields. The participants were recruited in exchange for an offer of help with editing or proof-reading at a later date.

Table 3.1 below presents an overview of the three novice scholars positioned at the centre of this research.

Table 3.2. Overview of cases

Case, pseudonym	Age at beginning of case study, nationality	Field and topic of article	Years of experience as scientific writer in English	Articles published at time of case study
Case 1, "Rolli"	27, Austrian	Information Science Software Engineering	5 years	Contribution to 6 conference proceedings papers 0 journal articles in English
Case 2, "Stefan"	28, German	Natural Science Aquatic Chemistry	5 years	1 conference proceedings paper 0 journal articles in English
Case 3, "Tina"	34, German	Environmental Science and Economics Technological innovation	2 years	4 articles published in German 0 journal articles in English

3.7.2 Use of pseudonyms and initial letters in the case studies

In order to anonymise the novice scholars in Cases 1, 2, and 3, they have been given the pseudonyms "Rolli", "Stefan" and "Tina" respectively. To maintain the anonymity of all the actors involved, an alphabetic system has been used to refer to each of the actors in turn. The actors in the case studies were assigned an initial letter to indicate their chronological involvement in the trajectory of the text, so actor A in each case study refers to the initiator of the text. To distinguish between actors in different case studies a second letter indicating which case study they appear in was assigned, so actor BS refers to the second actor in the case about "Stefan", Case 2.

3.7.3 Use of italics, abbreviations and translation in the case studies

Throughout the case studies, direct quotations from interviews with the participants or from their writing logs are presented in italics. Original feedback comments or quotations from writing logs written in German have been translated into English by the author of this thesis. A translation in English is included in brackets immediately after the original text. Abbreviations have been used to refer to interviews or writing logs, so RI1 refers to case Rolli Interview 1, RWL refers to Rolli's Writing Log.

Chapter 4: Case 1 "Rolli"

4.1 Biographical details and previous writing experience

Born and raised in northern Austria, Rolli was 27 when the case study began in January 2010. He held an MSc in computer science and was employed as a research assistant in the same department where he was studying for his PhD. Rolli had already been working on his PhD for three and half years at the beginning of the case study and estimated he had another two years until he finished. In addition to studying for his PhD, Rolli's duties included teaching courses in software engineering, software quality, and information technology modelling. He was also responsible for supervising MSc students and had already successfully supervised four MSc theses in English.

In Interview 1 (January, 2010), Rolli described his research interests as *"software engineering, variability modelling and management."* In addition to his teaching work, Rolli described his involvement in a large research project, exploring the use of *"model-based requirements description"*. A major focus of this project was evaluating the advantages and disadvantages of this new method in a software development company.

Rolli stated that his experience of writing scientific texts in English first began in October 2004 when he took part in an Erasmus exchange seminar in Finland. He greatly enjoyed living and studying in Finland and stayed there for two semesters. In Finland Rolli began to use his *"school English"* in everyday life for the first time (RI1). Prior to writing the article that became the basis for this case study, Rolli had already contributed *"some small sections to six papers"* in English in collaboration with his supervisor, Professor DR, and other members of his departmental team, but had not yet published a journal article as first author. Professor DR had been a professor for 17 years and was the first author of more than 50 articles in English in the field of software engineering. Like Rolli, Professor DR was a native speaker of German.

In interview 1 Rolli defined his main problems with scientific writing as structuring an argument and using specific vocabulary: *"The biggest difficult for me is about structuring a paper and structuring an argument and bringing supportive arguments for your claim....Also I have to use dictionaries quite often"* (RI1). Reflecting on his achievements as a scientific writer up to the date of the first interview, Rolli commented: *"If I take a look at some text I wrote in 2005, it's horrible. (Laughs) So, from my current point of view, I feel now the quality is okay"* (RI1).

4.2 Text history Case 1

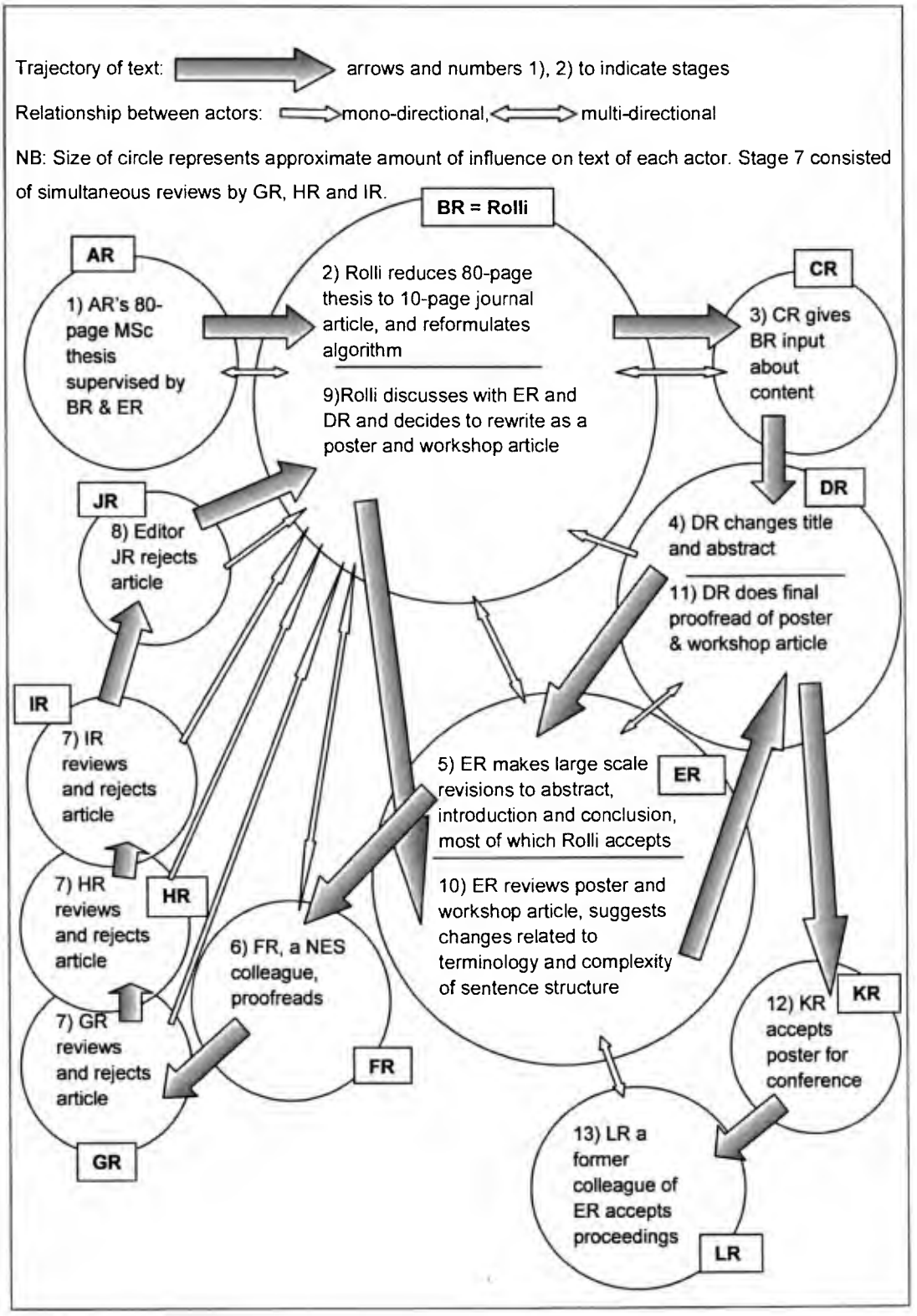
The TH in Case 1 is based on analysis of changes made to 17 drafts of Rolli's text and feedback from nine actors who commented on the text during the writing process (total circa 150,000 words). Figure 4.1, below, lists the principal actors involved in the TH.

Figure 4.1. Principal actors in Case 1

AR = MSc student supervised by Rolli and ER
BR = Rolli, research assistant, PhD student and 1st author
CR = Research assistant and PhD student, Rolli's colleague
DR = Professor, PhD supervisor, departmental head and later 2nd author
ER = Senior research associate, Rolli's colleague
FR = NES peer reviewer and colleague
GR = Journal 1st reviewer
HR = Journal 2nd reviewer
IR = Journal 3rd reviewer
JR = Journal editor
KR = Conference editorial board
LR = Editor of proceedings publication

All the actors (apart from the NES peer reviewer FR, and the editor and journal reviewers, whose L1 is not known) were German-L1 speakers. Figure 4.2, overleaf, shows the trajectory of the text and the main interactions between the actors from first draft to final publication. Figure 4.2 helped me to understand the significant role played by individual actors within Rolli's network. As can be seen, Figure 4.2 shows the highly collaborative and recursive nature of scientific authorship depicted in this case. The size of each circle represents the approximate amount of influence of each actor on the text. Lines dividing circles into two show how one actor was involved at two different stages in the TH.

Figure 4.2. Trajectory of text and interactions between actors in Case 1



4.2.1 Early drafts

Rolli began writing the text that forms the basis of this case study on 22 January 2010. The text was planned initially as a short 10-page journal article with Rolli as first author and his supervisor, Professor DR, as second author. It was eventually published as a two-page poster at an international conference in Australia on 27 September 2010.

The first draft of the text was itself based on an 80-page MSc thesis that Rolli and his colleague ER, a post-doctoral Senior Research Assistant, had supervised together. The author of this MSc thesis was AR, an MSc student. According to his writing log, Rolli began the writing process by preparing a draft title and abstract for the paper. In the log Rolli wrote that he *"took many of the contents directly from AR's text but managed to cut down the text from 80 to 10 pages"* (RWL, January 2010).

By 4 February 2010 Rolli had a *"rough outline of the text"*, and decided to discuss the text (Draft 1) with Peer CR, a colleague working at the same Institute. Peer CR *"found it good"* and recommended that Rolli continued writing but advised that *"the scope of the findings should be narrowed down to make it more concise and therefore suitable for a 10-page article"* (RWL, February 2010). Rolli continued working on the draft for the next four days until 8 February to improve and clarify the main purpose of the paper. In particular, Rolli decided to place greater emphasis on the novelty of the described system. As a result of further talks with CR, Rolli decided *"to make the purpose more explicit"* (RI1) and foregrounded a statement of purpose in line 19 to line 11 in the revised version of the text.

4.2.2 Feedback from supervisor

On 9 February, Rolli showed a complete draft of the 10-page article to his supervisor, Professor DR. DR read the whole text but only gave feedback on Rolli's title and abstract. Figure 4.3, overleaf, shows Professor DR's written feedback on Rolli's abstract. Table 4.1, overleaf, presents a more detailed analysis of DR's feedback and shows how DR focused primarily on sentence level language features such as syntax, terminology, grammar, and punctuation.

Figure 4.3. DR's review of Rolli's abstract, February 2010

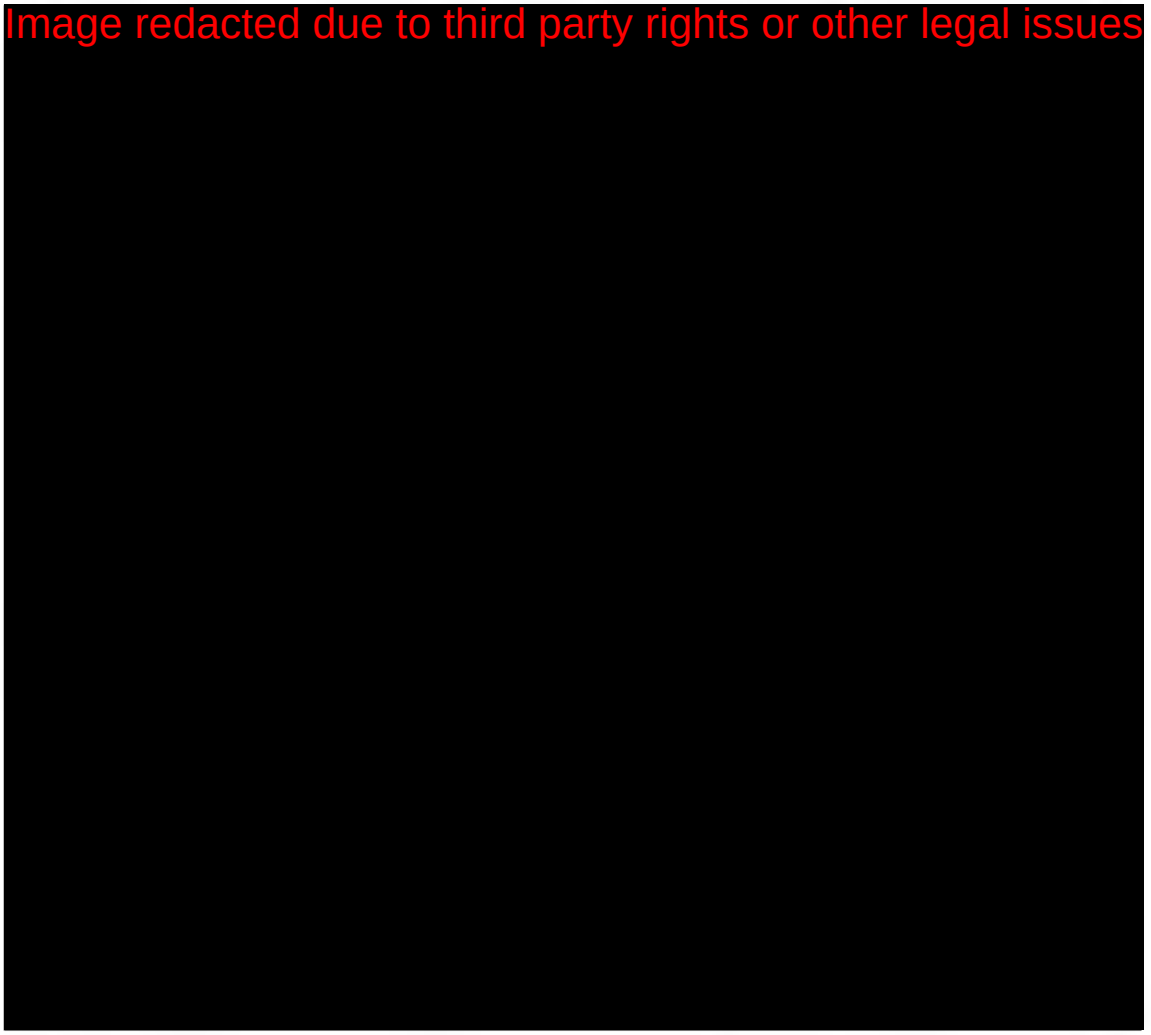


Figure 4.3 and Table 4.1 show that DR adopted a rather "minimalistic approach" to feedback, reminiscent of the revisions made by the NES revisers discussed by Mauranen (1997) who focused on grammar but ignored problems of poor text organisation. DR's only feedback on the content of the article was one comment at the end of the abstract and the use of wavy pencil lines and question marks to suggest the doubtful nature of some of the claims made in Rolli's text. In addition DR cut the length of Rolli's abstract from 250 to 225 words. The punctuation was improved and the average sentence length was slightly reduced.

Table 4.1. DR's feedback on Rolli's abstract

Type of feedback comment or orthographic mark	**Focus of feedback: Language / Content**
3 circles	**Language: punctuation** Indicating need for commas
2 circles 2 question marks	**Language: terminology** Suggesting uncertainty about the terms *"unweaving"* and *"basic"*
35 words deleted in pencil	**Language: length** Shortening Abstract
Minor reformulations to 2 sentences	**Language: readability** *"This enables a refactoring..."* **Changed to:** *"and thus helps refactor..."*
1 wavy line 1 question mark	**Content: strength of claim** Suggesting doubtful nature of claim: *"We show that our approach can successfully support refactoring"*
1 comment at end of abstract	**Content:** *"Say more precisely that it is model-based; say more precisely that it's about requirements models with implicit variability"*

Commenting on DR's feedback in Interview 2, Rolli summarised the changes made as: *"basically making it more concise and removing redundant words that are not necessary to get the same message, and making it easier to read... DR was doing mostly cosmetic changes and not really fundamental things."* Rolli interpreted the minimal changes to his abstract from Professor DR as an indication that everything was fine with the text: *"I mean I interpret this...that it's okay and if I take those language changes it's better in DR's opinion"* (RI2).

However, the exact meaning of some of Professor DR's orthographic marks seems not to have been completely clear for Rolli. For example, when I asked him why he thought the words "basic" and "unweaving" had been circled by Professor DR, Rolli told me he could not remember what the purpose of this feedback was, but believed Professor DR was *"doubtful about whether the terms were appropriate."* Despite Rolli's uncertainty about the meaning of some of his supervisor's feedback, it is interesting to note that the word "basic" was removed in later versions of the text. However, the word "unweaving" was maintained in subsequent drafts, suggesting that Professor DR's concern about this term was not so significant.

Rolli was initially surprised that DR's changes were *"mostly from a language point of view – not really contents"*. Although he found DR's comments *"helpful"* he was "*a little disappointed"* that DR did not say more about the content and had not reviewed the whole article. Rolli was, however, not keen to criticise his supervisor, explaining that DR was "*very busy and probably did not have time to comment in detail on the whole text...DR has also to do all the organisational stuff in the department and so on because he is the department head and he doesn't have time always."* According to Rolli, this was fairly normal procedure: *"only if an article was accepted"* would Professor DR spend more time reviewing. Rolli was confident that he would receive more feedback from his supervisor at a later stage of the publication process and told me: "*DR usually rewrites a lot after the submission deadline and before the camera-ready"* (RI2).

4.2.3 Feedback from peer

Following DR's feedback on the abstract, Rolli continued to work on the manuscript and on 10 February showed another draft to his co-worker ER. Peer ER was already a post-doctoral researcher with more experience of publishing than Rolli but who Rolli felt was *"more approachable than Professor DR"* (RI2). From 10 to 12 February the text underwent a large-scale revision as a result of editing and detailed feedback from ER. In total ER made changes affecting more than 150 lines of Rolli's 10-page article and wrote 32 feedback comments about the text using a mixture of Word "balloons" and PDF "sticky notes".

In editing the text ER focused on restructuring Rolli's abstract, and shortening the introduction and conclusion sections. On 10 February ER largely rewrote Rolli's abstract, emphasising how the new tool addressed the needs of different markets and user segments. A day later ER subsequently reorganised and reduced the length of the Introduction and the next day ER reduced the Conclusion to half its length. Table 4.2, below, summarises the main changes made by ER to Rolli's text and shows how ER worked simultaneously at different levels on both content and language issues.

Table 4.2. Changes made by ER to Rolli's text

Section and type of change	Effect	Example	Number of changes
Abstract			
Change to argument: "rhetorical machining" (Gosden, 1995)	Relevance to community emphasised	*"Companies are increasingly developing variations of their core software products thus unintentionally shifting from traditional development towards software product line development"* **Changed to:** *"To address the needs of different market and user segments companies develop variations of their software products..."*	6
Sentence level changes	Grammar corrected	*"Software requirements models having implicit variability..."* **Changed to:** *"Software requirements models with implicit variability..."*	2
Introduction			
Sentence reformulation	Less wordy style	*"However building a dedicated variability modelling approach and establishing all necessary mappings is a considerable effort and hence often inhibits the explicit introduction of a software product line approach"* **Changed to:** *"It is evident that such an approach is a considerable effort and often inhibits the explicit introduction of a software product line approach"*	15
Change to register	Less formal style	*"Since"* **Changed to:** *"because"*	7
Sentence deletions	Length reduced from 88 to 56 lines	*"Products are getting more complex and need to satisfy more requirements than ever"* **Deleted**	4
Conclusion			
Sentence deletions	Length reduced from 29 to 18 lines	*"This approach is called feature unweaving and can successfully be used for refactoring reference requirements models into software product line models with aspect oriented modelling"* **Deleted**	3
Sentence level changes	More impersonal style	*"We have..."* **Changed to:** *"The paper has..."*	3
Sentence level changes	Grammar corrected, claim strengthened	*"The approach could improve..."* **Changed to:** *"The approach improves..."*	2

At the section level, ER reorganised, reformulated and restructured the argument to emphasis the relevance of the new tool to the community of software developers, who were the intended audience of the article, changes which would be classified under Gosden's framework as "rhetorical machining", (Gosden 1995). At the paragraph and sentence level, ER made changes resulting in a more impersonal and less wordy style. The personal pronouns "we" and "our" were deleted on 10 occasions in different paragraphs and replaced by references to "the paper" or "the approach". In addition, more complex sentence structure and the frequency of linking words such as "thus" and "hence" was substantially reduced. At the sub-sentence level, ER "polished" the text by correcting small errors in grammar, vocabulary and punctuation (Gosden, 1995).

Interestingly, in most cases where ER introduced large-scale changes to the text, he also added comments to justify and explain what he was doing. Table 4.3 below shows how ER employed a wide variety of interpersonal feedback strategies in his response to Rolli's text.

Table 4.3. Interpersonal aspects of ER's feedback on Rolli's text

Interpersonal aspect	Example	Number of comments
Raising questions	*"Are you ready to demonstrate that?"*	10
Making suggestions	*"Evtl. noch angeben was die added Value sein würde im Vergleich"* (Probably still add what the added value would be in comparison)	5
Instructing or directing writer to make changes	*"Stattdessen: Anpassung an Markt und Nutzersegmente"* (Instead of this: focus on the market and user segment)	4
Addressing writer directly by name	*"Rolli dies sind doch selbst gemachte Probleme"* (Rolli, but these problems are self-created)	4
Praising	*"Deine Fussnote mit Link ist Gut"* (Your footnote with the link is good)	2
Explaining rationale for changes made to text	*"Dies hilft uns die Relevanz zu erklären"* (This helps us to explain the relevance)	2
Providing alternative paragraph	*"Gegenvorschlag..."* (Alternative suggestion)	2
Providing models	*"Structure of this second paragraph:* *1) contribution = feature unweaving (this is ok)* *2) what is feature unweaving?* *3) what are the benefits of feature unweaving in terms of the outlined problem?* *4) how was the approach validated? What has been learned?"*	2
Criticising	*"Ich verstehe diese Satz nicht"* (I don't understand this sentence)	2

On 10 occasions ER asked questions, which Rolli interpreted as *"pushing (him) to think more carefully"* about what he had written (RI3). For example, next to Rolli's claim that companies were increasingly developing variations of their software products ER wrote *"Welche Evidenz haben wir hierfür?* (What evidence do we have here for that?). Further on in his review ER wrote: *"heisst das, dass wir nur automatisieren, die intellektuelle Arbeit jedoch nicht vereinfachen?"* (Does this mean that we are only automating the intellectual work, but not simplifying it?). Finally at the end of the abstract ER highlighted another claim and wrote, this time in English: *"Rolli are you ready to demonstrate that?"*

In other places ER was more directive in his feedback giving explicit instructions about what should be changed, such as: *"The motivation usually goes into the first paragraph of the abstract, where the context and problem are introduced. Instead of motivation, we can talk about benefits here at the end of the abstract..."*. However, whenever ER gave such directions he also took time to explain the rationale for comments and seems to have been motivated by a genuine concern that the paper would be rejected in the way it was currently written. At the end of the abstract ER wrote: *"In general, I am afraid that the paper will be rejected because it is not relevant for the community in the way you present it here."*

In addition, ER's comments reflect his concern that Rolli should learn as much as possible from the review for his future paper writing. One example of this was to give Rolli a recipe for a successful abstract, which went well beyond just correcting the text:

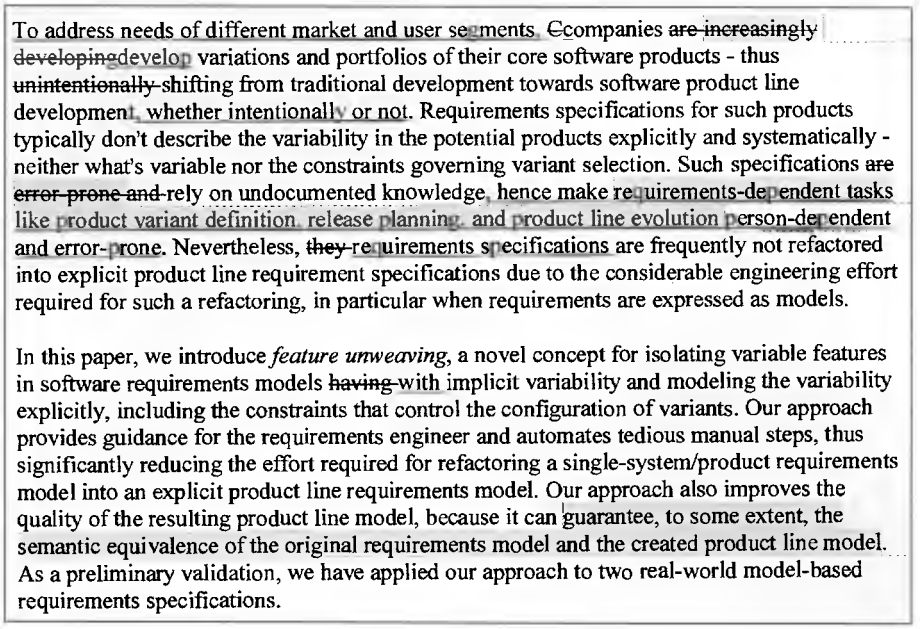
> *"Structure of this second paragraph*
> *1) contribution = feature unweaving (this is ok)*
> *2) what is feature unweaving?*
> *3) what are the benefits of feature unweaving in terms of the outlined problem?*
> *4) how was the approach validated? What has been learned?"*

Interestingly, within one review of the text ER wrote some comments in German and others in English, indicating his high level of language proficiency and flexibility as a writer. In total 15 comments were made in English and 17 in German. Two of the phrases were multilingual: primarily written in German but containing some code switches and lexical borrowing (Myers-Scotton, 1992) from English e.g. *"Rolli, dies klingt so wie das Paper nicht fertig ist...Weiter evtl. noch angeben, was die added Value sein würde."* (Rolli, this sounds like the paper isn't finished yet...Perhaps indicate what the added value would be further on.)

Comparing the feedback that Rolli received from Professor DR (Table 4.2) and Peer ER (Table,4.3) we can see the two actors had very distinctive feedback styles. ER seems to have better understood the interpersonal nature of feedback and the importance of responding to a person, whereas DR focused on correcting a text. It is significant that on four occasions ER used Rolli's name to personalise the comments that he was making, and on another six occasions addressed Rolli as "Du" or "you." On eight occasions ER used "we/"wir" or "our"/uns" suggesting that he positioned himself as a knowledgeable friendly colleague engaged in a collaborative endeavour rather than a superior expert making "corrections" to a text.

Figure 4.4 below and Figure 4.5, overleaf, show the remarkable range and quality of ER's feedback, which focused equally on language and content issues. Figures 4.4 and 4.5 show how ER made sentence-level corrections to improve the flow and readability of the text and at the same time provided a running commentary and suggestions for alternative paragraphs for Rolli to consider.

Figure 4.4. Changes made by ER to Rolli's Abstract, February 2010



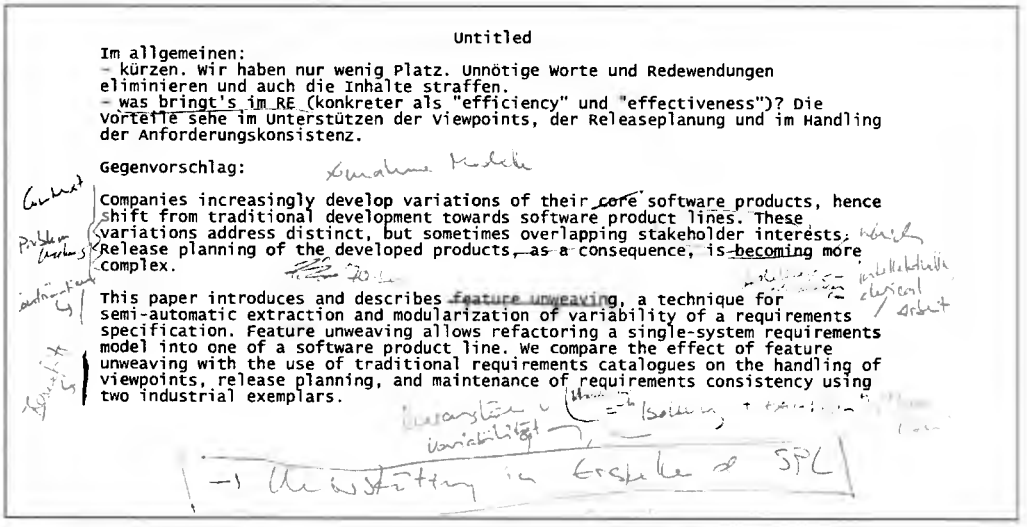
To address needs of different market and user segments, ~~C~~companies ~~are increasingly developing~~develop variations and portfolios of their core software products - thus ~~unintentionally~~ shifting from traditional development towards software product line development, whether intentionally or not. Requirements specifications for such products typically don't describe the variability in the potential products explicitly and systematically - neither what's variable nor the constraints governing variant selection. Such specifications ~~are error-prone and~~ rely on undocumented knowledge, hence make requirements-dependent tasks like product variant definition, release planning, and product line evolution person-dependent and error-prone. Nevertheless, ~~they~~ requirements specifications are frequently not refactored into explicit product line requirement specifications due to the considerable engineering effort required for such a refactoring, in particular when requirements are expressed as models.

In this paper, we introduce *feature unweaving*, a novel concept for isolating variable features in software requirements models ~~having~~ with implicit variability and modeling the variability explicitly, including the constraints that control the configuration of variants. Our approach provides guidance for the requirements engineer and automates tedious manual steps, thus significantly reducing the effort required for refactoring a single-system/product requirements model into an explicit product line requirements model. Our approach also improves the quality of the resulting product line model, because it can guarantee, to some extent, the semantic equivalence of the original requirements model and the created product line model. As a preliminary validation, we have applied our approach to two real-world model-based requirements specifications.

Figure 4.5, overleaf, also shows Rolli's written response in the form of pencil notes on ER's alternative paragraph, showing how the paragraph was used by Rolli as the basis for another version of the abstract, which he wrote on his own. In his writing log Rolli referred to the *"helpful comments"* he had received from ER which *"motivated"* him to attempt another draft: *"I took ER's version of the abstract and improved mine based on*

this. ER added many helpful comments on the abstract; I tried to answer them in order to find points to improve..." (RWL).

Figure 4.5. Example of ER's multilingual feedback on Rolli's text



Untitled

Im allgemeinen:
- kürzen. Wir haben nur wenig Platz. Unnötige Worte und Redewendungen eliminieren und auch die Inhalte straffen.
- was bringt's im RE (konkreter als "efficiency" und "effectiveness")? Die Vorteile sehe im Unterstützen der Viewpoints, der Releaseplanung und im Handling der Anforderungskonsistenz.

Gegenvorschlag:

Companies increasingly develop variations of their core software products, hence shift from traditional development towards software product lines. These variations address distinct, but sometimes overlapping stakeholder interests. Release planning of the developed products, as a consequence, is becoming more complex.

This paper introduces and describes feature unweaving, a technique for semi-automatic extraction and modularization of variability of a requirements specification. Feature unweaving allows refactoring a single-system requirements model into one of a software product line. We compare the effect of feature unweaving with the use of traditional requirements catalogues on the handling of viewpoints, release planning, and maintenance of requirements consistency using two industrial exemplars.

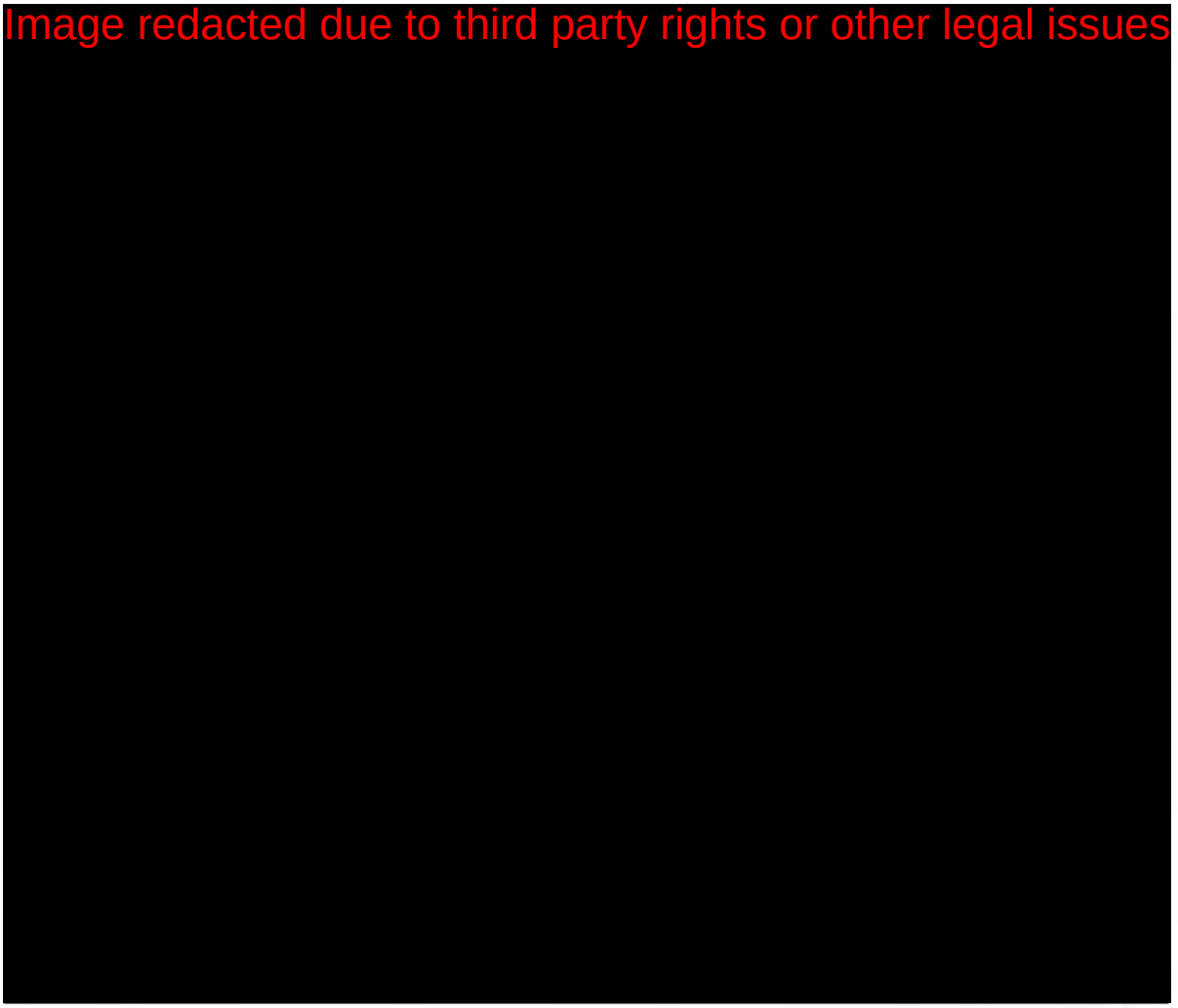
As the deadline for submission approached, the text was given to an NES colleague, FR, for proof-reading. FR introduced 12 sentence-level changes to correct errors of punctuation and article usage, and to turn contracted forms into full forms, for example *"don't"* was changed to *"do not"* on four occasions. According to Rolli in Interview 3, FR's changes were mainly to correct *"small problems with the use of articles and commas"* and were *"small-scale"* in comparison to the amount done previously by ER.

The finished abstract was submitted to the target journal, which was preparing a special edition relating to Rolli's field, *"only hours before the final deadline"*. The final abstract was basically a collaborative work combining elements of ER's "Gegenvorschlag" abstract with the one that Rolli had originally written and which had been proofread by DR and FR. Once the abstract had been submitted, Rolli and ER continued to work on the introduction, background and motivation, and conclusion sections until 19 February. Most of these changes were again made by Rolli in consultation with ER who further reduced the wordiness of the introduction and removed the use of first person pronouns. The clarity of some of the visuals was also improved and AR, the author of the original MSc thesis, also helped to create new visuals. A final version of the complete text was submitted to the journal on February 20, 2010.

4.2.3 Reflection on process up to submission

Reflecting on the process up to submission of the article in Interview 2 (March, 2010), Rolli drew me a sketch of how he saw his writing network up to that point. Figure 4.6, below, shows the sketch Rolli produced at the interview.

Figure 4.6. Rolli's sketch of his writing network



In the sketch Rolli is surrounded by his supervisor Professor DR, the post doc Peer ER, the MSc student AR, unnamed reviewers and a fellow PhD student Peer CR. Beneath the sketch Rolli ranked each actor in terms of *"the most helpful input…(so far)"*. Interestingly, at this point Rolli placed the MSc student AR at the top of the list because he felt that *"AR worked out the method the paper is about. This was the basis."* Peer ER was ranked in second place and Peer CR in third place. Rolli's supervisor, Professor DR, was ranked last. Describing the help so far received from Professor DR, Rolli wrote *"so far only limited input but will be very helpful once the paper is accepted."*

In his sketch the arrows connecting Rolli to his supervisor show that Rolli had provided Professor DR with the *"title, abstract, (and) paper"* but had received only a *"linguistic review"* and *"comments"* on the abstract in return. By comparison, Rolli had given Peer ER some *"updates on (his) writing"* and had received *"linguistic reviews, comments and improvements"* and an entire chapter of the paper in return. The sketch shows too that Rolli greatly valued the input from his other colleague, Peer CR, with whom he had had *"general discussions"* and had received *"helpful comments and suggestions."* Peer CR's feedback was ranked higher than that received from his supervisor.

Rolli's sketch was extremely useful to gain an idea of how he saw his relationship with other actors in the case study. Rolli's sketch and my subsequent discussions with him about it helped me create the diagram showing the trajectory of the text in Figure 4.2 above. The fact that Rolli drew himself in the centre of a tightly-knit network based on information and knowledge exchange, indicated by the arrows linking different actors and the comments about what was given and received from each, supports the view that he saw himself situated within a "network of interpersonal relations through which information flows." (Wenger, 1998: 74). In particular, Rolli's use of multi-directional arrows indicates how information flowed horizontally and vertically between actors who occupied different hierarchical positions within the departmental COP.

4.2.4 Feedback from reviewers

Around three months later, on 29 April, Rolli heard from the editor of the journal, JR, that the paper had been rejected. The main reason for the rejection was that the paper did not make clear enough its novel contribution to existing literature in the field. All three reviewers (GR, HR and IR) mentioned problems establishing the novel contribution of the work and the need to compare existing approaches and literature. In addition reviewer GR commented that *"clarifications are needed to improve the understanding of the paper"* and found that many of the figures were *"too small"*. The second reviewer, HR, complained that not enough detail had been given in order for the reader to be able to understand and evaluate the claims that it made. Reviewer HR advised Rolli to add definitions to help *"pin-down the discussion"*.

Reflecting on his disappointment about the rejection of the article (RI3), Rolli said he had been convinced that the article stood a good chance of being published because the process it described was *"very novel."* Rolli felt it was ironic that this very novelty made it difficult to relate to previous literature. The reason that only limited discussion was given to related work was that the existing approaches were not really related to

the new method:"*...really there exists nothing which does the same thing so far...so there was no real previous work. But maybe we should have said more explicitly that so far to our knowledge there is no previous work... we should have written that*" (RI3). Rolli's problems in making the gap in the knowledge more explicit seem to reflect Clyne's (1987) assertion that German-L1 academic writers have a tendency to leave the reader to dig out meaning from the text more than may be the case in Anglophone-centre academic writing.

On 29 May, one month after receiving the rejection, Rolli discussed with Professor DR and peer ER what to do with the article. This delayed response was in part due to the fullness of all three actors' schedules in May. During the subsequent discussion Professor DR suggested that one option would be to rewrite the text as a poster for a forthcoming international conference. ER was also involved in the decision and emphasised that he knew LR, one of the people running one of the workshops who could help "get the poster accepted" (RI3).

Initially Rolli felt the decision to go for a poster would be *"too difficult"* because it would involve reducing the text from 10 pages to just two. However, the advantages would be that there would be less of a delay than in resubmitting to a journal and having to wait another four or five months for reviews: "*if you don't submit it again and then instead you submit it to another journal it might still be not accepted. And then you have to submit it again there, and... by then somebody else might have done the same work*" (RI3).

From May to June the paper underwent a substantial editing process as eight pages were cut from the text. This time most of this work was undertaken by Rolli working alone on the text; although he later informed me he was helped by *"several informal discussions"* with ER, CR and other co-workers at his institute (RI3).

In comparison to writing the text for submission to the journal, Rolli found rewriting and editing the text to make it suitable for a poster to be a much easier process. In Interview 3 Rolli told me *"after the experience of writing those first drafts it was quite fast."* In particular Rolli seems to have learnt from the comments that he had received previously from Peer ER: *"for writing the poster, because of ER's feedback before, I had already learned that you could write it much more shorter and concisely"* (RI3).

Rolli explained how much of the editing work consisted in paring down the article to its basic meaning and making the text more *"reader-friendly"*: "*... I really tried to focus the message... first describing what we are doing and why and how it works roughly... And*

then it was so that it fitted on two pages somehow...." (RI3). As a result of this process the average sentence length of the text was reduced from 37 to 28 words, reducing the wordiness and improving the readability of the text. In addition, only two figures were used to illustrate the procedure, as opposed to 11 figures and six tables in the original paper. The conclusion was reduced from 18 to just six lines. By contrast the number of references actually increased slightly, which Rolli told me later *"enabled readers to use the poster as a source of further information more easily"* (RI3).

By 25 June Rolli's poster (Draft 12) was finished and was subsequently reviewed by DR and ER. Once again Peer ER provided more extensive feedback than Professor DR, who confined himself to surface level changes. On 27 June Rolli received detailed feedback from ER in the form of a Microsoft Word document with suggested changes inserted and a PDF containing a series of sticky notes. This time writing exclusively in German, ER again used a mixture of questions and directions to raise Rolli's awareness of some potentially confusing usage of terminology in the poster:

> *"Was ist der Unterschied zwischen "variability", "variability space" und "variability design"? Evtl. kurz erklären oder Vokabular vereinfachen (falls immer das gleiche gemeint ist)."* (What's the difference between "variability", "variability space" and "variability design"? Probably better to explain briefly or to simplify the vocabulary (if it means the same thing).

In addition, ER suggested replacing some of the more complex sentences in the poster with shorter alternatives: *"Ersetze den langen schwer verständlichen Satz durch einfachere Sätze"*

On 30 June Rolli responded to ER's questions by email and explained how he had addressed most of these issues in his revised version of the poster. Interestingly, this time Rolli did not feel compelled to take on board all of ER's suggested changes:

> *" 'variability space' habe ich entfernt. Mit 'variability design' ist das 'design of the variability' gemeint - Siehe Beginn des Abstracts. Damit meine ich im Wesentlichen die variablen Features die gewählt wurden und welche Elemente sie genau beinhalten... Ich habe das noch so beibehalten"* (I've deleted "variability space". By "variability design" I mean the design of the variability – see beginning of the abstract. By this I specifically mean the variable features that were chosen and the elements which the features maintain. I have kept this the same).

This episode in the writing process is significant in that it clearly demonstrates Rolli's growing confidence as a L2 writer. Previously Rolli had accepted all but one change suggested by Professor DR and Peer ER and had not questioned any of the feedback he had received. However, from this point onwards Rolli seems to have reached a level of confidence where he felt able to resist some of the changes suggested to him by his colleagues. He was able to explain a clear rationale for maintaining certain terms in the text suggesting a growing sense of autonomy and improved awareness about what was appropriate use of language for the intended audience of the text.

Following ER's review and Rolli's subsequent revision, another version of the poster (Draft 14) was reviewed by Professor DR on 1 July, the first time Rolli's supervisor had commented on the whole text. Surprisingly, however, Professor DR again confined himself to sentence level language changes and made no comment on the contents.

In this review, Professor DR adopted a somewhat unusual feedback strategy of deleted entire sentences and then replacing them with his own versions, which differed only moderately from the original. For example the sentence:

> "*Building a software product line with its full scope initially is considerably more effort than building one with a smaller scope and evolving it incrementally, or extracting a product line from already existing products"*

was crossed through and replaced with:

> *"Building a software product line with its full scope from scratch is considerably more expensive than extracting a product line from already existing products or building one with a smaller scope and evolving it incrementally*.

In the second paragraph of the Introduction Professor DR made a similar deletion and reformulation crossing out the phrase:

> "*that enables tool support for a domain requirements engineer to semi-automatically extract requirements that constitute a variable feature from a single product or reference requirements model (a model containing all requirements of existing engineering artifacts) to incrementally evolve it into a software product line model.*"

and replacing it with:

> *"for tool-supported, semi-automatic extraction of requirements that constitute a variable feature from a single product or reference requirements model (one that contains all requirements of existing engineering artifacts)."*

In addition, the slightly awkward phrase *"the here presented work"* was changed to *"the work presented here"*. Finally, in the Conclusion, the sentence *"Future work should address graphical layout options"* was changed to *"Future work will address graphical layout options,"* emphasising a firmer intention to continue the work on the part of the authors.

Unlike ER, who had written detailed explanations for the changes he made, DR gave no written explanation of the rationale for changes, some of which were not obvious to Rolli when I asked him about the reason for the changes in Interview 3. Interestingly, although Rolli was not always completely clear on why DR had made the changes to the text, all of DR's changes were subsequently accepted by Rolli in the final version of the poster. Following its submission on 3 July, the poster was accepted and presented at a large international conference in Sydney, Australia. A 4-page version of the poster was subsequently published in the conference's proceedings a month later.

4.3 Rolli's reflections on the writing process

Towards the end of Interview 3 I asked Rolli to reflect on the experience of writing the text and to tell me what he thought he had learned from the process. In particular I asked him which of the actors had provided the most useful feedback or helpful comments on the text. Rolli responded:

> *"...I think ER first, he was pushing me to think more carefully...yeah and then I think other colleagues in our group with informal discussions about, erh, generally about the field... and also about writing issues, for example CR. I was often showing the drafts and CR was quickly scanning and suggesting some things but he was not writing the paper together. And that was also very helpful. And from DR (the supervisor) I got feedback after it was accepted to improve the version that was published..."* (RI3).

Commenting on ER's feedback in more detail, Rolli pointed out that ER had *"more industrial experience than Professor DR."* Rolli characterised Professor DR as being *"more academic"* and *"more concerned with the academic quality"*. According to Rolli, the practical nature of the particular development the paper described meant that Peer ER was well placed to give feedback that would be relevant to potential users of the

product. *"ER knew what of the work was interesting from a practitioner point of view and was pushing more in this direction. This was very important for the motivation and validation."* In addition, Rolli restated that ER was *"more approachable"* than Professor DR, a point he had made previously in Interview 2.

Rolli also explicitly mentioned the fact that Peer ER had been able to work on both content and language at the same time: *"ER was pointing out all those language things - how to write much more shorter and concisely, but also to focus on the message for this audience"* (RI3). Ultimately Rolli felt ER had helped him *"much more than DR."* Compared to ER, DR's changes were *"quite minor...I think the feedback from DR was mostly after it was accepted and at this point you should not change too much anyway, because if you change major things it would need another round of reviews."*

In addition, Rolli emphasised that Peer ER helped secure the final publication of the text in the conference proceedings. Peer ER had *"good connections to LR"*, the person in charge of editing the proceedings publication. As a result of this connection, ER was able to contact LR *"to make sure"* the paper would be included in the proceedings publication, as not all the workshops presentations or posters would be included.

Interestingly, by the end of the case study, Rolli's assessment about which of the actors was most influential in helping him on his journey from the periphery changed from when he had drawn the sketch in Interview 2. At that time Rolli ranked AR as the most important actor because AR had done the initial theoretical work. However, AR's subsequent role in the writing process was confined to some input about illustrations and AR was not mentioned as a significant contributor by Rolli in the final interview. At the time of drawing the sketch Rolli was hopeful of getting more help from Professor DR at a later stage in the process. As it turned out the subsequent feedback that was received from DR left Rolli feeling *"disappointed to some extent"* (RI3).

In Interview 3 I explicitly asked Roll what he had learned from the writing process. Rolli told me: "*First some confidence, so I have seen that I can already write something down and get it accepted somewhere for the next time, so it's not so hard anymore... I have written much more text now than previously and also got it reviewed by authorative...(sic) different persons which then gives you some confidence".* These comments together with Rolli's increasing autonomy and readiness to resist some of the changes made to his text support the view that the writing process had helped him to gain in confidence

Although analysing the development of "writer identity" (Ivanič, 1998) was not one of the main aims of this research, Rolli's comments suggest that the writing experience had an impact on how he represented himself as a writer. From positioning himself as a novice researcher whose writing was *"horrible"* at the outset of his PhD, Rolli seemed by the end of the case study to have constructed a new scholarly identity, presenting himself as a confident published scholar standing on his own feet in a discourse community of peers. One example of this is Rolli's assertion in the final interview that he now knew what was required *"to get it accepted somewhere for the next time."*

In order to explore this issue further, I asked Rolli explicitly if his identity as a scientific writer had changed during the writing and publication process. He replied that *"I think that's a lot better. Well if I know what I want to write about now and if the work is done then it's not so problematic now."* One of the main changes that could be perceived was Rolli's view of himself as being disadvantaged as a non-native writer of English. In Interview 1 Rolli said he felt at a disadvantage when compared to NES writers of English. In the final interview, however, he commented: *"I don't think that's a disadvantage now. So maybe a good thing is that I have a lot of training in writing research texts now in English and not so much previous English writing experience other than research texts. So maybe it's easier to write texts in such a way.* These comments suggest the writing and publication process had led to a shift in how Rolli perceived himself in relation to the wider discourse community.

I also asked Rolli what the process had taught him about the language of scientific writing. He replied that: *"the language you learn it implicitly, also, (laughs) not just through a language class but when your supervisor or a colleague is giving you reviews then you just see okay, also, at least for me I don't explicitly see why exactly because of some grammar rules you write it differently, but you see that writing it like this works better."* This comment supports the idea that Rolli saw himself acquiring tacit knowledge about language through the practice of scientific writing as well as through explicit feedback from ER.

4.4 Discussion of findings from Case 1

This case strongly supports the idea of a novice scholar working and learning collaboratively within a COP framework and moving from a peripheral to a more centrally-located position within that community (Lave & Wenger, 1991). Rolli's success in finally achieving publication was largely dependent on the feedback and support he received from the members of his COP. In particular his co-worker, ER, seems to have

played a pivotal role in the publishing process. Considering the roles of different actors discussed in Chapter 2 and the summary of supervisory roles presented in Table 2.1 in particular, we can see that ER was uniquely able to fulfil multiple roles. ER adopted a "partnership" style of feedback characterised by frequent interpersonal comments and a sense of proximity and collaborative endeavour. Through his changes to the text and use of models, ER also seems to have helped to tacitly "enculturate" Rolli into aspects of the discourse. At other times ER acted more like a teacher explicitly directing and instructing Rolli and providing lessons for his future scientific writing. In addition to extensive shaping of Rolli's text prior to its initial submission to the journal, ER also "polished" the poster version of the text, and finally "brokered" its later publication in proceedings of an international conference.

The fact that the article was not considered suitable for journal publication, despite Peer ER's extensive feedback, does not detract from the significance of ER's contribution to the writing process. The initial version of article was rejected by the journal reviewers not because of linguistic or structural weaknesses, but rather because it failed to position the work appropriately in relation to previous literature. In fact on several occasions ER warned Rolli that the article was likely to be rejected because of the way that certain knowledge claims were made. However, the topic of the article was to some degree problematic, as the novelty of the tool it presented was difficult even for ER to relate clearly to previous literature.

The initial rejection of the article can be seen as a critical moment both in the trajectory of the text and in Rolli's journey from the periphery to a more central position in his COP. Rejection by the journal reviewers could have led to the paper being abandoned. Significantly, Rolli commented in Interview 3 that if he had been working on his own he would probably not have proceeded with the article after its rejection. In his writing log too Rolli described his disappointment about the rejection of the article and his feeling of being demotivated by the publishing process. However, the TH shows that rather than giving up on the process of publication, he was able to draw on support from his network and lessons already learned. As a consequence, he was able to continue working on the manuscript in an increasingly confident and autonomous way.

Peer ER's approachability, accessibility and proximity to Rolli, and his willingness to give extensive dialogic feedback seem also to have been significant factors in helping Rolli to become a more confident and autonomous writer. It is significant that towards the end of the case history, Rolli felt confident enough to undertake the major task of reducing the text from a 10-page article to a two-page poster on his own and made

increasingly autonomous choices about the text. The support obtained from his COP, and Peer ER in particular, enabled Rolli to gain confidence and autonomy in his writing. Rolli was further helped in this process in the sense that having already gone through a tough trajectory and *"a lot of hard work"* with the initial text in a high-stakes journal, he saw submitting the shortened text as a poster at an international conference as a less demanding task, which he felt he could achieve more easily.

The case also illustrates several interesting aspects about the role of power relations within a disciplinary COP, which will be discussed further in Chapter 7. It is interesting that Professor DR, whose contribution to the paper appears to have been limited to "minimalistic feedback" on an abstract (Mauranen, 1997) and "polishing" (Gosden, 1995) of the final draft was credited at the conference as second author, reflecting his status within the department. By contrast, ER, who Rolli ranked as the most important actor on the text, was not credited on the poster submitted to the conference because he was chairing a parallel workshop and was *"not allowed to be an author of any of the workshop papers for political reasons"* (RI3). Similarly, AR was also not credited on the conference poster, although his MSc thesis was the basis of the text, because he "*wanted to go on holiday"* and was *"not interested in attending"* the conference. Although all four authors were credited in the final four-page version of the poster published in the conference proceedings, the case illustrates how authorship in many fields may be based on complex social and hierarchical relationships within a departmental COP.

On a related note, it is interesting that Rolli had no qualms about using AR's MSc thesis as the basis for his initial text, a text which could in turn be used as a first-authored publication and would count towards his own PhD. Despite this ethically questionable use of AR's text, there was no evidence in the case study to suggest that AR found Rolli's actions in any way strange. In fact, Rolli reported that *"AR would be very happy to get his name on an article*", showing how for AR the value of an academic publication outweighed considerations about ownership of his MSc thesis. In this respect, Case 1 shows how ownership of a text within a close-knit disciplinary COP may be defined quite flexibly. The issues of ownership and authorship raised by this case will be discussed further in Chapter 7.

The concept of brokerage also exists in this case study at a number of levels. It is interesting that Rolli, who had supervised AR's MSc thesis, was himself acting as a broker for the MSc student, while at the same time being brokered by ER and Professor DR. This chain of what I will call *multiple reciprocal brokerage* reflects the

complexity of power relations within a COP and seems to illustrate Wenger's (1998: 90) comment about "generational discontinuities" trickling down through multiple levels of a COP (see section 2.2.3). Case 1 lends support to idea that, as relative newcomers become relative old-timers, there are consequences at different levels of the COP. New roles are taken on and new identities are forged as a result of new perspectives (Wenger, 1998: 90). The issues raised by this case concerning the relationship between authorship, centrality and power in a disciplinary COP will be discussed further in Chapter 7.

In addition, the case reveals several interesting aspects of supervisory relationships raised by previous researchers in the field of academic writing, such as Dysthe (2002), Li (2006a), Blakeslee (1997) and Prior (1998). It is notable that Professor DR and Peer ER used very different strategies in their feedback on the text. DR positioned himself as an expert correcting a text rather than mentoring a novice scholar. Considering the summary of supervisory roles in Table 2.1, DR can be placed in the lower half of the table primarily acting as a linguistic corrector of the text and partially as an academic editor and broker. As head of department and having published more than 50 papers in the field, Professor DR was clearly positioned in an asymmetrical relationship to the novice scholar Rolli.

As in Blakeslee's (1997) case study of Swendsen and Bouzida the hierarchical gap between Rolli and his supervisor may have restricted the amount of learning that took place. Professor DR did not always explain the rationale for the changes he made and Rolli commented in Interview 2 that the reason for some of the changes DR made to the abstract were not clear. However, it is noticeable that Rolli complied with all but one of the changes made by his professor, (the exception was to maintain the word "unweaving" in later drafts of the text). In addition, although describing his disappointment that he had received only limited feedback of a mainly linguistic nature, Rolli was extremely reluctant to criticise his supervisor in any way. This compliance and acceptance of changes made by his supervisor is similar to that noted in several previous case studies of novice scientific writers writing for publication (e.g. Li, 2006a).

By contrast Rolli learned a lot more from ER, who used a wide range of different strategies in his feedback on Rolli's text. ER explained the rationale for changes, provided models and alternative paragraphs. ER was described by Rolli as *"more approachable"* than DR and had a different style of feedback. ER's feedback on Rolli's text had much in common with Dysthe (2002) "partnership model" of supervision and ER seems to have seen the writing task as a "joint responsibility" or collaborative

endeavour. In addition, ER was clearly more aware of interpersonal aspects of feedback than Professor DR. Significantly ER called Rolli by name and tried to help him improve as a writer, rather than just to correct a text. ER seems also to have wanted to foster independent thinking and used dialogic feedback and questioning to encourage Rolli to reflect critically on the text.

The case strongly reflects Swales's (1990: 212) view that experienced scholars have a clear "vision" of the state-of-the-art in their own discourse communities. Peer ER possessed just such a vision and urged Rolli to address the need of the community more explicitly in his article. Rolli's comments that Professor DR was *"more academic"* whereas ER had more *"industrial experience"* suggest that, in the context of this particular paper, ER may have been more in touch with the community than DR was.

Finally the case illustrates how persistence and a high level of motivation are extremely important factors in successful scientific publishing: it would have been easy for Rolli to have given up on his publication effort after the disappointment of the initial rejection but his persistence resulted in a poster at an international conference and publication in subsequent proceedings.

Chapter 5: Case 2 "Stefan"

5.1 Biographical details and previous writing experience

Born and raised in central Germany, Stefan was 28 at the beginning of the case study and 29 by the time it ended. Like Rolli, Stefan was employed as an assistant and estimated he had two more years until he finished his PhD. With five years' experience of writing scientific reports in English, Stefan was still waiting to publish his first article as a first author. Describing his achievements as a scientific writer up to this point, Stefan commented that writing in English was still very difficult because: "*if you are not a native speaker and you write in another language there is always a lot to learn. So I think I started on a low level and I feel that now my writing ability improves gradually*" (SI1).

In Interview 1, Stefan pointed out the lack of support he had received with his scientific writing prior to coming to Switzerland. At the German university where Stefan took his Master's degree, engineers had *"not been expected to publish internationally*", so the course had not included any scientific writing modules or support. Like Rolli, Stefan wrote his Master's thesis in English and used English in a professional context while undertaking an international internship programme. In Stefan's case this was a 6-month work placement in South Korea, where he attempted to write an article based on his Master's thesis *"almost completely alone"*. Unfortunately this article was not accepted for publication, although some of the data was used at a subsequent conference presentation.

Despite the setback of having this article rejected, Stefan felt that the process was a valuable learning experience helping him to improve his understanding of the organisational requirements of article writing: "*the first draft of this article was mainly a condensed version of my Master's thesis, but at that time I didn't realise that a thesis is completely different from an article*" (SI1).

Stefan's first article attempt was rejected due to problems with the novelty of the data, lack of appropriate literature, and a lack of clarity in the writing and organisation of the article, reflecting many of the difficulties identified by German-L1 novice scholars in my previous research (Armstrong, 2011). In particular, the reviewers' comments on his article convinced Stefan he had problems achieving a "reader-friendly" style (Clyne, 1987): *"when you write a text by your own, you start so much in the topic that you don't see the mistakes that you make. So, when the reviewers come back and make these*

kinds of comments, then it obvious for you that it's not clear" (SI1). Despite the rejection of his first article, Stefan was confident that he had learnt a lot and would improve with the next article, which he hoped would be his first publication.

Like Rolli, Stefan's initial problem was structuring the material: "*Because for me it was not so clear about how scientific articles are structured... it was just some instinctive writing, how I did this."* In addition, Stefan specifically mentioned rhetorical differences between writing a scientific article in German and in English which seemed to relate to the distinction between "reader-responsible" and "writer-responsible" texts (Hinds, 1987) discussed in section 1.2. Although Stefan found it hard to define precisely what these differences consisted of, he was sure *"if you publish an article in German it's completely different...It's just a different use of the language"* (SI1).

Describing the most difficult aspect of scientific writing, Stefan said that for him this was writing a precise sentence that gave a really good description and added: "*for me it's really difficult to sort out my way of thinking in English. In English it takes a longer time. And sometimes I have to do some pre-thinking in German and then just translate it, but this is not a good way to work because you should just straight work in English - it's better in my opinion"* (SI1).

5.2 Text history Case 2

The TH is based on analysis of six drafts of Stefan's article together with the feedback comments and email correspondence from eight actors who commented on the text during the writing process (circa 90,000 words). Interviews were conducted with Stefan in the first month of the writing process, after the initial submission of the article, and at the end of the process. Figure 5.1, overleaf, shows the 10 actors involved in the TH. With the exception of the NES peer reviewer IS and the reviewers and journal editors, whose first language is not known, all of the actors were German-L1 speakers. Figure 5.2, overleaf, shows the trajectory of the text and the main interactions between the actors prior to its publication. The approximate amount of influence of each actor is indicated by the size of each circle. Where circles are divided by horizontal lines indicates a recursive stage in the writing process. As in Case 1 the diagram in Case 2 depicts a networked and highly recursive writing process. Compared to Rolli's network depicted in Figure 4.2, Stefan's network features fewer actors but is notable for an increased number of recursive steps as the article was initially rejected by reviewers and had to be resubmitted.

5.2.1 Early drafts

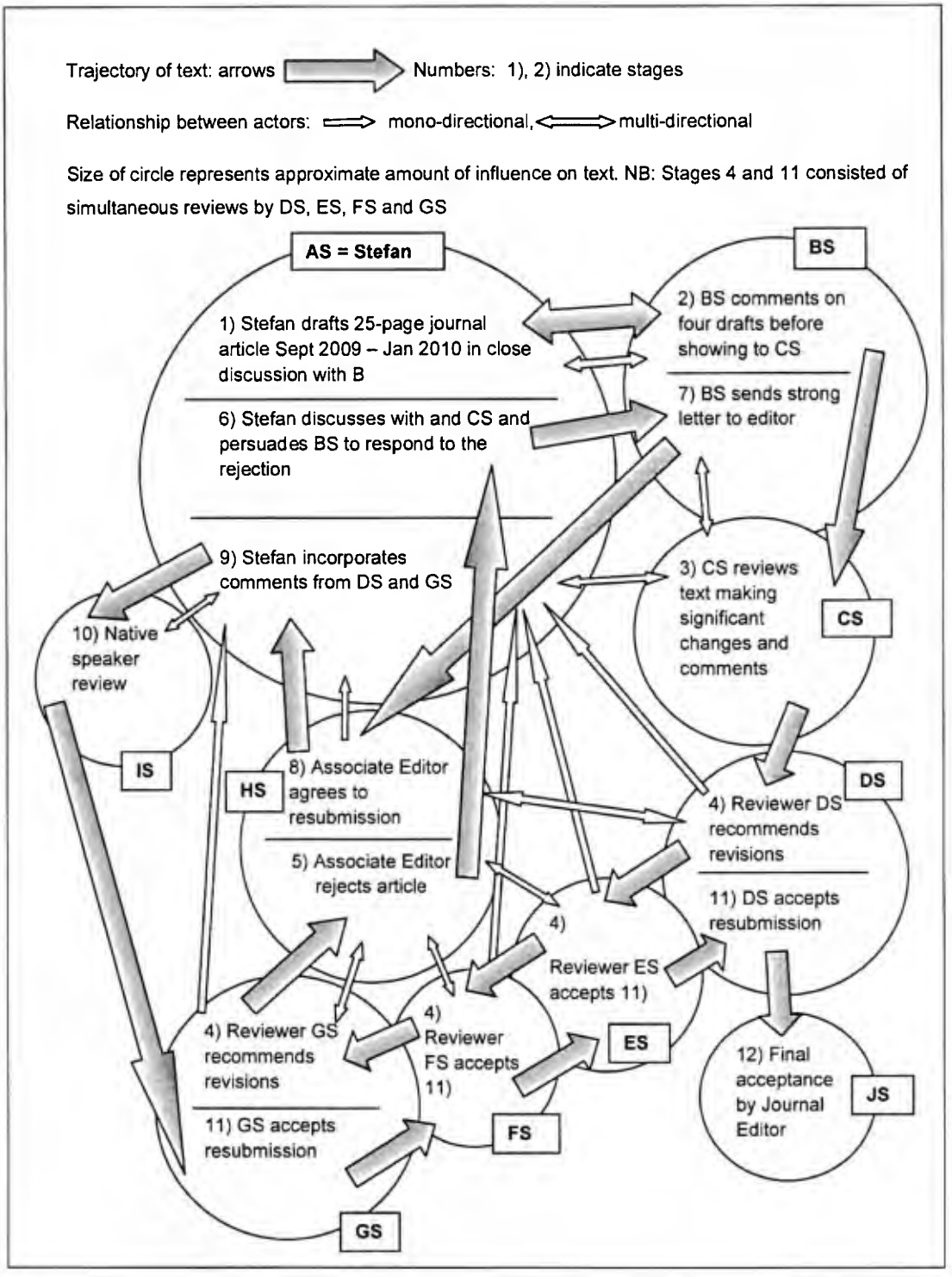
Stefan began writing the text that forms the basis of this case at the end of September 2009. The text was originally planned as a 20-25 page article for an international journal of aquatic chemistry. It was finally accepted for publication 14 months later in December 2010.

The article was written with Stefan as first author in close collaboration with his supervisor Dr BS, the third author. Professor CS, Stefan's head of department, was responsible for an internal review of the paper prior to submission in exchange for being listed as the second author, again indicating how authorship in scientific disciplines may reflect hierarchical status within a department. From the end of September 2009 until the beginning of November 2009, Stefan worked on the first draft of a 25-page manuscript.

Figure 5.1. Principal actors in Case 2

AS = Stefan, PhD student and 1st author
BS = PhD supervisor, and later 3rd author
CS = Professor, senior scientist and later 2nd author
DS = Journal 1st reviewer
ES = Journal 2nd reviewer
FS = Journal 3rd reviewer
GS = Journal 4th reviewer
HS = Journal associate editor
IS = NES peer reviewer and colleague
JS = Journal editor

Figure 5.2. Trajectory of text and interactions between actors in Case 2



5.2.2 Feedback from supervisor

Between 10 November and 10 December 2009 Stefan exchanged four different drafts of the article with his supervisor Dr BS. Analysis of these early drafts shows that Dr BS made a number of significant changes to the title, abstract, methodological description and discussion, using the Microsoft Word editing function. The first change Dr BS made to the manuscript were to reformulate the title, which was cut from 14 to 10 words, making it *"shorter and more active"* and *"emphasising the main subject of the research"* (SWL). In addition, Dr BS removed some of the details from the beginning of the abstract, reducing the length from 22 to 17 lines in order *"to make it shorter and to emphasise the main goal"* (SWL).

Figure 5.3. Example of BS's comments on Stefan's 2nd draft

Between the second and third draft of the article Dr BS focused on the Method section, making changes to the description of the oxidation products which he found *"too vague"*. Interestingly, Dr BS did not make any substantial changes to the Introduction but added a number of methodological details to the Method section and emphasised the need for more illustrative examples in the Results section. According to Stefan's writing log Dr B was *"worried about the results being very dry and unreadable."*

The remaining changes made by Dr BS concerned the Discussion section. In the third draft of Stefan's manuscript BS deleted six lines of the Discussion and commented that these lines belonged somewhere else. Dr BS also commented that in place of the deleted text a new paragraph was needed to more fully discuss the implications of the results. Following this feedback Stefan largely rewrote the Discussion section in the fourth draft of the manuscript. Stefan tried to "*state the findings more precise, saying what we found and also what we don't make a claim about*" (SWL). Like Rolli in Case 1, Stefan's focus in this revision seems to have been on conciseness and clarity of the argument for the target audience.

Table 5.1, below, gives an overview of the main comments about language and Table 5.2, overleaf, the main comments about content made by Dr BS on Stefan's text. Analysis of Dr BS's comments shows that BS made some comments in his native German and others in English, just as ER did in the previous case. However, where ER used the two languages equally, BS favoured German, making only five of the 16 comments in English. Dr BS also resembled ER in his ability to comment equally on language and content in one review of the text. Eight comments related specifically to content and eight specifically to language issues.

Table 5.1. BS's feedback comments about language

Language focus	Example	Number of comments
Vagueness / Lack of clarity	*"Title allenfalls verbessern"* (Improve title if at all possible)	3
Language: Wrong section	*"Das gehört irgendwo anders"* (That belongs somewhere else)	3
Verbosity / Length	*"Abstract muss noch gekürtz werden"* (Abstract still has to be shortened)	2

Table 5.2. BS's feedback comments about content

Content focus	Example	Number of comments
More illustrative examples needed	*"Es ist wichtig, ein illustrative Beispiel zu zeigen...Sonst wirkt dieser Teil der Resultate sehr trocken"* (It's important to show an illustrative example...Otherwise this part of the results appears very dry.	3
Procedural infelicities and lack of rigor	*"no identification of oxidation products"*	2
Incompleteness of discussion	*"In diesen neuen Abschnitt soll eine weitergehende Diskussion der Resultate beschrieben werden"* (There should be a broader discussion of the described results in this new section)	2
Lack of association between claim and data	*"Das schiesst über das eigentliche Ziel dieses Papiers hinaus"* (That goes well beyond the actual goal of the current paper)	1

Analysis of the informational nature of the comments made by Stefan's supervisor on the text shows a focus on avoiding ambiguity from both a language and content perspective. The language comments emphasised the need to avoid vagueness and inconsistencies and to reduce unnecessary words. The content comments related to providing more illustrative examples for claims that were made and providing procedural details to make the method reproducible and transparent for the intended audience.

From an interpersonal point of view, the comments used by Dr BS show a preference for a strongly directive style of feedback with frequent use of imperative forms, modal verbs of obligation and exclamation marks. Table 5.3, overleaf, shows that 14 of the 16 comments contain these features. Interestingly, in all of his feedback comments Dr BS only used two hedging words (the use of the words *"somehow"* and *"Evtl."* meaning "probably") and two question forms (*"which algorithm, what were the fitting parameters?"*). In particular the comments Dr BS made in German show a high frequency of directive modal verbs such as *müssen (must)* and *sollen (should).*

Table 5.3. Interpersonal aspects of BS's feedback on Stefan's text

Interpersonal aspect	Example	Number of comments
Instructing or directing writer to make changes	*"In diesen neuen Abschnitt müssen die Unterschiede zwischen die Oxidantien beschrieben werden"* (The difference between the oxidants must be described in this new section)	**14**
Making suggestions	*"Evtl. kann man einige Aspekte in die Diskussion einbauen"* (One can probably build some of these aspects into the Discussion)	**1**
Raising questions	*"Which algorithm, what were the fitting parameters?"*	**1**

Table 5.3. shows that Dr BS told Stefan explicitly how to improve the article. There seems to have been little room for negotiation or discussion of the comments made on the text and interestingly all 16 comments were subsequently accepted in Stefan's later drafts of the manuscript. In positioning himself as an authority correcting a text for linguistic and procedural errors, Dr BS has much in common with Rolli's supervisor (Professor DR) in Case 1. Both supervisors demonstrated their authority by using a high frequency of unmitigated imperative forms and a limited range of interpersonal strategies, suggesting that they saw themselves as correcting a text rather than mentoring a novice writer. Lea and Street (2000: 169) describe this type of unmitigated authoritative feedback as "a marker of difference and a sustainer of boundaries" between expert academics and novice academic writers.

When compared with Peer ER in Case Study 1, BS used a much narrower range of feedback strategies. In his written feedback on Stefan's text, BS did not provide alternative models, did not address Stefan by name, and did not provide opportunities for Stefan to think about changes to the text that he prescribed: all strategies used by Peer ER in Case 1. Despite Dr BS's fairly narrow range of feedback strategies, his feedback was very precise and involved both language and content issues. In this way BS was different to Professor DR in Case 1, who restricted himself to linguistic feedback on Rolli's text. Stefan seems to have had little difficulty interpreting what Dr BS intended and the subsequent changes were made efficiently without the need for further drafting and editing. Generally speaking, Stefan's supervisor had a greater impact on Stefan's text than Rolli's supervisor, DR, did on Rolli's text.

Following Dr BS's feedback and Stefan's subsequent redrafting of the discussion section from late December 2009 to February 2010, the article went through an internal

review process from Professor CS, the head of Stefan's research group. According to Stefan, Professor CS was a good person to do the internal review of the article because, although he was the head of the department *"CS is not an absolute expert in this particular field and it is important that CS understands what we try to say"* (SI2).

Professor CS gave most of his feedback to Stefan orally, so it is difficult to analyse the type of comments CS used directly. However, Stefan made extensive notes in German about CS's oral feedback on the draft. These comments are translated in Table 5.4 below. In addition, Table 5.4. shows Stefan's explanations about his decision to accept or reject the comments. Although the TH does not contain the exact words used by Professor CS to comment on Stefan's text, it is evident that CS's oral discussion of the text resulted in feedback of a different nature to the written feedback comments given by Dr BS. Indeed, as Hyland and Hyland (2006) point out, feedback given by a teacher or supervisor to a novice writer in an oral mode such as a writing conference is likely to have a very different interpersonal impact than written teacher feedback. Writing conferences are likely to be more interactive and dialogic, with more emphasis on "two-way communication" (Hyland & Hyland, 2006: 5).

As an internal reviewer prior to submission of the article, Professor CS seems to have focused mainly on terminology, the overall flow of information in the paper, the clarity and the readability of the text, rather than the specific arguments or contents of the article. Table 5.4 shows that three of CS's comments related to terminology, three concerned information flow, three concerned clarity and one related to the readability of the text. Only one of CS's comments related specifically to the content of the paper: an instruction to include a reference in the discussion part of the paper: *"An dieser Stelle soll unbedingt das Papier von REF zitiert werden."*

Generally CS's comments had a very different focus to those of BS, who gave feedback on procedural details and relationship between data and claims that were made. The difference of approach may also have been due to the fact that although Professor CS was the head of the department he was described by Stefan as *"not an expert"* in the particular field of the paper. (SI2)

Table 5.4. CS's feedback comments and Stefan's response

Focus of comment	Response: Accepted or rejected by first author
Improve information flow 1 *"Looking at Figure 2, CS noticed that it contained the term XYZ instead of ABC and at this point the reader hadn't yet been" introduced to the XYZ model.*	**Accepted** *"At first I tried to change as little as possible but still tried to make it clearer."*
Improve information flow 2 *"CS found the increase in xyz the most curious point and should consequently appear at the beginning of the discussion of the figure."*	**Accepted (with reservations)** *"I reorganised the section accordingly. In my opinion, however, there should be even more words required to discuss these data."*
Improve information flow 3 *"CS noticed that the equations 6 and 7 should be taken to the Supporting Information section."*	**Accepted** *"I did this in section 4 of the Supporting Information..."*
Lack of clarity 1 *"CS commented that it was difficult to follow the procedural steps and different reaction rates."*	**Accepted** *"I tried to make the text more understandable..."*
Lack of clarity 2 *"...CS said that the discussion should be more clearly structured and better related to Figure 3."*	**Accepted (with reservations)** *"I reorganised the section accordingly. In my opinion, however, there should be even more words required to discuss these data."*
Lack of clarity 3 *"CS pointed out that the reader must by all means be better guided / led through the table."*	**Accepted** *"I realised too that we had hardly said anything about this table. Consequently I extended the discussion of this table and hope it is now more understandable."*
Terminology 1 *"CS noticed that the terms 'pollutant', 'contaminant' and 'compound' were actually synonyms."*	**Accepted** *"After discussion with BS we decided to use the term 'target compounds' throughout"*
Terminology 2 *"CS crossed out the word intermediate and inserted the word product."*	**Rejected** *"I would like to leave the word intermediate."*
Terminology 3 *"CS pointed out it would be better to use a simplified (or unified) terminology."*	**Accepted without comment**
Readability 1 *"...CS suggested two sentences should be made out of one."*	**Rejected** *"I think this sentence really isn't so bad."*

Interestingly, although Professor CS was head of Stefan's research group, it is notable that not all of the changes that he suggested were accepted by Stefan. This contrasts to the feedback and changes made by Dr BS, which Stefan always accepted without

comment. Stefan seems to have been more able to resist the changes suggested by CS than those suggested by his supervisor. Having already had one round of feedback from his supervisor he now *"felt more confident that the paper was a good quality so I was more prepared to argue my case and speak up when CS changed something I had written."* (SI2). This suggests that Stefan, like Rolli in Case 1, gained in confidence through the process of writing and receiving feedback and was increasingly able to act autonomously as the case progressed.

Elsewhere in the second interview I asked Stefan to comment on particular changes CS had suggested, such as reducing sentence length. Stefan commented that *"CS said this sentence was too long but I want to keep it because I like this sentence...I made my own decision in this case and I think this is okay."* Similarly, when referring to some details of punctuation that CS had suggested changing, Stefan commented that: *"CS don't (sic) like this use of commas, but actually I like it and in German I write similar sentences sometimes, and I don't want to change too much of my style"* (SI2).

When asked to summarise what he felt was the most important feedback he had received from Professor CS, Stefan commented *"in the results and discussion... CS said it is not so clear for him, so I had to restructure this. CS also said that the description of the table was not sufficient so I increased this."* Generally, Stefan was very positive about CS's feedback. Towards the end of the second interview Stefan commented that the best thing about the internal review process from Professor CS was that he now felt *"the paper works! ...That really motivated me."* By the end of March 2010 Stefan had implemented most of the changes suggested by CS and the manuscript was submitted to XYZ Journal for the first time.

5.2.3 Feedback from reviewers

Around five months later, on 3rd September 2010, Stefan and Dr BS were informed by the journal's associate editor, HS, that the article had been rejected because of negative comments from the panel of expert reviewers: DS, ES, FS and GS. In an email to Stefan and Dr BS, HS wrote that the article could not be considered for publication because *"reviewers DS and GS both find that the manuscript is in need of major revisions. Reviewer DS doubts the novelty of the research. Reviewer GS asserts that the authors did not provide sufficient experimental evidence."* (Email correspondence from HS).

After reading the reviewers comments, Stefan, like Rolli in Case 1, felt *"extremely disappointed that the article had been rejected"* because he believed the data was

worthy of publication (SI3). Following triadic discussions between Stefan, Dr BS and Professor CS in the next two weeks, the decision was taken to write a reply to HS arguing the case for reconsideration of the article. This decision to respond to the reviewers was taken more quickly in Case 2 than in Case 1, where there was a delay of one month before attempting a conference submission. Stefan later described how BS had to be persuaded to resubmit as he was not enthusiastic about the chances of success: *"the decision was made by Professor CS and me during a discussion how to proceed after the article was rejected. Dr BS wanted to submit the article unchanged to another (lower impact) journal. Dr BS has had some problems with letters to editors before with other journals. But because XYZ is a quality journal CS and I were able to convince BS to try again."* (SI3). Although Stefan was not privy to all the discussions between CS and BS, Stefan told me CS's status as head of department *"may have been a factor"* in his ability to persuade BS to resubmit the article (SI3).

At the end of September 2010, Stefan wrote a 10-page email asking for reconsideration of the article and presented suggestions about how to solve the problems identified by the reviewers. This email was also read by Dr BS who *"made some very small changes"* before sending it to HS at the beginning of October 2010. The email began by politely apologising to the editor *"for troubling (him) again"* but then argued the case strongly for a resubmission: "*we are irritated, that the manuscript has been rejected. Although none of the four reviewers actually recommended rejection – two reviewers were really positive towards it and two suggested revisions – it was rejected for publication in XYZ journal without giving us a chance to react to the comments of the reviewers…"* The email then detailed the main critical comments from the reviewers and the authors' responses and suggestions.

The email was very effective and generated an immediate response from the editor, HS, who sent Stefan and Dr BS's an email on the same day agreeing to allow a resubmission. Replying to Dr BS by email, HS informed the authors that they should revise the manuscript within 21 days *"considering all suggestions carefully, and either changing the manuscript appropriately or providing convincing reasons for declining to do so"*.

5.2.4 Responding to reviewers

Facing a three-week deadline Stefan and Dr BS worked together on the text to respond to all the comments from the four reviewers. Stefan commented later: *"We did it collaboratively. Some points were addressed by Dr BS others were addressed by me.*

The process took around two weeks (we did also other things during that time of course) because it was difficult to make the right changes" (SI3).

Stefan described the strategy for dealing with the reviewers as: *"basically to decide what was a valid criticism and what could be ignored."* Explaining how Dr BS helped him to see how to deal with the reviewers, Stefan commented: *"Dr BS told me it wasn't necessary to agree with the referees on every point they make. But if you don't agree you have to explain all the reasons for this."* Dr BS also informed Stefan that *"if you can see that the referees disagree with each other you have to work out which of the referees feels more strongly about it or seems to be dominant"* (SI3).

Table 5.5 overleaf reveals that Stefan and Dr BS responded to a total of 17 comments on the text from four different reviewers. Fifteen of these comments concerned content and two comments concerned language. One comment from Reviewer FS combined praise for scientific rigour and clarity of organisation with a vague reference to minor revisions. *"The research contents are quite noval and clearly strucured (sic). The manuscript is worthy to be published on this Journal, however, before some minor revisions" (sic).*

Table 5.5 shows how the authors responded to each of the 17 comments in detail, accepting 10 comments and rejecting seven. Stefan and BS were careful to address every point raised by the reviewers, including where comments were repetitive. For example reviewer DS made three very similar comments about the need to show how the study differed from previous work published by Dr BS. The authors addressed all three of these comments making the point on two occasions that the current paper developed a more general concept than previous work, which had *"a screening character."*

Table 5.5. Reviewer feedback comments and response from authors

Reviewer	**Focus of feedback comment:** **Content or language** *Example*	**Number**	**Response from authors:** **Accepted or Rejected** *Example*
DS	**Content: More explanation about novelty of data** *"...I had **difficulties to identify new aspects** among the presented results that have not been investigated before..."*	3	**Rejected** *"We believe that the above-mentioned changes are adequate to underline the novelty of the manuscript"*
DS	**Content: Accuracy of figures** *"**Add errors bar** in Figure 1 and 4"* *"Figure 3: **please change y-label** in order to include 4MP error bar (figure 3b)"* *"Figure 5 the **M-1 S-1 should be M-1 s-1**"*	3	**Accepted** *"All those three changes are made and included in the current manuscript."*
DS	**Content: Technical detail** *"Indication of energy lamps emission used during irradiation experiment **is needed**"*	1	**Rejected** *"Such information has already been given before in the Supporting Information (Appendix to the manuscript)..."*
	Content: Technical detail *"Page 6 line 13-14: what it means: (sic) 'at an appropriate concentration, to obtain an accurate degradation curve', **please clarify this point"***	1	**Accepted** *"We changed the sentence to..."*
ES	**Language: Typos** *There are a **number of misspellings** throughout the text.*	1	**Accepted** *"We checked for misspellings, found several and corrected them."*
ES	**Language: Wrong section** *The sentence: "DOM of terrestrial origin was generally a more effective inhibitor than DOM of aquatic origin" in the Abstract seems to be out of context. Maybe it **should be removed.***	1	**Rejected but taken into account** *"This sentence summarizes important results of this study and we decided to keep it in the Abstract. We have improved the link of this sentence with the remaining part..."*
FS	**Content: Praise for scientific rigour and novelty** *"The **research contents are quite noval and clearly strucured**.(sic) The manuscript is worthy to be published on this Journal, however, before some minor revisions (sic)."*	1	**Accepted and used to strengthen case for publication** *"Reviewer FS mentions the novelty of the research and the clear structure of the manuscript."*

FS	**Content: Technical detail about generalizability of the results** *"1. In the experiments, the DOM concentrations varied and limited <5mg/L, does the concentration difference will give other different results? say if DOM is over 5 mg/L, is the proposed mechanism still suitable?"*	**1**	**Accepted** *"Regarding point 1, we have adapted our manuscript by inserting the following text..."*
	Content: Technical detail about method 2. ***Any pre-treatment has been done*** *when using some natural waters in the tests?"* 3. ***Any anions influences, say chlorite, nitrate or nitrite, carbonate or bicarbonate anions, are considered*** *in the explanation of ABC?"*	**2**	**Rejected** *"Regarding point 2, the only pre- treatment of natural waters done was filtration at 0.45 uM (see p.6)"* *"Regarding point 3, we intend to study the influence of naturally occurring anions on ABC at a later stage of our project...and would like to avoid speculations."*
GS	**Content: Lack of association between claim and data** *"...the inhibition of degradation can be also ascribed to the competition between XYZ and ABC.* ***The authors should carefully discuss this point...*** *The effects of the kind of ABC and XYZ* ***should be investigated to support this conclusion***	**3**	**Accepted** *"We have adapted our manuscript by inserting the following text...* *We recognize the explanation given in the original manuscript is not satisfactory."* *"We have replaced the text between p.11, l.13 and p. 12, l.10 with the following text..."* (10-line technical explanation giving further support to this claim)

Table 5.5 shows that the authors' general strategy was to accept the majority of the small changes and additional technical details which did not require major rewriting. However, wherever possible the authors resisted making major changes to their text and defended themselves strongly against criticisms about the novelty of their data.

On two occasions the authors rejected erroneous comments from DS about technical details which had actually been provided, explaining tactfully that *"such information has already been given before in the Supporting Information (Appendix to the manuscript)"*. The remaining comments from DS, which concerned technical details about the labelling of figures, were accepted by the authors.

Reviewers ES and FS, who were generally positive about the article, also made suggestions about how it could be improved. Two of their suggestions were accepted

by the authors. Firstly, as a result of reviewer ES's comment that there were some misspellings in the text, Stefan arranged for Peer IS, a NES colleague, to proofread the text prior to the final submission. Secondly, in response to reviewer FS's comment about the degree to which the results could be generalised, the authors inserted a sentence showing that the model *"could not be used in the case of DOM concentrations much higher than the ones used in this study."*

Dealing with the comments from Reviewer GS took the authors more time. Reviewer GS made three content comments, all of which concerned the relationship between claims made in the text and the data presented in the paper. The authors accepted all three of GS's claims and rewrote a total of 17 lines of text. The most substantial change was the insertion of a 10-line technical explanation on page 11 and 12 of the manuscript.

Once Stefan had made these changes, he sent the text by email to be proofread by Peer IS, a NES colleague, who Stefan said was *"a good person to read the text because, as well as being a native speaker they were in the field and sort of representative of the journal readership"* (SI3). In line with the role of NES peer correctors revealed in previous studies (e.g. Li & Flowerdew, 2007) IS gave no feedback on the academic content of the text but made a series of sentence-level changes which can be characterised as "polishing" of the text (Gosden, 1995). As a result of this "polishing", eight spelling errors were corrected, the position of some adverbial constructions was changed and some informal verbs were replaced with more formal alternatives e.g. "*kept*" was replaced with *"maintained".* Some linking words were also replaced with alternative constructions e.g. *"opposite to"* was replaced with *"in contrast",* and *"on the one side"* with *"on the one hand."* Although IS's review was limited to sentence level features of language, *"the review was very useful as one of the reviewers specifically commented about bad spelling",* something that Stefan felt reflected negatively on an author (SI3). Stefan's comments echo those made by the Chinese-L1 novice scientists in Li and Flowerdew (2007) about the "high value that can be placed on the role of the peer corrector" in a non-Anglophone centre context.

Following this proofreading stage, Stefan, Dr BS and Professor CS collaborated together to draft an 11-page covering letter explaining where changes had been made or feedback had been rejected. Stefan wrote a first draft of this letter and *"then it was a little ping-pong between me and BS, then BS made the final version, then me and CS read it a last time, and then we submitted"* (SI3).

On Dec 9th 2010, about 14 months after Stefan began the article, he received notification from Dr BS that it had been accepted for publication. All four reviewers accepted the revised manuscript in its present form and Reviewer GS, the strongest critic during the first round of reviews, now expressed *"happiness and appreciation"* for the changes that had been made. Interestingly Reviewer ES, who had been very positive about the article in the first round, again accepted the article but commented: *"I could note some small misspellings and grammar mistakes throughout the text. Please provide the proper corrections",* an interesting remark given the fact that the spelling had been corrected from the first submission.

5.3. Stefan's reflections on the writing process

In the final interview I also asked Stefan whether HS's initial decision to reject the article was valid, given the limited nature of the changes to the text. Stefan commented *"the rejection was too strict but probably HS had not enough time to go through the comments faithfully and just rejected the manuscript to get rid of the work"* (SI3). Stefan also pointed out that the reviewers (DS and GS) who made negative comments about the article in the first round wrote much more than those who were positive (ES and FS). *"Because DS and GS wrote a lot, HS just tended to follow the longer but more critical reviews. FS was positive but wrote only short notes in the first round. In the second round FS strongly supported the article and wrote much more."* (SI3). According to Stefan, the crucial factor in the final acceptance of the article was *"Good correspondence. I was lucky BS agreed to send the email asking for a resubmission. If we hadn't done that, I don't think the article would have got published in the XYZ journal and if we had chosen another journal who knows what might have happened there."* Stefan's last comment here echoes Rolli's remarks in the previous case about the potential hurdle imposed by the initial rejection of his article and again highlights the high-stakes nature of writing for publication for novice scholars.

Like Rolli in Case 1, Stefan felt he had learned *"a great deal about the writing and publishing process"* and was now *"much more confident about how to go about writing a scientific paper."* As a result of this confidence he felt *"to a certain extent (his) identity had changed"* during the process of writing the article: Summing up the whole experience in one sentence he told me it had been *"a kind of growing"*. In particular Stefan felt that after the *"close collaboration"* with Dr BS, responding to the reviewers comments, he had learned *"much better how to deal with criticism from reviewers"* and the "*importance of a fast response*". He believed the strategy of accepting the minor changes and resisting the major changes wherever possible, but always explaining

fully and never omitting any of the points raised by the reviewers, was the *"right strategy to get published"*. Generally, Stefan felt he had learnt more from working together with Dr BS on replying to the reviewers than he had from BS's feedback comments. For Stefan this was the most significant part of the whole writing experience, as a result of which if a future article was rejected he *"would be better prepared and know what to do"* (SI3).

Commenting on the linguistic improvements between the first and final draft of his text, Stefan said: *"the paragraphs are more concise... more of a unit, so they explain one idea within them and then in the next paragraph the next idea and so on, it's more ...(pause)... I think it's much more developed."* When asked what advice he would give to a novice writer embarking on writing a research article Stefan told me novices needed to learn "*to make the order and the structure of the section, whether the introduction or the discussion or so on. So make the order first before starting to write."* (SI3)

But Stefan agreed that it was not just his confidence, language skills and knowledge of the review process which had improved: the experience also showed the importance of *"staying persistent."* Stefan's advice for other novice writers was to: *"keep on trying to improve. Motivation is the most important thing."*

Towards the end of the final interview I asked Stefan to draw me a sketch of how he saw the entire process of writing the article, Figure 5.4 overleaf. This sketch was useful in helping me obtain an idea of how Stefan saw the role of different actors in the writing and feedback process. As in the previous case, I used the sketch as the basis for the diagram showing the trajectory of the text, Figure 5.2.

Figure 5.4. Stefan's sketch of his writing network

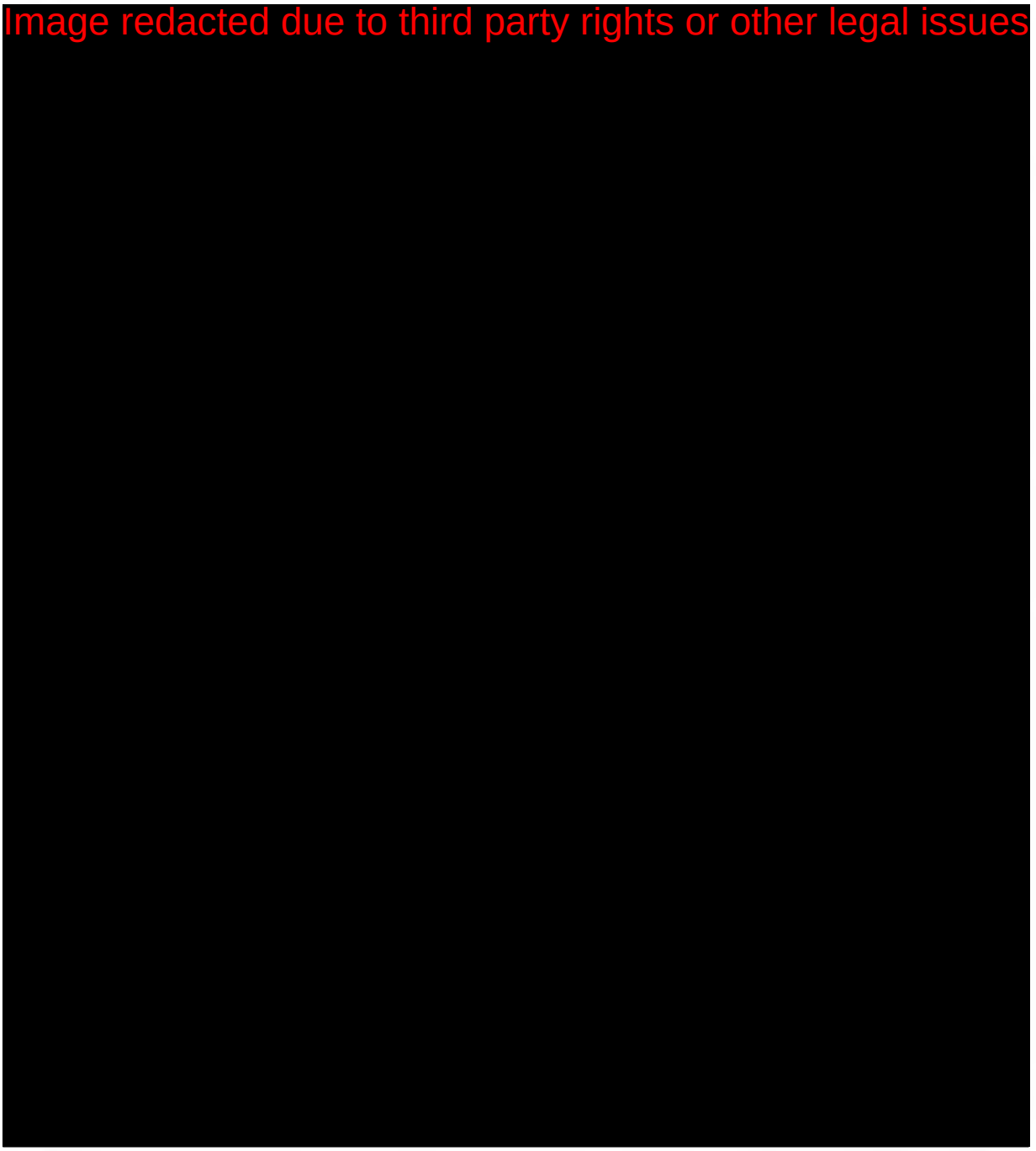


Figure 5.4 shows how Stefan depicted himself in the centre of a network of actors connected by information exchange in a similar way to Rolli in Case 1. However, Stefan's network features fewer actors and appears less tightly linked than Rolli's. Stefan's sketch reflects my impression that he received less support from his peers than Rolli did and was working primarily with his supervisor, the actor positioned closest to him in the sketch and with whom he had the most interactions. Although this case again features multiple actors on the text, and an important triadic relationship between Stefan, Dr BS and Professor CS, the role of peers seems to have been slightly less significant in Case 2 than Case 1. Figure 5.4 and my subsequent discussions with Stefan suggest he saw himself positioned in a more traditional master-apprenticeship role (Dysthe, 2002).

5.4 Discussion of findings from Case 2

Case 2, like Case 1 before it, shows a novice scientific writer gaining confidence and autonomy as a result of close collaboration with members of a disciplinary COP. As in Case 1, Case 2 features a critical incident on the trajectory of the text from first draft to publication, which was also a decisive moment for the novice scholar on his journey from peripheral to more central participation in the disciplinary COP.

In Case 2 the critical incident was the rejection by the reviewers and the subsequent decision to resubmit the article. Faced with BS's initial reluctance and scepticism about the merits of resubmission, Stefan was forced to draw on the support of Professor CS, the departmental head, in order to persuade Dr BS to reply to the reviewers. Without Professor CS's support, it would have been impossible for Stefan to have persuaded Dr BS to agree to a resubmission; and without this agreement Stefan would have been unable to resubmit the article alone. The successful intervention from the departmental head again illustrates the significance of status and power relationships within a disciplinary COP. Although exactly what happened between Professor CS and Dr BS falls outside the scope of this thesis, Stefan confirmed in Interview 3 that Professor CS's superior status as Head of Department *"may have been a factor in persuading BS to try a resubmission"*.

The case is also interesting in illustrating the significance of submission to a high impact journal. One of the ways in which Professor CS convinced Dr BS to accept a resubmission effort was by emphasising that the XYZ Journal had a high-impact factor. The journal's status was a significant factor in the decision, making it worth the effort of resubmission. In this respect the case resembles Li's (2006a) case study of Chen, in

which the status of the journal PRL was a decisive factor in the decision to resubmit. This shows the significance of impact factors and the way in which achieving publication in high impact journal articles can be seen as a form of "academic capital" (Bourdieu, 1984).

It is interesting that BS's early feedback comments on the article were noticeably directive, suggesting BS initially positioned himself as an expert correcting a text rather than a friendly mentor or colleague involved in a collaborative endeavour. BS's initial feedback was characteristic of a typical master-apprenticeship model of supervision (Dysthe, 2002) However, once BS had been persuaded to resubmit the article, Stefan and BS *"collaborated really closely"* on the resubmission. During this process, BS shared several insider tips regarding his strategy for dealing with reviewers and allowed Stefan to undertake several key tasks, such as writing the first draft of the letter which was sent to the reviewers.

Because Dr BS's style of feedback was directive rather than dialogical, Stefan's main learning opportunities seem to have been afforded by watching and performing tasks in the company of a 'master.' Although Dr BS was more collaborative than Professor DR, Stefan commented that he "never (had) any doubt about who was in charge" (SI3). A fact also evidenced by BS's strongly directive style of feedback.

As a result of being given an increasing stake in the process, Stefan acquired important tacit insider knowledge about responding to reviewers. This knowledge helped him extend his repertoire and move from a peripheral role to a more central role in the COP. Stefan described the lessons he learned in the resubmission process as the most significant part of the whole writing process and in his view the strategy for dealing with reviewers and *"good correspondence"* were key success factors in the subsequent successful publication of the article.

Case 2 reveals the significant role played by language in constructing scientific knowledge claims and in achieving subsequent publication. As in Case 1, language issues in the sense of grammatical accuracy or range of vocabulary were not grounds for rejection. However, the use of language to construct knowledge claims, to position the research in a context of previous literature, and to emphasise its novelty, were key issues for the reviewers in their decision to accept or reject the article.

Moreover, the important role played by language in achieving publication is seen in the linguistic complexity required by Stefan and Dr BS to respond appropriately and strategically to comments from four reviewers. The fact that Stefan and BS were able

to carefully select which comments to accept and which to resist, and choose to consciously exploit differences or contradictions between the reviewers shows that successful scientific publication is highly dependent on a writer's ability to persuade key gatekeepers of the value of findings and knowledge claims, even in allegedly neutral and impersonal disciplines such as chemistry.

On a related point, it is interesting that some of the comments and examples of language use from DS and FS suggest that the reviewers were themselves EAL users of English. In Interview 3 Stefan informed me that he believed that some of their positive remarks may have been initially *"misinterpreted by the editor because they were not clearly expressed"*. In particular, the precise meaning of DS's comment that "the authors could be underline (sic) the novelty of this work" is unclear. Certainly for Stefan, it was not clear whether the reviewer was saying the authors had been able to underline the novelty, or whether the reviewer was suggesting the authors should do more to underline the novelty of their work. Given that the rest of DS's review was positive, it is quite possible that this remark was intended positively. The editor, however, seems to have chosen to interpret this comment negatively. In a sense Stefan and BS's strategy in the resubmission process was to clarify and more fully interpret the meaning of the reviewers' comments to the editor, who Stefan believed may not have had time to study them in detail.

According to Stefan another key factor in the initial rejection of the article was the fact that *"one of the negative reviewers wrote a lot, while one of the positive reviewers kept his comments short and was not so clear"* (SI3). Analysis of the reviewers' comments confirms that one negative reviewer made three separate comments repeating the same criticism in different words, while one of the positive reviewers made comments that were ambiguous, which the editor chose to interpret negatively. For these reasons, the case is interesting in shedding light on the "occluded genre" of peer review (Swales, 1990) and revealing the fact that such reviews are far from being a totally unbiased or objective process, as Lillis and Curry (2010) have also argued.

Case 2 shows that Dr BS's strategy for dealing with reviewers was a form of tacit knowledge which he imparted to Stefan through "collaborative endeavour" (Dysthe, 2002). Stefan and BS's work together answering the reviewers' comments demonstrates many of Lave and Wenger's principles of situated learning such as "mutual engagement (and) joint enterprise" (Wenger, 1998: 74). As in Case 1, the critical moment on the trajectory towards publication in Case 2 can be seen as leading to a kind of "opening," a way for the novice to gain "access to sources for understanding through growing involvement" (Lave & Wenger, 1991:37).

Chapter 6: Case 3 "Tina"

6.1 Biographical details and previous writing experience

Originally from north-western Germany, Tina had worked in Switzerland for two and a half years at the beginning of the case study. She was employed as a PhD student and research assistant in an interdisciplinary research group exploring the economic and social effects of technological innovations. The group, comprising economists and environmental scientists was headed by Tina's supervisor, Dr BT, and was located within a larger environmental science institute headed by Prof FT.

Following an interdisciplinary MSc in Germany, which combined geography, economics and soil science, Tina worked for four years in different institutes in the field of environmental science before deciding to study for her PhD in Switzerland. With four years' work experience, Tina was slightly older than the other cases, aged 34 at the beginning of the case history and 35 by the time it ended.

Tina's supervisor at the institute was Dr BT, a specialist in the effects of technological innovations related to the electricity market. In his late 30s, BT was relatively inexperienced as a supervisor, having completed his own PhD only five years before Tina began her doctorate. Significantly Tina was only Dr BT's second doctoral candidate. In addition to Dr BT, Tina was assigned a second supervisor, Professor ET. ET had previously been employed at the same institution but had moved to a university in the Netherlands one year after Tina began her PhD. Professor ET had initially been Tina's main supervisor. However, following his move to the Netherlands Professor ET had *"taken more of a back seat"* and Dr BT was now Tina's main supervisor (TI3).

In the first interview Tina described her research interests as *"exploring the role of economic networks in shaping sustainable energy transitions."* She was particularly interested in the energy supply sector and the use of innovative forms of technology as well as the effects of privatisation, deregulation and liberalization on the energy market. Although Tina had not yet published an article in English she had collaborated on four previous papers in German. During her MSc she had undertaken an internship in Sweden for one year. As with Rolli in Finland and Stefan in South Korea, this international internship was Tina's first experience of having to use English on a daily basis *"in an academic way"*. It was in Sweden that Tina *"started to write papers in English for seminars. But it was not advanced. It was a start I would say."* After

returning from Sweden to Germany, Tina worked for two different scientific institutes in Germany *"but always in German"* (TI1).

When asked to comment on her English scientific writing ability, Tina mentioned many of the writing difficulties identified by German-L1 novice scholars in Armstrong (2011). For Tina difficulties fell into two main categories: those relating to general L2 writing skills such as being precise, being understandable and translating from L1; and those more specifically related to writing an academic text, such as academic style, organisational issues and problems with effective cohesion and transitions. Tina described her biggest problem in scientific writing in English as connected to translating from German: *"I had never really for, umh, good language, umh, structure in English…I always took my German words to get an idea of how it could be in English"* (TI1).

6.2 Text history Case 3

Unlike the other cases in this research, the TH in Case 3 resulted in two separate publications. During the writing process Tina and her supervisor, Dr BT, took a decision to split the original text into two separate but related papers. As a result of this decision the first of these papers, Paper 1, was accepted for publication in January 2011, the second, Paper 2, was accepted for publication in April 2011. The TH is based on 11 drafts of Paper 1 and 7 drafts of Paper 2 (circa 250,000 words). Figure 6.1, overleaf, lists the principal actors involved in the TH. Figure 6.2 depicts the trajectory and interactions of both papers in one diagram, reflecting as much as possible the structure of Tina's own sketch of the writing process, presented in Figure 6.5. As in the previous case studies, the size of circles in Figure 6.2 represents the approximate amount of influence of each of the different actors on the text. Figure 6.2 again shows the highly collaborative and recursive nature of scientific authorship. As well as Tina's local COP network (Dr BT, NES peer CT, and group leader FT), the actors in Case 3 included members of an international conference in Denmark and a supervisor based in the Netherlands as well as international journal reviewers, reflecting the international nature of her writing network and the highly globalised nature of her field.

Figure 6.1. Principal actors in Case 3

AT = Tina: PhD student and 1st Author

BT = Dr and 1st supervisor in Switzerland and 2nd author

CT = NES peer 1

DT = 1st conference audience in Denmark

ET = Professor and 2nd supervisor in Netherlands

FT = Professor and research group leader in Switzerland

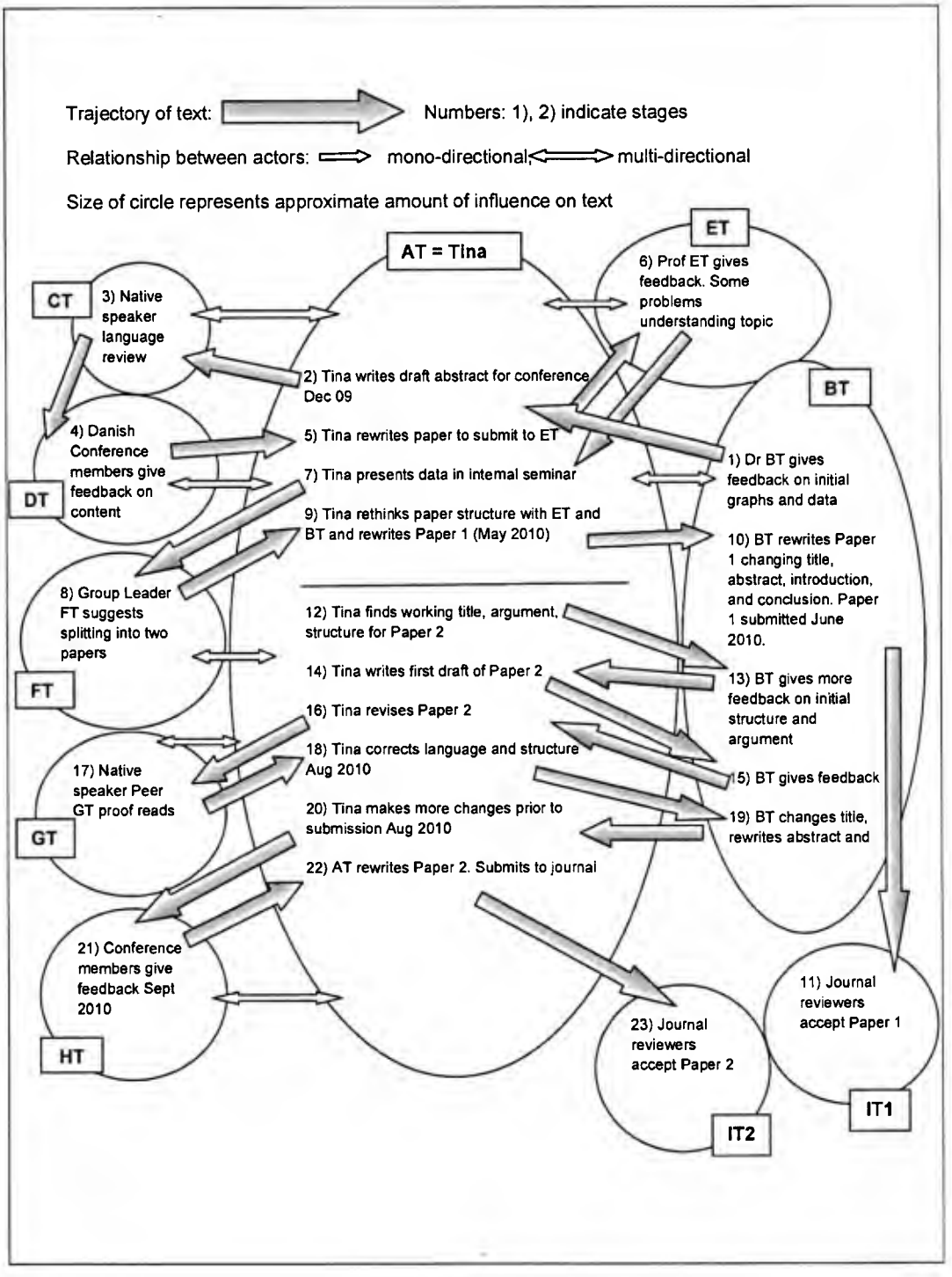
GT = NES peer 2

HT = 2nd conference audience

IT1 = Journal reviewers (it is not known if they were the same individuals for both papers)

IT2 = Journal reviewers (it is not known if they were the same individuals for both papers)

Figure 6.2. Trajectory of text and interactions between actors in Case 3



6.2.1 Early drafts

Tina began writing the text that forms the basis of this case study at the beginning of December 2009. The text was initially planned as a long (approximately 25-30 page, 14,000 word) article for an interdisciplinary publication about technological innovation. Tina was to be the paper's first author and was to work in close collaboration with her supervisor, Dr BT, who was to be the second author of the paper.

The initial drafts of Tina's text had their origin in research and findings that Tina undertook in the first two years of her PhD and which she presented for the first time at an international conference in Denmark in January 2010. Dr BT gave Tina feedback on the initial graphs and diagrams showing the economic and technological networks that were the basis of Tina's research in mid Dec 2009 and by the end of December Tina had written an abstract to submit to the conference. This abstract was reviewed by CT, a NES colleague, prior to submission to the conference in December 2009. Although the drafts of this abstract were overwritten and could not therefore be included in the TH, Tina told me in Interview 1 (January 2010) that CT *"corrected a lot of language mistakes"* before the text was submitted to the conference.

Presenting some of her findings at the conference in January 2010, Tina received *"some useful inputs about the structure of the paper and contents."* Following feedback from the audience, Tina realised that "*some of the concepts were difficult for the audience to understand"* and decided to *"reorganise the whole paper and simplify some of the contents"* (TI1). Following these changes Tina sent a new version of the paper to Professor ET, her supervisor in the Netherlands. In February 2010, Professor ET also told Tina that the paper was *"quite difficult to understand as it combined concepts and theories from different fields."*

A month later, in March 2010, Tina presented a 10-page paper containing findings from her research at her institute in Switzerland for a second time. Again Tina received feedback that the paper was *"too complex and combined too many theories and concepts."* The major problem was the paper *"attempted both to define the concept of technological innovation networks and to present data about how these networks worked in practice in one paper"* (TI2). At the presentation Prof FT told Tina that the paper was *"overloaded"* and suggested splitting it into two parts *"to make it more understandable"* (TI2).

According to her writing log, Tina was *"extremely worried that no one apart from Dr BT seemed to be able to understand the research."* Following the problems presenting the

original version of the paper at her institute Tina turned again to Professor ET, her supervisor in the Netherlands, for help as she felt *"increasingly frustrated"* that her *"research was not progressing as quick or as well as it should."* As a result of the *"disastrous presentation"* (TWL) and Group Leader FT's feedback a meeting was held in Switzerland at the beginning of May 2010 between Tina, Dr BT and Professor ET to decide how Tina's initial publication effort and the subsequent timeframe for the rest of her PhD study should be structured and planned. As a result of this meeting Dr BT, Professor ET and Tina decided the original paper should be split into two separate papers. In one paper Tina would focus on developing the concept of technological innovation networks and in another she would use case studies to explore how this concept worked in reality. The meeting resulted in a much clearer idea of how to structure the two papers and *"gave more structure and shape"* to the whole of Tina's PhD study (TWL).

From late May 2010 the electronic version of Tina's original text underwent substantial changes as it was sent back and forth by email between Tina and Dr BT. Analysis of the changes shows how Dr BT largely rewrote the text, making changes to more than 500 lines of the manuscript and writing numerous comments on 10 different drafts between 28th May and 30th June, 2010.

On May 28th Dr BT commented in detail on the discussion section of the paper, making changes to more than 250 lines of the text and introducing 12 comments alongside the text using the Word editing function. Table 6.1 below gives an overview of the type and number of feedback comments Dr BT made on the Discussion section. Interestingly in his review of this section, Dr BT made exclusively negative comments. There were no examples of praise and the comments were mainly directive in style. The critical comments were not hedged or mitigated in any way and showed a high frequency of imperative forms or modal verbs of obligation such as *"müssen" and "sollen"* (must and should). BT never addressed Tina directly by name preferring an impersonal and elliptical style of feedback as Table 6.1 shows.

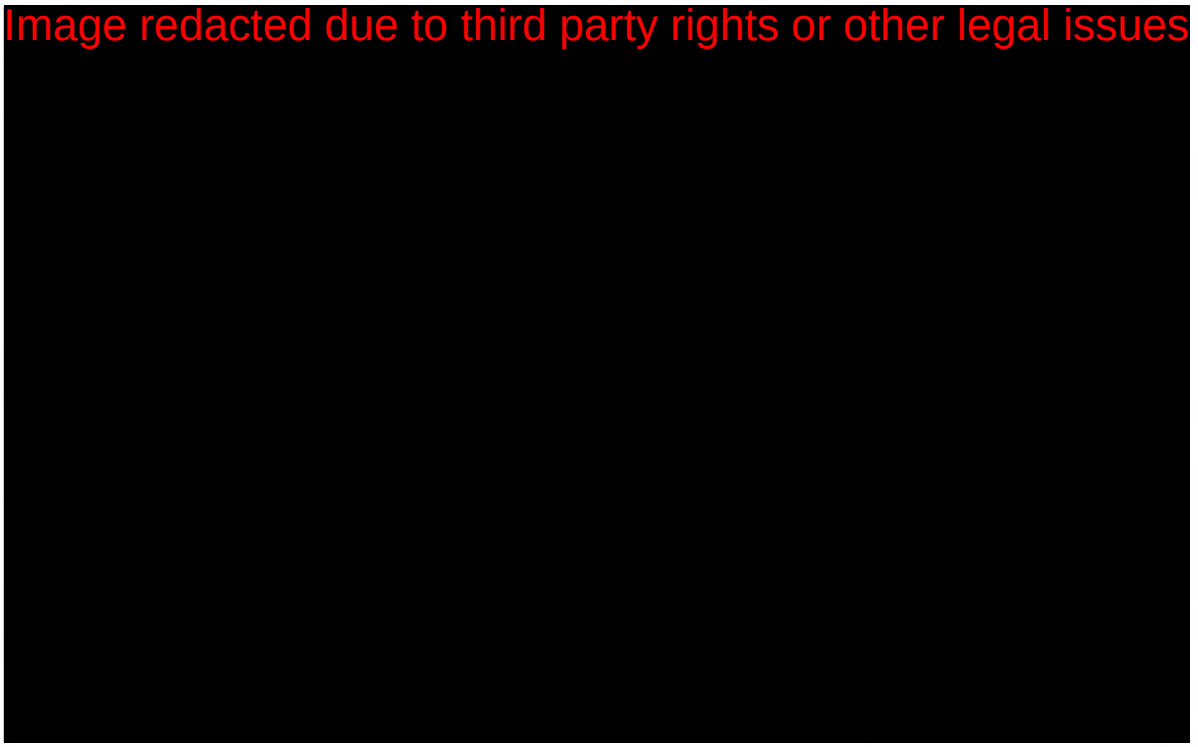
Table 6.1. Interpersonal aspects of BT's feedback on Tina's discussion

Interpersonal aspect	Example	Number of comments
Raising questions	*"Wie funktioniert das genau?"* (How does that work exactly?)	6
Explaning changes made to text	*"Achtung Namen geändert / verkürzt"* (Watch out, I have changed the names)	2
Instructing or directing writer	*"das sollte schon dort kommen"* (That should come here already)	3
Criticising	*"Wäre zu stark"* (That would be too strong)	1

Where a questioning strategy was used, it was often with a critical effect rather than as a genuine question; for example Dr BT wrote *"Wie funktioniert das genau?"* (How does that work exactly?) to indicate that more explanation was necessary rather than as a genuine question. Lea and Street (2000: 169) use the term "categorical modality" to describe a situation where a tutor or supervisor uses a question form as a "kind of expletive, or as a categorical assertion that the point is not correct" rather than as a genuine question.

Figure 6.3 below shows an example of Dr BT's extensive editing of the text. As can be seen in this particular 30-line extract nearly every line of Tina's initial draft discussion was changed by Dr BT. Tina told me later in Interview 2 (October 2010) that following Dr BT's extensive rewriting of the discussion section, she *"couldn't help feeling demotivated"* by the amount of changes to the text: *"My text was changed completely and I didn't like this much. My name was there but it was not what I had written."* Tina went on to say that she knew that her supervisor was good and had *"a very high level style of writing English".* She felt that the amount and style of correction made it difficult to learn because *"I couldn't really catch my weaknesses, I just had the impression everything was wrong"* (TI2).

Figure 6.3. Example of BT's changes to Tina's discussion, Paper 1



Having worked on the discussion, Dr BT went on to comment on Tina's introduction and theoretical background, (the first and second chapters of the text respectively). Dr BT introduced four comments into the text and largely rewrote the introduction. By this stage Tina later told me *"Dr BT was becoming irritated by the amount of work he found himself doing on the text"*. (TI2). Analysing Dr BT's feedback comments on the introduction it is noticeable that all four comments contain imperative forms, modal verbs of obligation and exclamation marks.

Dr BT also seems to have been frustrated by technical aspects, such as the formatting and layout, of Tina's text. In the third draft of the text Dr BT strongly criticised Tina's formatting of the text using language which Tina later told me she felt was impolite and inappropriate for a supervisor giving feedback on a student writer's text. For example Dr BT wrote: "*Es ist echt nervig, dass sobald man hier etwas reinkopiert, man wieder in anderen Schriftstyles landet – ich stelle einfach mal fest, dass Du auch nach zwei Jahren immer noch nicht in der Lage bist, oder einfach keinen Bock hast, mal ein vernünftig formatiertes Dokument zu erstellen!*" (It's really irritating/ a pain in the arse that as soon as one tries to copy something in here one ends up in another font – I gather from this that after two years you are still not able, or simply can't be bothered, to put together a correctly formatted document!)

Indeed from this point onwards, Dr BT's comments on the introduction are characterised by a direct and rather terse style as can be seen in Table 6.2 below. The 17 comments are all negatively framed, short and elliptical in style and contain no examples of praising strategies.

Table 6.2. Interpersonal aspects of BT's feedback on Tina's introduction

Interpersonal aspect	Example	Number of comments
Raising questions	*"Ist das schon ein guter Begriff?"* (Is that really a good term to use?)	6
Explaining changes made	*"haben REF den eingeführt "*(I have taken out this reference)	1
Instructing or directing writer	*"Konsistenz check"* (Check consistency)	6
Criticising	*"Ist mir unklar"* (It is unclear to me)	4

In these 17 comments it is notable that Dr BT never addressed Tina directly by name and referred to her with the personal pronoun "Du" (you) on only two occasions, whereas Tina replied to her supervisor using the more respectful "Sie" form of address, indicating a hierarchical gap and lack of interpersonal proximity between the supervisor and supervisee.

On the 29th June, having already largely rewritten the discussion, introduction, theoretical background, results and conclusion sections, Dr BT deleted Tina's abstract and replaced it with his own version of the text. An action that Tina later told me occurred without discussion and which she at first could not understand at all: *"When I saw this it was like a slap in the face and very demotivating"*. Later, however, Tina said she realised Dr BT was *"mainly trying to save time and make sure the paper was printed"*. (TI2)

Because BT completely rewrote Tina's abstract, it was difficult to analyse the changes made using the heuristic for tracking changes across drafts. The two texts contained no common phrases and could only be categorised as a total reformulation of the text. An analysis of the differences between the two abstracts reveals that Dr BT's abstract highlighted the empirical findings and conclusions of the study more explicitly than Tina's abstract, which only mentioned analysis but did not clearly indicate what the findings of the study were. Dr BT's abstract featured five phrases which highlighted the structure of the text: "In this article we..." "Our empirical findings are based on...", "the

analysis shows that..." "...were two major contributions that were achieved" and "it is concluded that...". These phrases gave a very clear and explicit structure to the text.

In addition, Dr BT's abstract began with a more general opening sentence than Tina's, which began with a specific reference to the location of the research in Germany. Dr BT moved the reference to Germany from the second to the fourth line of the abstract, a change that Tina told me later *"probably made the abstract less local and more international in focus"*. This down-playing or "back-grounding" of the "local" nature of the research mirrors changes made by literacy brokers in Lillis and Curry (2010: 144) where references to research conducted in non-Anglophone contexts was often marked by journal reviewers as being too "local". By contrast Anglophone-centre localities were implicitly seen as "universally relevant and applicable". Dr BT's change and Tina's subsequent remarks suggests this view of locality may be quite widely held.

In a final round of editing at the end of June 2010, Dr BT changed the title of the article and again rewrote the conclusion. Tina later told me that by the time Paper 1 was submitted *"almost nothing remained from the first draft of the article"*. Although Tina was initially upset about the changes made to her text, she had "*come to terms with it more or less"* by the time Paper 1 was submitted. Tina realised that *"Dr BT was under pressure to send the paper off and probably felt like this was the quick way to get it into shape"* (TI2).

At the beginning of July Tina again reflected in her writing log about what she had learned from the process of writing Paper 1 (see original German extract in Figure 6.4 overleaf).

Figure 6.4. Extract from Tina's writing log, July 2010

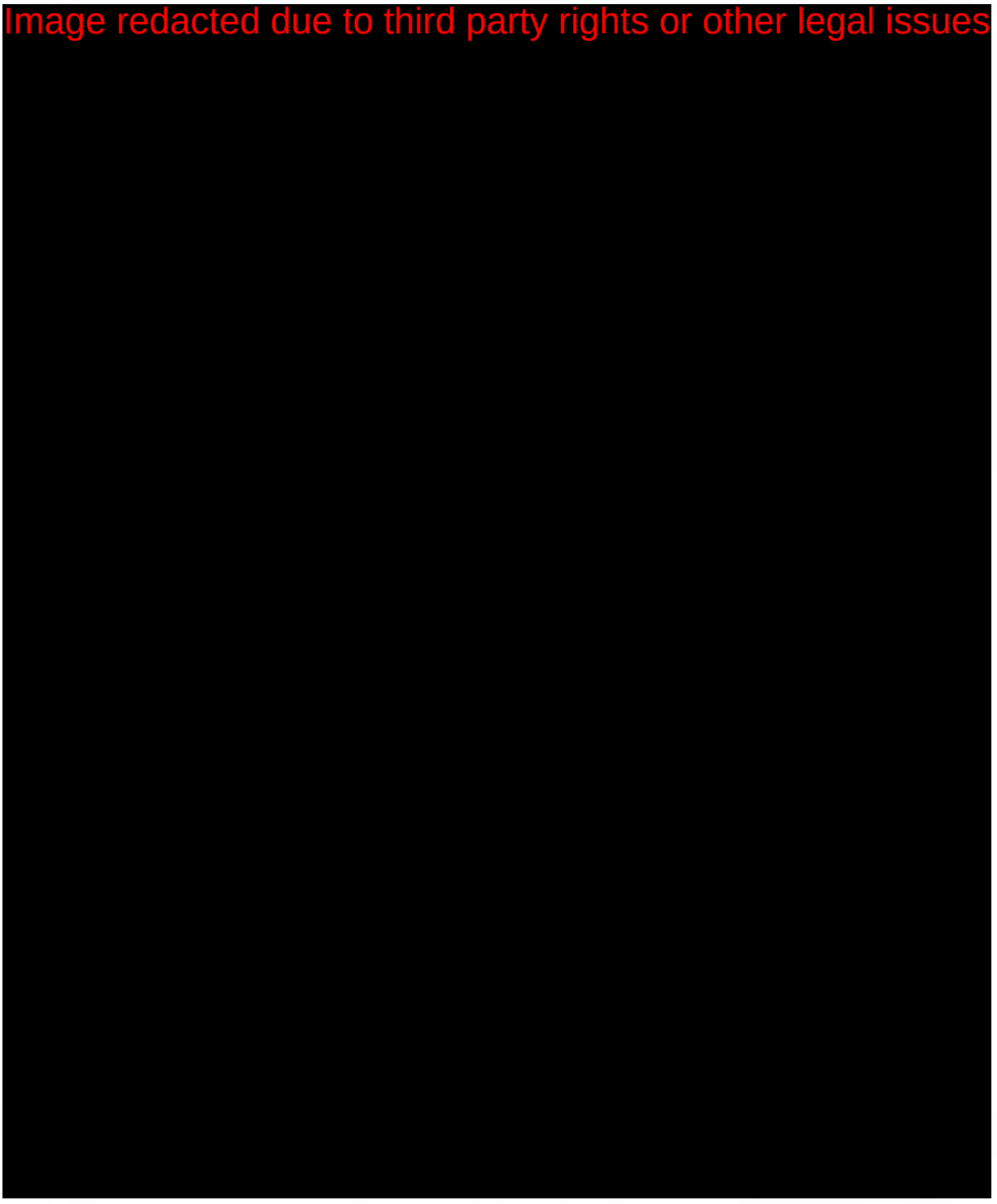


Figure 6.4 shows Tina's active self-reflection on the problems of Paper 1 and her determination to improve in her subsequent writing. Tina's use of a series of questions to herself: *"Was habe ich gelernt?"* (What have I learnt?) *"Was lief nicht so gut?"* (What didn't go so well?) *"Was kann man anders machen?"* (What could one do differently?)

and her list of bullet points in response suggest an internal dialogue out of which she drew a series of writing guidelines for Paper 2.

As a result of this internal dialogue, Tina identified the need to focus more on the argument and not be diverted from the main idea: *"Focus auf das Argument ...nicht auf Unzulänglichkeiten eingehen."* She also resolved to adopt a number of scientific writing conventions, such as a clear line of argument and a coherent structure, and to portray empirical results without interpreting them. At the micro level she decided that paragraphs should be consistent and built around one main topic, while at the meta-level the focus should be on communicating with the reader and guiding the reader through the text.

Discussing this process of self-reflection, Tina told me later that from this point onwards she felt she had *"adopted a more systematic and scientific approach to writing"* (TI2). In many ways Tina's self-reflection can be seen as a step towards the adoption of a new scholarly identity as a scientific writer. Her decision to be more systematic, coherent and reader-friendly can be seen as a form of "on-going identity construction...a discoursal choice made in the tension between writers' current affiliations, allegiances and sense of self, and their sense of what will be in their best interests in the social context in which they are writing" (Clark & Ivanič, 1997: 159).

Tina also stated that she regretted the amount of work her supervisor had done on Paper 1. Reflecting what could be done differently next time, Tina wrote that her supervisor should do less himself and restrict his role to commenting on her text and giving advice. Tina explained that she felt Dr BT had done *"too much of the writing and had taken over the text to some extent, so it was no longer my text"*. As a result Tina told me Dr BT should *"leave (her) alone to make the changes because that's how you learn to write"* (TI2).

Although Tina expressed reservations about the amount of changes made by Dr BT to the text and was concerned that the text was *"no longer my text"*, it should be emphasised that she never directly questioned Dr BT's authority and always accepted BT's changes. Commenting on the changes in more detail in Interview 2, Tina seemed very ambivalent. On the one hand she appeared to be frustrated that the text had been *"taken over"* or appropriated by her supervisor. On the other hand she felt guilty about the amount of work that Dr BT had had to do on the text. Tina's ambivalence to the changes made by her supervisor was reminiscent of Chatri's ambivalence in Tardy (2006). Chatri felt changes introduced into his text by his supervisor Roberto impinged on his ownership of the text, but was also concerned about the effect of overstated claims on the reputation of his PhD advisor.

As a result of the experiences with Paper 1, Tina resolved to *"plan and write the second paper much more efficiently"*. On July 9th 2010 Tina and Dr BT drew up a schedule for Paper 2 with clearly defined milestones and a clearer division of tasks. Tina would start by preparing slides and pictures of her data, a working title and an outline of the argument. Dr BT would then comment on the overall structure and figures and would then allow Tina to write a first draft of the text without interruption. Each of these steps was planned with a clear timeframe, which had not been the case with the first paper.

Following further discussions with BT in the middle of July, Tina constructed a skeleton outline of the Paper 2 between 18th and 20th July. On July 22nd Tina began to write the first draft of the text for Paper 2. Beginning with the results and general conclusions, Tina then worked on the theoretical background, finalising the first draft of the paper at the beginning of August with an introduction and abstract, which were partly written in English and partly written in German.

On August 6th BT commented on the first draft of Paper 2. The TH for Paper 2 shows a greatly reduced number of changes to the text from Dr BT compared to the changes made to Paper 1. In Paper 2 Dr BT made changes to only 10 lines of the existing text and wrote an extra 20 lines, compared to changes to more than 500 lines of Paper 1. Instead of rewriting the text as he had done for Paper 1, Dr BT seems to have preferred to give Tina guidance about how the text could be improved. Dr BT made a total of 42 comments in Paper 2, compared to only 17 comments in Paper 1; an overview of these comments is presented in Table 6.3 overleaf.

Analysing the comments it appears Dr BT significantly altered his feedback style from the first paper. In Paper 1 none of Dr BT's comments were positive and 11 of the 17 comments used a directive style of feedback characterised by imperatives, modal verbs of obligation and exclamation marks. In Paper 2, by contrast, Dr BT made suggestions more frequently than he gave directions. Of the 42 comments on Paper 2, 12 took the form of questions and 10 were hedged in some way. In addition, where Dr BT did make changes to the text, he also explained his rationale more frequently than he had done in Paper 1. In Paper 1 Dr BT made changes in over 500 lines of the text but inserted only two comments explaining why the changes had been made. In Paper 2, by comparison, the text was changed in only 10 lines but three comments were made to explain the rationale for the changes. Furthermore, Dr BT seems to have been more aware of giving feedback that would help raise Tina's language awareness: 13 of the 42 comments related directly to terminology and definitions that were being used.

Table 6.3. Interpersonal aspects of BT's feedback on Tina's text, Paper 2

Interpersonal aspect	Example	Number of comments
Raising questions	*"Hier nicht unbedingt notwendig, oder?"* (Not absolutely necessary here, is it?)	12
Instructing or directing writer to make changes	*"Achtung x and y sind noch nicht klar getrennt – das müsstest Du empirisch und analytisch noch mal sauber dalegen"* (Watch out x and y are still not clearly distinguished – you must demonstrate this again empirically and analytically)	12
Making suggestions	*"Mein Gefühl sagt, dass man sich hier auf die Einführung des Begriffs konzentrieren sollte"* (my feeling is that one should concentrate on introducing the terminology / definitions here)	10
Explaning changes made to text	*"Resource something you own, capabilities something you do"*	3
Criticising	*"Unklar"* (Unclear)	3
Praising	*"Finde die Grafik gut"* (I find the figure good)	2

Generally speaking Dr B seems to have been less dogmatic and more open to discussion regarding issues in Paper 2 than he was in Paper 1. On six occasions Dr BT hedged or qualified his feedback comments with the word *"Vielleicht"* (perhaps/maybe) or the use of the tag question *"Oder?"* (isn't it?) indicating that the issues were complex and could be discussed or negotiated. There were also eight examples of personal attribution in Dr BT's comments on Paper 2, a strategy that Dr BT had not used in Paper 1. Phrases such as *"Mein Gefühl sagt"* (My feeling/instinct says) or *"Fände ich eigentlich nicht schlecht"* (I think it's actually not so bad) or *"habe leider selbst keine einfache Antwort darauf parat"* (unfortunately I don't have an easy answer ready myself) show that BT positioned himself as less of an absolute authority than he did in Paper 1. These differences suggest the hierarchical gap between Tina and Dr BT was reduced in the second paper to some degree. This impression is supported by Tina's later comment that the work on Paper 2 *"went much more smoothly"* and was *"more friendly and collaborative"* (TI2).

Between 12th and 14th August Paper 2 was proofread by GT, another NES peer working in Tina's institute. According to Tina's log *"GT was correcting the draft, she helped me to improve with commas, the write (sic) present tense, the use of which/who and...she has marked sentences which made no sense for her."* Analysis of the changes shows GT worked exclusively on language rather than content, introducing a total of 11 sentence level changes to the text. The majority of these changes

concerned corrections to Tina's use of English grammar and shifts to a more formal register. Between the 14th and 17th August Tina implemented the changes suggested by GT and sent the draft back to BT for a final feedback round. In her log Tina wrote that she was *"pleased with how the paper progressed so much more efficiently than paper 1".*

On August 20th 2010, Dr BT read the paper again and made a number of further changes to the text. The most important of these was to introduce further small changes to the title and abstract, although these changes were not nearly as extensive as those introduced in Paper 1. Interestingly, this time Dr BT took pains to explain his rationale for changes using the Word editing function. The major change Dr BT made to the abstract was in the statement outlining the main aims of the paper. Tina's version of the abstract read:

> *"In this paper, we will move a step forward and analyze which role innovation networks play in TIS as they contribute to the development of strategic resources at the network and system level."*

This was changed by Dr BT to read:

> *"In this paper, we take a closer look at how firms and other actors cooperate in formal networks in order to establish institutional structures that help to stabilize and stimulate an emerging technological field."*

In addition, BT inserted two phrases which made explicit references to the first paper and showed how the two papers were linked: *"In an earlier contribution we have shown that..." "Here we follow up on this, asking...".* Although Dr BT again made changes to Tina's abstract, just as he had done in Paper 1, this time he added comments explaining the rationale for the changes:

> *Im ersten Paper haben wir formuliert im Ausblick: Are there particular networks that generate particular kinds of system resources? (oder so ähnlich). Jetzt würde ich eher sagen, wie unterscheiden sich die Netzwerke ...*
> (In the first paper we formulated the aim / outlook: Are there particular networks that generate particular kinds of system resources? (or something similar). Now I'd rather say how do the networks differ ...)

Dr BT's use of "wir" (we) on four occasions suggests he now saw Tina as more of a colleague than in the first paper, where there were no such comments. Reflecting on the difference between the feedback received from Dr BT in Paper 1 and Paper 2 Tina confirmed that *"Paper 2 was more a team-working, more collaboration than the first*

paper". Tina agreed that Dr BT's feedback in Paper 2 contained *"much more explaining so I was able to learn more about why things had been changed and what I had done good or bad."* (TI3)

Following submission of Paper 2, Tina drew me a sketch of how she saw her writing network and the trajectory of the two texts up to that point, Figure 6.5 overleaf. This sketch was extremely useful in helping me obtain an initial overview of the process and interactions taking place in this case study. The sketch has had the names of the actors removed in the interests of anonymity but clearly demonstrates the significant role played by Dr BT, represented by the shape on the far right-hand side of the figure. In charting the trajectory of Tina's text in Figure 6.2 above, I tried to maintain the shape and position of the actors as Tina originally sketched them.

Figure 6.5. Tina's sketch of her writing network

Following the acceptance of Paper 1 and the submission of Paper 2 in October 2010, Tina and Dr BT had to wait until the end of February 2011 for feedback from reviewers. The first two reviewers were mainly positive, complimenting the strength of both papers. A more cautious note was sounded by Reviewer 3 who wrote that Paper 2 lacked *"a clear framework and methodology. This is important as the authors actually seem to add a level of analysis in between actors and the system as a whole. It should be clear how they deal with this."* In addition, Reviewer 3 argued that the analysis itself was difficult to follow. Reviewer 3 wrote: *"This may be due to the previous point. But it is also a matter of being more concise, and using less steps, in the analysis*". One final criticism about Paper 2 from Reviewer 3 was that: *"the conclusions are not really that interesting... they mention insights that have been established in earlier studies*". One month later, Tina and Dr BT replied by email to the reviewers that: *"We have revised the conclusions substantially, highlighting the contributions to the literature (new function, new perspective on networks, new perspective on the role of actors) and also sketching a future research agenda..."*.

Tina and BT's strategy was similar to Stefan and BS's strategy in Case 2. Like Stefan and Dr BS, Tina and BT adopted a strategy of addressing most of the reviewers' comments but explaining in detail wherever comments were not accepted. As in Case 2, not all the reviewers' comments were accepted. In response to this criticism of the methodology, Tina showed her increasing autonomy by writing a response to this criticism from the reviewers on her own. Like Chen, the novice scholar in Li (2006a) discussed in Chapter 2, Tina seems to have become increasingly independent and confident in her dealings with the reviewers. Her email clarified the framework and methodology of the paper and argued that *"the idea is not to introduce another level of analysis but to take existing formal networks as empirical objects of analysis."* In her email Tina pointed out that the methods section was now illustrated with a figure to show the conceptual relationships and provide an overview of the different steps in the analysis in a clearer way. The introduction was changed to emphasise the research questions more directly and state explicitly why the research was important.

6.3 Tina's reflections on the writing process

In Interview 3 I asked Tina to reflect on what she had learned from the writing and publishing process. She told me: "*First of all, I have understood what a paper is. Previously I had a different understanding of it... Now when somebody would give me new data, good data, I should... I would know how to analyse the data and come to an okay paper at the end I think."*

Like Rolli and Stefan in the previous cases, Tina seemed to be much more confident at the end of the process than at the beginning. Responding to a question about how her perceptions of writing and her own view of herself had changed during the process, Tina told me that whereas in the first paper she felt the paper did not really belong to her, in the second paper this was not the case:

> ***Tina:*** *In this paper I am the main author and it is my text. ...Of course it's not the same style as a native language speaker or a professor in the field or...*
>
> ***Int:*** *But it doesn't have to be... you are saying?*
>
> ***Tina***: *Yes, exactly, I want that my identity is also present behind my writing...*

Echoing Kamler and Thomson (2006), Tina saw the process of writing a paper as a medium for both knowledge construction and identity work. "*Through writing I understand what is the problem or what I have misunderstood or what I missed until now, so mostly I can do it in English but sometimes I have to start with German. But maybe after this paper I never have to start with German again!*" (TI3). With regard to specific lessons about language that she had learned in the process, Tina claimed some parts of the paper were now actually easier for her in English than in German: "*some parts I can really write easier in English because I can't remember the German word for it.*"

Reflecting on the notion of being disadvantaged as a NES writer, Tina felt that native speakers were still at an advantage but was at pains to point out the benefits she obtained from the two NES peers who had proofread her papers for language errors. "*when I submit a paper I have had some native speakers who help me so I think from the language and from the sound of the sentences it's cool.*" Generally she did not feel irritated or disadvantaged by the dominance of English in science and seemed to accept the situation claiming *"I think in the 30s it was German. I could just write German now if I lived in the 30s."*

Tina also related her experience writing the publication to lessons she had learned in the writing course she had attended at the beginning of her PhD. She recommended novice scholars to attend writing courses but also to reflect on the process of writing: *"during the writing you think you understand everything but when you are writing you need to go back and read it again and think about it again."* (TI3)

6.4 Discussion of findings from Case 3

Case 3, like the two previous cases, illustrates how overcoming a critical incident on the text trajectory towards publication led to an opening for the novice scholar, which in turn allowed the writer to engage in the practice and move to a more central position within the disciplinary COP. In this case, as there were two texts, it can be argued that there were in fact two critical incidents, although these do not conform exactly to the two papers. The first critical incident was the decision to split the original overly-complex paper that the conference audience in Denmark, Professor ET, Group Leader FT and other colleagues in Tina's institute found difficult to understand into two separate papers. This decision seems to have been at least partly the result of behind-the-scenes interventions by Professor ET and Group Leader FT, who suggested that Dr BT should more clearly structure and plan Tina's PhD programme, illustrating the significant role played by power relations within the COP, a theme which will be discussed in more detail in Chapter 7. The fact that ET and FT had difficulties understanding Tina's paper seems to have finally demonstrated to Dr BT that something had gone badly wrong with her supervision and that action had to be taken to restructure the paper and more clearly plan the whole PhD programme.

Following this decision, Dr BT seems to have involved himself more fully in the writing process than was previously the case. In the first six months of the TH, BT gave feedback on graphs and figures but left Tina to write the first draft of the paper unaided. Following the important triadic meeting of Tina, BT and ET, BT intervened much more directly in the text. However, Tina's failure to respond to comments in subsequent drafts and a growing sense of frustration on Dr BT's part resulted in a complete redrafting of the paper prior to its submission. It should be noted here that as the co-author of Tina's paper Dr BT had a large stake in the success or failure of the publication process and had more to lose than if Tina had been writing a traditional book thesis.

Tina's experience writing her first paper mirrors several case studies of novice academic writers who found their draft changed significantly by supervisors so the text was no longer recognisably their own work (Blakeslee, 1997; Belcher, 1994; Tardy, 2006). Tina's supervisor, Dr BT, appeared to grow frustrated with Tina's inability to revise the text in the way he required. Consequently, Dr BT took control of the text by rewriting it completely. In this way Dr BT strongly resembles Swendsen the supervisor in Blakeslee's (1997) case study of the PhD student Bouzida, who became frustrated by the student's lack of progress in revising a text. After reading four drafts of Bouzida's

text, Swendsen undertook his own revisions without consulting Bouzida, resulting in "a significantly different version of the article" (Blakeslee, 1997: 25).

Unfortunately, Dr BT's excessive intervention and appropriation of the text in Paper 1 left Tina feeling demotivated and demoralised initially at least. The nature of BT's intervention made it difficult at first for Tina to see exactly what she had done wrong. However, this seemingly negative experience can be seen as the second critical incident in this case. Tina's writing log clearly shows her reflecting on and using the negative experiences of writing Paper 1 to help her improve and be more efficient in writing Paper 2.

The problems with the supervision of the first paper also seem to have been a critical moment for Dr BT. As William F Hanks argues in his foreword to *Situated Learning* (Lave & Wenger, 1991) learning in a COP is not restricted to the novice learning from the supervisor but is "distributed among co-participants, not a one person act" (Lave & Wenger, 1991: 15). Although the main focus in LPP in a COP is how the novice learns from the old-timer, it is also the case that old-timers can learn from newcomers, the master from the novice. In Dr BT's case it is important to note that Tina was only his second supervisee, so as a supervisor he was himself something of a novice and perhaps had to be guided by Professor FT and Group Leader ET, who were more experienced supervisors. It is interesting that Tina commented in Interview 2 that Dr BT *"had a lot to learn about supervision"* and *"was helped by Prof FT to stay on track".* Certainly Dr BT seems to have realised that his excessive intervention in Paper 1 demotivated Tina and in the second paper he was noticeably more conciliatory and constructive with his comments. Planning the whole paper writing process also seems to have helped both authors greatly and as a result the second paper was written more quickly and efficiently than the first.

Case Study 3 illustrates the process by which novice scholars gain confidence and grow as a result of situated learning and shows Tina moving from a peripheral to more central position in her COP. Tina clearly took a much more active role in the second paper than the first and was treated by Dr BT more as an equal than as a subordinate. Although the precise reason for BT's change in feedback strategy cannot be determined, the effect seems to have been to narrow the hierarchical gap between Tina and her supervisor and suggests BT developed a supervisory strategy which was more productive than in the first paper.

The fact that Prof ET and Group Leader FT played a significant role in the process of getting Tina's paper and PhD programme *"back on track"* illustrates the importance of

networks and collaborative endeavour to successful scientific publication. Had Tina and Dr B been working in a purely dyadic relationship things might have gone from bad to worse. As in the previous cases, the high-stakes nature of the writing-for-publication endeavour and the precarious situation of novice scholars faced with hurdles to their progress is well-illustrated in this case.

Chapter 7: Discussion and conclusions

The three in-depth case studies presented and discussed in Chapter 4, 5, and 6 reveal how different actors (supervisors, peers, language professionals and reviewers), impact on novice scholars and their texts. Using different mediation and feedback strategies, the actors help or hinder the scholars on their journey from the periphery to the centre of their local COP and at the same time help the texts to conform to the linguistic and stylistic conventions operating in the globally-dominant Anglophone discourse community.

By analysing changes to the texts, feedback comments, personal writing logs, and interviews with the novice scholars at the beginning, middle and end of their writing processes, I have shown how critical incidents in the texts' trajectories towards publication became opportunities for the three novice scholars to more fully engage with the practice of scientific writing. Through this engagement the novice scholars acquired both explicit and tacit knowledge of the practice and moved from a peripheral to a more central participation in their local COP. As a result of this centripetal movement the novice scholars gained confidence to participate more autonomously in the target global discourse community. In all three cases the novice scholars' centripetal journeys involved overcoming critical incidents and navigating a web of socio-political relations based on hierarchy, expertise, proximity and distance. In addition, the analysis has shed some light on each novice scholar's developing "writer identity", their developing sense of their audience, and their personal confidence and motivation.

The major themes emerging from the three case studies are drawn out and discussed below. Following this discussion and comparison with previous literature, I will present implications and recommendations for those engaged in teaching writing for publication courses, limitations of the study, ideas for dissemination, and areas for further research.

7.1 Role of the critical incident

All three cases contained a critical incident or decisive moment in the journey of the writer from periphery to centre of their COP. This incident is critical both for the text on its trajectory towards publication and for the writer's subsequent centripetal development. In order to overcome the hurdle imposed by this incident, it is necessary for the novice writer to draw on support from their COP. In this way, the critical incident

impacts on the subsequent trajectory of the text, but also affords opportunities for the novice to more fully engage in the practice and make progress on his/her journey from the periphery to the centre.

In addition to being a key moment for the novice scholar, the critical incident more fully reveals the significant role played by pivotal actors, who may intervene to keep the text "on track" at this point. The novice scholar's ability to reflect on and apply tacit knowledge acquired through collaborative endeavour with pivotal actors, or as a result of discussion and negotiation about dialogic feedback from pivotal actors following the critical incident, is also a key success factor in this process.

The rejection of Rolli's article by the journal reviewers was a critical incident, which left him feeling disheartened and demotivated. Fortunately Rolli was able to draw on the support of various actors within his local COP and in particular the highly collaborative input received from Peer ER, the pivotal actor in the text's trajectory towards publication. Rolli's network and *"lessons learned from ER"* gave him confidence to rewrite the text and submit it to the conference rather than completely abandon the publication effort.

Similarly, Stefan's article was also initially rejected by the journal reviewers, and his supervisor, Dr BS, seemed reluctant to pursue publication. However, intervention from another pivotal actor, Professor CS, who significantly outranked BS in the departmental hierarchy, helped Stefan to persuade his supervisor to resubmit. As in the previous case, this was a make-or-break moment for the text and for Stefan's subsequent centripetal development. The subsequent *"close collaboration"* between Stefan and Dr BS working on the resubmission of the article was an opportunity for Stefan to acquire important tacit knowledge about responding to reviewers and greatly increased Stefan's confidence and autonomy.

For Tina there were two critical incidents and ultimately two published papers. Tina's problems structuring Paper 1 and the subsequent intervention of the pivotal actors ET and FT resulted in a clearer plan for the papers and for her whole PhD study. When her supervisor, Dr BT, subsequently became frustrated with her progress and rewrote large parts of Paper 1, Tina was faced with a second critical incident, which left her feeling demotivated and frustrated. However, her detailed self-reflection on the process and her determination to improve in Paper 2 can be seen as a significant step towards the creation of what Ivanič (1998) refers to as a new "scholarly identity." Taking on this identity seems to have helped Tina to move nearer to her supervisor so that the

hierarchical gap between them was lowered and work on Paper 2 became more collaborative.

This study makes a contribution to our understanding of academic writing in a disciplinary COP by showing how critical incidents on the trajectory towards publication and power-suffused interventions from pivotal actors may result in opportunities for novice scholars to more fully engage in the practice of academic writing. This is a finding, which, to my knowledge, has not been previously delineated by researchers in the L2 writing field using a COP framework; however, it is supported by the fact that Wenger (1998: 77) himself argues that LPP in a COP is not a harmonious trajectory from the periphery to the centre: "A community of practice is neither a haven of togetherness nor an island of intimacy insulated from political and social relations. Disagreement, challenges and competition can all be forms of participation." Indeed, Wenger (1998: 125) goes further by arguing that participation in a COP requires "opportunities for sustained mutual relationships", which can be "harmonious *or conflictual*" (my italics)

The finding in these three case studies that critical incidents may also be important opportunities for fuller engagement in and reflection on the practice, does not mean, of course, that novice scholars should be encouraged to seek conflict in their COP or should whole-heartedly welcome critical incidents in the text trajectory towards publication. However, it does show that seemingly negative and conflictual experiences can become opportunities for learning, given suitable self-reflection and persistence: Tina's ability to reflect on the failures of Paper 1 and improve in Paper 2 clearly illustrates the importance of reflection and persistence in the writing process, a finding which is supported by previous studies of novice writers that have emphasised the importance of reflective cognitive processes in becoming a more expert writer (e.g. Flowers & Hayes, 1981). Indeed, the way in which Tina reflected in her writing log on her experiences and failures in Paper 1 and applied these lessons in Paper 2 shows the benefit for novice scholars of maintaining such logs, a finding mentioned in some previous studies of novice scholars (Li, 2007b; Johns, 2002)

7.2 Role of proximal actors

In addition to the critical incident, all three case studies reveal the significant role played by actors positioned in close proximity to the novice scholar. Case 1, in particular, shows how Rolli drew on the support of his close peers ER and CR. Rolli's co-worker ER was the pivotal actor in the case study, the actor whom Rolli felt provided

the most help. Significantly, Peer ER was *"more approachable"* than Rolli's supervisor, Professor DR, and was more ready to see work on the article as a collaborative effort, which meant his feedback was more extensive than that given by Professor DR, who Rolli said was very busy running the department. Furthermore, ER had *"more industrial experience"* than Professor DR, who was "*more academic"*. As a result ER was better placed to conceptualise the needs of "the target users" of the software development system that the paper presented. Although CR's exact contribution to the writing process was not easy to evaluate because his contributions took the form of informal discussions and were not part of the TH, Rolli specifically mentioned CR as making *"many helpful contributions"* to the text (RI3).

In Case 2, Stefan also found discussion with colleagues who represented the target readers of the journal, as well as linguistic polishing from IS, his NES peer, to be "*useful sources of feedback"* on his text. Considering Dysthe's (2002: 523) categorisation of supervisory styles, Stefan's supervisor, Dr BS, can be said to have used a typical "master-apprentice model" of supervision often found in the "experimental part of the natural sciences". Dr BS was more collaborative than Professor DR but according to Stefan there was *"never any doubt who was in charge"* (SI2). BS's authority was also evidenced by his strongly directive style of feedback, which meant Stefan's main learning opportunities were afforded by watching and "performing tasks in the company of a master" (Dysthe, 2002).

Tina too first realised that something was wrong with her paper because of the peer feedback she received from the audience at the Danish conference and from presenting her findings to peers at her institute. Later Tina twice used NES peers for input about language issues. The peers featured in all three case studies had the advantage of being closer and more accessible to the writers than the hierarchically-distant supervisors.

The significance of peer feedback for novice scholars has been identified in some previous studies of writing for scientific publication. Li and Flowerdew (2007:108) mention the "high value" that novice scientific writers attach to the role of the peer corrector, while Mehlenbacher et al, (2001) emphasise the role of peer feedback in providing "an authentic social purpose" to academic writing. The important role of peer feedback in a writing-for-publication context was a significant finding from my previous research (Armstrong, 2011), in which feedback from peers was ranked as the most important source of feedback by the group of more-experienced doctoral researchers surveyed. This confirms the notion that feedback from proximal but slightly more

experienced peers can be an extremely useful and motivating form of support in the writing-for-publication process. This fact stands in contrast to previous studies of peer feedback in academic writing, which have tended to downplay the affective role of peer feedback (Leki, 1991; Saito, 1994; Zhang, 1995).

Previous case studies of novice scholars writing for publication (e.g. Belcher, 1994; Dong, 1996; Blakeslee, 1997; Flowerdew, 2000) have focused almost exclusively on the dyadic supervisor-supervisee relationships in a COP. However, the current case studies and particularly Case 1 shows the significant role which can be played by peers in this process. This finding is supported by Lave and Wenger's (1991:57) emphasis on "the importance of near-peers in the circulation of knowledgeable skill" in a COP. Indeed in their original conception of situated learning Lave and Wenger clearly state that apprenticeship "in its simplest form is a triadic set of relations" encompassing "apprentices", "young masters" and "masters" (Lave & Wenger, 1991: 56).

Case 1 suggests that a "young master" or more-experienced near peer like ER is better placed to remember what it is like to be a novice scholar than is an expert scholar, who may now be far removed from the experience of the novice. Peer ER's feedback, (raising questions, explaining the rationale for changes, providing models and alternative paragraphs for Rolli to consider) and his awareness of the importance of interpersonal strategies show he was better placed to enculturate Rolli into the discourse community than was Professor DR, who limited himself to correcting and polishing a text. This finding also reflects something of the Vygotskian ZPD conceptualisation of learning and the role that peers may play in moving a learner from other-regulated to self-regulated behaviour (Vygotsky, 1978: 90).

7.3 Role of different feedback strategies

The three case studies also demonstrate that the type of feedback strategy adopted by different actors can play a crucial role in the progress that novice scholars make. The cases show that feedback which allows opportunities for negotiation and discussion generally provides better opportunities for learning and centripetal development than feedback which takes the form of instruction or direction. Dialogic feedback, where actors raised questions and pushed the novice scholar to reflect on his/her text, were more effective in all three cases than feedback which took the form of instruction alone. Similarly, feedback which included explanation about why certain changes should be made afforded greater learning opportunities for the novice scholars than did feedback which simply directed the writer to make changes.

The initial feedback comments on, and changes to, Rolli's and Tina's drafts were not optimal because the rationale for changes made was not explicit and feedback comments tended to be overly directive, leaving Rolli feeling *"disappointed to some extent"* and Tina feeling *"demotivated and frustrated"*. Later Tina's supervisor, Dr BT, shifted towards a "partnership style" of supervision (Dysthe, 2002) in Paper 2, using more of a question-raising and explaining strategy than in Paper 1, where he had ended up by appropriating the text. As a result of this shift in feedback strategy, work on Paper 2 was *"more collaborative"* and *"more efficient"* and Tina felt she had *"learned much more."*

Like the novice scholar Bouzida in Blakeslee (1997; see Chapter 2), the novice scholars in these three case studies initially had problems resisting changes made to their texts by their supervisors. Opportunities for discussion and explanation were sometimes limited as a consequence of the "asymmetrical nature of the practitioner/newcomer relationship" (Blakeslee, 1997: 125). Rolli, for example, did not learn as much as he had hoped from Professor DR's review of his abstract, while Tina was left feeling frustrated by Dr BT's appropriation of her text in Paper 1. Stefan too felt he learned more from the collaborative work responding to the reviewers than he did from some of Dr BS's directive comments on his text. The asymmetrical nature of the three novices' initial relationships with their supervisors tended to make these novice scholars accept changes to their texts without question, a tendency of novice writers supported by previous studies. For example, Butterfield et al (1996) provide evidence of the readiness of novices to accept revision suggestions from those with superior status rather than their peers and Cho et al (2006) have argued that novice writers tend to unquestioningly accept feedback when feedback givers have higher status.

The three cases also illustrate the complexity of doctoral supervision in a collaborative writing-for-publication context, where both supervisor and supervisee have a lot at stake in a bid for successful publication. In this context supervision is often a complex balancing act with supervisors walking a tightrope between guidance and appropriation. Tina's case, in particular, shows the dangers inherent in overly-directive supervision. As in the previous studies by Belcher (1994), Reid (1994), and Blakeslee (1997) it was relatively easy for Tina's supervisor to become frustrated with Tina's inability to respond to his feedback and over-react by taking complete control of the text.

The cases suggest that skilful doctoral supervision in a writing-for-publication context involves moving between different roles as a mentor, guide and collaborator rather than

just as a text corrector. In this respect Peer ER, who had the ability to shift between "shaping" "polishing" and "brokering", as well as to respond to both language and content issues, can be seen as something of a model of collaborative supervision. Previous research into supervision supports the idea that effective doctoral supervisors shift between interconnected roles and know exactly when and how to intervene. Hockey (1997: 53), for example, has pointed out that successful doctoral supervisors are able to "balance", "foresee", "inform", "guide", and "critique" effectively, as well as "time" their interventions effectively to maximise their supervisees' progress. ER's successful contributions were in part related to his ability to shift between different roles in this way.

In summary the cases reveal how complex the role of supervisor can be, particularly in the context of writing for publication. The cases show that "the location and distribution of authority in practitioner/newcomer relationships" (Blakeslee 1997: 125) may restrict novice scholars' opportunities for negotiating and responding to feedback. This suggests that in order for novice scholars to gain adequate experience, overly directive or controlling supervisors should be prepared to relinquish some of their authority. At the same time, Case 1 suggests that slightly more-experienced colleagues and peers such as ER are well placed to provide feedback which fits better with a "partnership model" of supervision. As Dysthe (2002) has pointed out, supervisors who adopt a more symmetrical relationship and characterise writing a text or thesis as a collaborative endeavour are likely to use dialogic feedback, which in turn fosters independent thinking and reflection. In this regard, several previous researchers in the field of L2 writing instruction (e.g Belcher, 2007: 20) have argued that writing teachers should raise novice academic writers awareness of "the relationship between authorship and authority" and should help them to recognise that some requests for changes from supervisors may be negotiable (Burrough-Boenisch, 2003; Swales & Feak, 2000).

Based on the case studies and the previous literature reviewed in Chapter 2, it is possible to construct a model of how different actors impact on novice scholars and their texts in a writing-for-publication context. Table 7.1, below, summarises the role of different actors and their likely impact on novice scholars' centripetal journeys and their texts trajectories towards publication.

Table 7.1. Roles of different actors and their impact on scholars and texts

Role of actor	Example from previous research	Example from current case studies	Impact on scholar or text
Partner	Keongmee's supervisor in Belcher (1994)	*Peer ER Case 1*	Partnership and collaboration, joint responsibility (Dysthe, 2002)
Enculturator **Master** **Old-timer**	West in Prior (1998) Dysthe (2002) Lave and Wenger (1991)	*Dr BS Case 2*	Disciplinary enculturation Apprenticeship model LPP in a COP model
Teacher	Swendsen in Blakeslee (1997)	*Dr BT Case 3 Paper 1*	Direction and instruction (Dysthe, 2002)
Broker	Several examples in Lillis and Curry (2010)	*Peer ER Case 1*	Acting as an agent for publication, connecting or bridging one COP and another (Wenger, 1998: 109)
Academic editor	Prof Liu in Li (2006a)	*Peer ER Case 1*	Editing academic content, argument or "rhetorical machining" (Swales, 1990)
Text corrector	Prof Yang in Li (2006a)	*Prof DR Case 1* *Prof BC Case 2*	Working on sentence level linguistic corrections, revising or "polishing" (Gosden, 1995)

At one extreme of interaction, actors can be "partners", working closely together with a novice writer in collaborative mutual endeavour, in a similar way to which Peer ER worked with Rolli in Case 1. At the opposite end of the continuum, actors can be "correctors" confining themselves to sentence-level corrections and having only a minimal impact on the novice scholar's development, as Professor DR did in Case 1. Between these two extremes, it is possible that actors may adopt varied roles and styles of interaction, such as masters, teachers, brokers, and academic editors. The study has shown that such interactions are not confined to supervisors but can also be adopted by peers or language professionals at different stages of the trajectory towards publication.

7.4 Role of power relations in a disciplinary COP

In an extension of the arguments raised in the previous section, the three case studies illustrate how novice scholars writing for publication have to navigate their way through a complex network of socio-political relationships. The disciplinary COPs depicted in these case studies are power-suffused settings in which authorship and achievement of a successful publication are determined more by hierarchical status and influence than by the amount of input into the writing process. Considered in this way, the cases prompt the question of what it really means to be central or peripheral to the process of publication in a disciplinary COP. As Pennycook (1996: 213) has pointed out the existence of "power relations" between senior academics and their students or research assistants raises the question of how academic knowledge is created and who gets credit for it: much "original academic work actually draws heavily on the work of silent others: women, graduate students, research assistants and so on."

The cases support the Foucauldian notion that power is omnipresent in a knowledge creating disciplinary setting: "the exercise of power perpetually creates knowledge and, conversely, knowledge constantly induces effects of power" (Foucault, 1980: 52). Power and authority operate at all levels within a disciplinary COP in a cascading chain of what I referred to previously as "multiple reciprocal brokerage". One clear example of this is the fact that in all three cases the most senior figure in the COP was credited as one of the authors in spite of having only a limited input into the writing process, reflecting Pennycook's (1996: 213) comment about "senior academics putting their names at the head of papers in the writing and researching of which they have had little or no role."

In Case 1 Professor DR was credited as a dual author of the conference poster with Rolli although DR's contribution was limited to making some linguistic changes to an abstract and proofreading a final version of the paper. While his linguistic input into the paper was minimal, Professor DR's status and experience in the field, with more than 50 published papers, made him central to any effort to achieve publication. By contrast AR, *"who did most of the actual work"* and upon whose MSc thesis the article was based, was positioned in a peripheral role because of his lack of experience and because he took a decision to go on holiday rather than attend a conference. Equally, despite Peer ER's central importance to the writing of the text, he was not credited on the poster *"for political reasons"* because he was chairing a workshop at the conference.

Similarly in Case 2 and 3 the highest status actors were credited with authorship despite having minimal input in the writing process, because they were central to the COP and the whole process of achieving publication. In Case 2 Professor CS was credited as an author in exchange for a pre-submission linguistic review of an article in a field in which he was not an expert. In Case 3 Professor ET was similarly "*offered third authorship in exchange for reviewing*". ET turned down this offer only after it became obvious that this paper was running into difficulty. From this point onwards, his main contribution to the publication process was his pivotal "behind the scenes" intervention to keep Tina's PhD on track. Tina certainly believed ET played a significant role and "*may have used his status to influence BT*" to restructure Tina's PhD. Status was again a factor in Case 2 when Professor CS was able to persuade BS to pursue a resubmission.

Despite the significant role played by power and hierarchical relations in the COP, it is notable that all three novice scholars felt they had gained something in the process of writing an article for publication and were more centrally located in their COP at the end of the process than at the outset. This is supported by the fact that all three novice scholars provided sketches which showed themselves surrounded by a network of actors, with whom they exchanged information and knowledge. In Rolli's case in particular, this interpersonal exchange of information was indicated by the arrows linking different actors and comments about what was given and received from each actor. The sketches in all three cases support the idea that the actors, although differently positioned in terms of hierarchy, were united to some degree by the collaborative endeavour of writing and publishing. In this sense, the collaborative task of publishing fostered "dense relations of mutual engagement, joint enterprise and shared repertoire" (Wenger, 1998: 74).

7.5 Role of language

In Chapter 1 I raised the question of the degree of disadvantage facing EAL novice scholars in a writing-for-publication context. In contrast to previous studies outlining the linguistic deficiencies and disadvantages of EAL scholarship (Flowerdew, 1999a, 2001; Kaplan & Baldauf, 2005; Liu, 2004), these case studies have shown that linguistic weaknesses were not a significant factor. In none of the cases was an article rejected by reviewers as a result of limited language proficiency on the part of these German-L1 scholars.

However, the novices' linguistic skills in the broader sense of using language to construct knowledge claims, to position research in a meaningful context, to relate research clearly to previous literature, to explicitly emphasise the novelty of findings, and to present arguments in a reader-friendly way were significant issues in all three case studies. Much of the feedback that the three novices received from the different actors in each case study related specifically to these issues. In all three cases reviewers mentioned positioning research in the context of previous work and emphasised the importance of showing the novelty of the contribution that was being made. Similarly, all three writers received comments from actors about the need to "reduce wordiness", "write shorter and more concisely" as well as to "focus on the message" and "emphasise the novel contribution". The issue of a unified terminology occurred in all three cases: in Case 1 ER told Rolli to explain the difference between the three terms containing the word "variability" and to "simplify and unify the terminology if it means the same thing". In Case 2 CS made a similar point about the use of the terms "pollutant, contaminant and compound", and Tina emphasised having learned *"to write down some kind of basic concepts you used the same name for"* (TI3).

The finding that these three German-L1 scholars had problems achieving a reader-friendly style of writing are supported by my previous research (Armstrong, 2011) where reader-friendliness was identified by the respondents of the survey as their number one problem in writing scientific English for publication. It is also supported by previous studies of German academic writers such as Clyne (1987) who argued that German-L1 academic writers demonstrate a lack of "reader-friendliness" and differ from Anglophone-centre writers in terms of explicitness.

These findings are also supported by my previous research (Armstrong, 2010), which revealed the differences between novice and more-experienced scholars' conception of the writing process. The more-experienced writers developed a greater awareness that much of scientific writing involves constructing and negotiating knowledge claims within a socially-situated discourse community (Hyland, 2004). Like the novice group of writers I interviewed in my IFS, Rolli, Stefan and Tina did not initially seem to be aware of how much writing a scientific article took place in a wider social environment. However, by the end of the process the three scholars were more aware of the need to use language to position themselves in an appropriate relationship with previous literature and persuade the community to accept and accommodate their claims (Bazerman, 1992; Hunston, 1994; Hyland, 2004). The three cases thus support the idea that "scientific knowledge...is the prerogative of scientific communities, which

interact to define what facts matter and what theories are valid" (Wenger et al., 2002: 10).

Another important aspect related to the use of language was the fact that all three scholars experienced difficulties making links between their research and previous work. In Case 1 and Case 2 the initial rejection of the articles by journal reviewers was due in part to the novice scholars' failure to fit their work into a context of previous study and to persuade reviewers of the novelty and contribution they were making to the field. In Case 3, Tina experienced similar problems making clear the meaning of the original version of her article prior to her supervisor's intervention.

By contrast the more-experienced scholars ER, BS and BT knew almost instinctively how to inform, persuade and establish themselves in the target scientific community. The "young master" ER and the "old-timers" BS and BT were able to "evaluate explicitly and with conviction the state-of-the-art in their own discourse community" (Swales, 1990: 212). For the novice scholars in these case studies this appears to have been initially an extremely complex task, judging by the changes that were made to their texts and the comments from reviewers in all three cases. In this respect, these three novice scholars can be said to share some of the general characteristics of novice writers compared to expert writers, who may tend towards "knowledge telling rather than knowledge transformation" (Bereiter & Scardamalia: 1987: 347).

Related to the previous remarks, the case studies illustrate the significant role played by language in responding to reviewers. Following initial rejection by the reviewers, Case 2 and Case 3 show novice writers adopting effective strategies to respond and achieve publication. Stefan's and Dr BS's strategy of responding politely in detail by email to every point raised, even where points were repetitive, of accepting the majority of small changes and additional technical details requested, but resisting major changes wherever possible, seems to match advice given by writing-for-publication guide books dealing with this issue (Cargill & O'Connor, 2009; Murray, 2009). In Case 3, Tina used similar strategies: identifying serious grounds for revision and showing the reviewer clearly where comments have been accepted but arguing her case persuasively where reviewers' comments were more tentatively framed or where reviewers seemed to contradict each other. These two cases show the importance of adopting a clear strategy for dealing with critical gatekeepers and reviewers and reveal the vital importance of this form of tacit knowledge for novice scholars writing for publication

The cases illustrate how successful responses to reviewers require an extremely sophisticated use of language as well as the use of appropriate politeness strategies (Brown & Levinson, 1987). The cases show that the language required to respond appropriately, persuasively and strategically to reviewers is in some ways more complex than the act of writing the article itself. Notably it took Stefan and his experienced supervisor, Dr BS, more than two weeks working together to respond to 16 reviewer comments. As mentioned in Case 2, Dr BS would not have considered investing so much time responding to the reviewers had XYZ not been a high-impact journal. The cases illustrate how responding to reviewers is an extremely challenging area where a lone novice would almost inevitably be overwhelmed and be forced to draw on support from an old-timer.

The fact that publication is dependent on a successful strategy for responding to reviewers and the general scarcity of knowledge about this "occluded genre" (Swales, 1996) suggests the need for further research in this area. This finding will be discussed further in the section on implications for teachers of scientific writing.

7.6 Impacts on writer identity, autonomy, confidence and motivation

Moving from a peripheral to a more central position within the COP seems also to have had an impact on the novice writers' autonomy, confidence and motivation. By the end of the publishing process all three writers were operating in a more autonomous and confident way. For Rolli, Stefan and Tina the act of writing and publishing a text seem to have been a crucial step in the development of a more confident scholarly identity. Describing his writing at the beginning of the process as "horrible", by the end of the case Rolli was confident he knew *"what to do to achieve future publication"*. During the case Rolli acted with increasing autonomy and developed a clearer understanding of what was required to achieve publication as well as to resist feedback he did not agree with. Stefan and Tina developed a similar autonomy and confidence and specifically referred to the process of writing as having an impact on how they saw themselves.

Although the question of identity was not a major focus of the research, all three scholars made comments to the effect that their perception of themselves had changed as a result of the writing for publication process. The cases seem to support Kamler and Thomson's (2006: 19) notion that doctoral writing is a medium for simultaneously developing knowledge and scholarly identity. Certainly by the end of the case studies the writers had become more autonomous, independent and confident than at the beginning.

The cases also support Kamler and Thomson's (2006) assertion that identity formation takes place in a series of moves rather than as a seamless movement. In these case studies, the three novices' responses to critical incidents and pivotal actors resulted in opportunities to more fully engage in the practice of scientific writing which helped the novices to take a step towards a new kind of "scholarly identity" (Ivanič, 1998)

This study has illustrated the challenges and complexity surrounding writing a scientific article for publication in a second language. All three cases referred to the importance of motivation, confidence and persistence in succeeding in this task. This finding fits with other studies about the experiences of NNES scholars such as Belcher (2007), Cho (2004), Curry and Lillis (2004), Flowerdew (2000), Li (2005), and Liu (2004).

7.7. Implications and recommendations for teachers of scientific writing

The study has shown how critical incidents, pivotal actors, and networks of socio-political relationships impact on texts and novice writers in a trajectory toward publication. The cases illustrate the challenges facing novice multilingual scholars and show the complexity of achieving successful L2 publication. These findings raise the question of how scientific writing teachers can best help novice multilingual scholars overcome these difficulties and lead to a number of implications for professional practice. The implications are grouped under the following headings forming a list of recommendations for fellow teachers of courses in scientific writing for publication.

- **Replicate real-world publishing activities in the classroom**

The case studies have illustrated the challenges facing novice EAL scholars and show the complexity of achieving successful L2 publication. To some extent the case studies suggest that the journey undertaken by novice scholars are journeys that cannot be made drastically shorter by writing teachers or writing classes alone. However, I believe teachers of writing for publication classes can better support novice scholars by making writing classes more closely resemble the real-world activity of writing for publication. One way to do this would be to organise classes around the activity of publishing by setting up online platforms or wikis where class members can submit drafts or synopses of articles. Such articles could then be reviewed anonymously by peers from related fields acting as reviewers following guidelines supplied by the writing instructor. Based on the comments from the peer reviewers, students should then respond to these reviewers by writing revised drafts which are submitted to the writing instructor acting as journal editor. Novice scholars should attach covering letters responding to feedback on subsequent drafts, explaining why they have made or

resisted changes, just as they would have to do in the real world. I believe such activities would build competence in responding to reviews from different actors and help novice scholars better deal with the entire writing-for-publication process.

- **Explore the role of power in disciplinary COP**

The case studies illustrate the significant role played by hierarchical power relations in a disciplinary COP and the problems facing novice scholars in responding to feedback from asymmetrically positioned supervisors and reviewers. Scientific writing classes should include activities to help novice scholars learn to negotiate about or even resist changes made to their texts. In order to help novice scientific writers gain confidence and assertiveness, writing teachers should set up tasks to practice responding to a wide range of status-superior (language teacher, supervisor) and status-equal (peer) feedback in the writing classroom, as Lillis and Curry (2006) have also suggested. In addition, teachers should provide opportunities to practice critiquing good and bad examples of published works to raise awareness and assertiveness of novice writers related to the unequal power relationships involved in scientific writing (Belcher, 1995; Li, 2006a; Swales & Feak, 2004).

- **Encourage motivation, confidence and persistence**

This study illustrates the challenges facing novice EAL scholars seeking publication in Anglophone scientific journals. Strong personal motivation, confidence and persistence were identified as important success factors by all three of the novice scholars in this study. This finding fits with other studies about the experiences of multilingual scholars by Belcher, (2007), Cho (2004), Curry and Lillis (2004), Flowerdew (2000), Li (2005), and Liu (2004). In order to motivate and encourage novice scholars, writing teachers should emphasise that negative comments from supervisors, reviewers and other more expert writers are usually meant to be constructive and where possible should be considered positively.

In addition, the study shows the importance of raising novice scholars' awareness of the need to be persistent in the writing process, especially in relation to redrafting and revising a text in response to cycles of feedback. To help novice writers deal better with the messy reality of scientific writing, they should be made aware that a first draft of a text is unlikely to be "perfect" and that even the most established scholars may have to revise (Sasaki, 2001).

- **Build a sense of audience and sense of ownership**

The cases together with previous research (Armstrong, 2011; Armstrong, 2010) show that there is a strong case to be made for a wider use of different forms of feedback in

the writing classroom to develop novice scientific writers' sense of audience, and sense of ownership of their texts. In particular peer feedback should be more widely used to help provide an improved sense of audience and a deeper understanding of the expectations of the discourse community. Writing teachers should use the writing classroom as an opportunity for novices to exchange and give feedback on drafts of their writing. In this way novices can be offered the chance to participate in a small-scale discourse community in which knowledge has to be communicated and constructed with classmates.

In addition, the use of peer feedback in the writing classroom should be more widely used as a form of scaffolding to help novice scientific writers develop an increased sense of ownership and a greater awareness of how to respond to reviews or feedback in their later scientific careers. Burrough-Boenisch (2003) and Swales and Feak (2000) have argued that novice academic writers need to better appreciate "the relationship between authorship and authority", and to recognize that requests for changes from supervisors or advisors may be negotiable.

- **Connect novice writers to the wider discourse community**

This study shows the importance of developing greater awareness of the wider discourse community. Such awareness could be developed in the writing classroom through the use of internet blogging and online forums to connect with others novice scholars in similar research areas. This would help novice scholars to obtain additional feedback and advice on their work. Using such sites would also help novice scholars to develop as readers and writers across a variety of genres.

- **Develop collaboration through writing groups and mentoring schemes**

The study shows that while novice scholars can gain much from collaborating and co-authorship with more-experienced researchers, power issues may inhibit the degree of progress they make in becoming more autonomous and successful writers. While effective collaboration can be a valuable tool for achieving successful publication the case studies show how complex, daunting, and potentially problematic this process can be.

Recently new schemes to help novice academic writers develop their skills and gain motivation in the writing process have been emerging. These include initiatives such as: writing retreats (Jackson, 2009; Moore, 2003); writing for publication coaches and peer mentors (Baldwin & Chandler, 2002; Pololi et al., 2004); formal writing for publication courses (Morss & Murray, 2001); writing support groups and similar initiatives embedded within staff development programmes (Ferguson, 2009;

Kinnucan-Welsch et al., 2000; Murray, 2001; McVeigh et al., 2002; Grzybowski et al., 2003; Lee & Boud, 2003; Cumbie et al., 2005; Tysick & Babb, 2006; Murray & Newton, 2008).

Such schemes may help foster collaborative and supportive relationships between novice scholars with different writing experience levels in a way that resembles the more positive aspects of the cases I have considered in this thesis, for example the model of peer support provided by ER's in Case 1. I believe this type of support and collaboration can be an effective means of helping novice scholars develop their writing skills, confidence and motivation and should be promoted by teachers of scientific writing.

7.8 Limitations of this study

Although this type of in-depth qualitative case study research provides a fuller picture of the experiences of individual scholars involved in writing an article for publication than might otherwise be possible, there are also some limitations stemming from this kind of text-ethnographic approach, as already outlined in Chapter 3.

Firstly there is a limitation about the degree to which individual case studies can be used to draw generalised conclusions. Although I have tried wherever possible to draw together common findings from the three cases studies, I am also aware that there is an extent to which the cases remain the story of three individuals operating in distinct circumstances.

Secondly, the distinctness of each case also meant that it was difficult to obtain the same level of detail across the three case studies. Some of the cases provided more drafts than others (e.g. Rolli provided 17 drafts but Stefan only 6) and writing logs were not completed with the same level of detail and frequency in each case. For example, Stefan wrote very little in his writing log, Tina wrote sporadically but at length and Rolli made brief regular entries detailing what had happened but not reflecting greatly on what he had learned from the process. At times it was difficult to know how to deal with these apparent inconsistencies but I decided that they were an inevitable feature of a naturalistic approach. I did not wish to put any pressure on the participants to complete the logs in a certain way as this might have affected how they behaved during the case. Equally I could not force participants to reflect on their writing if they did not wish to do so. This in turn raises the question about the extent to which involvement in this kind of qualitative research may impact on the participants and even influence the process that is being researched.

Another difficulty with conducting this kind of emergent research was to know from the outset what sources of feedback there would be and how long the writing process from first draft to submission or publication would take, as this depended on how successful the writer in each case was and on the efficiency of the feedback and review process. In fact, in the time frame of the study, two of the original six cases failed to produce a draft text and one case had to be abandoned half way through due to the participant not wishing to continue his involvement, showing the unpredictability of this type of emergent research.

Finally the approach used in this study relies primarily on compiling THs, which as Lillis and Curry (2010) have pointed out can never be totally complete. Inevitably, some important interactions were not captured by this form of data collection, for example it would have been interesting to have known more about the "behind-the-scenes" interventions of Professor ET and Group leader FT in Case 3, but these interactions were not recorded in the TH and consequently cannot be fully explored in this thesis. Due to time limitations it was not possible to explore the motivations behind all the interventions from all the actors in each case study. Doing so would have required a more than 10-fold increase in the amount of analysis and would have shifted the focus from the story of individual novice writers to the story of an entire group of actors, which I felt was not the story I wanted to tell in this thesis.

7.9 Future work

This research has revealed scientific writing for publication to be a complex process involving a range of actors in power-suffused socially-situated settings. I plan to disseminate this research by writing a paper or papers for publication in a suitable journal. I would also like to take this work to several conferences such as the European Association of Teachers of Academic Writing conference, where I have presented previous research (Armstrong, 2011). I have already arranged to disseminate findings and implications for teachers of scientific writing to colleagues at the University of Zurich/ETH Sprachenzentrum annual conference. In my future research I aim to shed more light on this process and further delineate the role of these different actors, by focusing on one COP and studying interactions between all of the actors in more detail than was possible given the scope and time frame of this study.

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Appendices

Appendix A: Information letter for participants

Dear [first name],

As already discussed with you by phone last week, you are invited to participate in a research study investigating the different factors shaping successful scientific writing for publication in a second language. The research aims to take a case study approach, tracking the linguistic changes made to a journal article and following the personal journey made by the writer as they write a text suitable for scientific publication in English.

As a participant in this study, you are invited to take part in a series of three short interviews at the beginning, middle and end of the writing process. In exchange for taking part in these interviews I promise to help you with editing or proof-reading a different text of your choice for an equivalent amount of time. The information obtained from this research may be useful to improve the quality of future scientific writing courses.

If you agree to take part in the research, you should be prepared to provide electronic copies of the different drafts of your texts as well as any relevant email correspondence between yourself, co-authors, reviewers and other people who had an impact on your text.

In addition, it would be really interesting and helpful if I could ask you to keep an electronic journal of reflections on the writing, feedback and review process following the attached guidelines. The journal or log does not have to be extensive but would be a helpful basis for our subsequent discussions about the writing process. If you have any questions about the journal we can discuss this together by phone.

All information collected from participants in this study will be anonymous. Thus, your name will not appear in any report, publication or presentation resulting from this study.

If you have any questions about any aspect of participating in this study, please contact me by email at xxxxxxxxxxxx@xxxxxxxxxx or by phone on xxxxxxxxx

This project has been given ethical approval by the Institute of Education, University of London in accordance with British Educational Research Association guidelines.

Many thanks and best regards

Tom Armstrong

Appendix B: Consent form for participants

Please initial box

1. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving reason. ☐

3. I agree to take part in the above study. ☐

Please tick box

	Yes	**No**
4. I agree to the interviews being audio recorded	☐	☐
5. I agree to the use of anonymous text drafts or interview quotes being used in subsequent publications	☐	☐

Name of Participant	Date	Signature

As the researcher responsible for this investigation I confirm that I have explained to the participant named above the nature and purpose of the research to be undertaken

Name of Researcher	Date	Signature

Appendix C: Schedule and question prompts for interview 1

A Opening

(**Establish Rapport**) [shake hands] Hello, good to see you and thanks again for agreeing to take part in this research.

(**Purpose**) As you know I'm investigating the process of learning to write a scientific article for publication in a second language and today I'd just like to ask you some questions about your experiences of learning to write scientific texts in English so far. This is part of a research project that I'm undertaking (with the Institute of Education, London University).

(**Motivation**) I hope to use this information to improve the quality of the courses I teach at the ETH/Uni Zurich Sprachenzentrum/EAWAG and to get a better idea about the process of becoming a scientific writer in English.

(**Time Line**) The interview should take around 60 minutes.

(**Transition:** Let me begin by asking you some questions about where you are from, where you are working and how much experience you have of writing scientific texts in English.

B Body

(Topic) General information

1 How long have you worked in your department?

2 What is your job title?

3 Where are you from?

4 Why did you choose to do your PhD at this institution?

5 Approximately how many years' experience would you say you have of writing scientific reports and articles in English?

6 Have you had any articles/reports published?

7 How many?

8 Where? Journals/conference proceedings?

Transition to the next topic: Ok, I'd like to ask you some questions now about your experiences of writing scientific texts in English

(Topic) Experiences of writing up to now

1 How would you describe your experiences of writing in English up to now?

2 How do you feel about what you have been able to achieve as a scientific writer in English?

3 What is it that frustrates you most about scientific writing in English? What is most difficult for you about scientific writing in English?

4 (Have you ever felt at a disadvantage in publishing because you are not a NES? In your view, is language ever used as an excuse for not accepting an article?)

5 What aspects of scientific writing have been more successful for you personally?

Transition to the next topic: Perhaps we could now turn to the topic of feedback in scientific writing

C (Topic) Feedback

1 In learning to be a scientific writer in English how important has feedback from different sources been for you?

(Supervisor feedback)

2 Does your supervisor ever comment on language problems in your writing or suggest ways you could improve the way you are saying something? How does your supervisor do this?

3 Can you remember an occasion where your supervisor's feedback about language was particularly helpful for your writing? Can you tell me more about this?

4 How did you try to incorporate their comments in your later drafts?

(Peer feedback)

5 What feedback on language have you received from your peers/ colleagues?

6 Can you remember an occasion where your peers/colleague's feedback about language was particularly helpful for your writing?

7 Can you tell me more about this?

(Teacher feedback)

8 What different types of feedback have you received from teachers or other language specialists?

9 Can you tell me about an episode regarding teacher feedback?

(Reviewer feedback)

10 What feedback on language problems and related issues have you had from the reviewers of articles that you have submitted?

11 What's the most useful feedback you have had from the reviewers regarding language?

12 How did you try to incorporate their comments in your later drafts?

(Other feedback)

13 What other sources of feedback have been important for you?

Transition to the next topic: Perhaps we could now turn to the article you are currently writing. Thanks for sending me the draft and writing log etc.

D (Topic) Current article prompts (choose from this list depending on appropriacy)

Can you describe the process of writing this text?

How did you start?

What difficulties with language presented themselves/arose during the writing process?

How did you overcome the difficulties?

What input was there from your supervisor?

What input was there from peers?

What input was there from language experts or literacy brokers?

How long did the draft(s) take?

Could you describe the main changes you made?

What do you think was the most important change you made from the first draft to this version?

Could you describe what you did as you revised? For example did you read the feedback first or as you revised?

What was the most useful feedback you got from your colleagues/peers?

What was the most useful feedback you got from your supervisor?

What other sources of feedback were useful?

Would you describe the act of writing a RA for publication like this as essentially collaborative or more an individual act?

Transition: Well, it has been a pleasure finding out more about you and your writing. Let me briefly summarize the information that I have recorded during our interview.

III. Closing

(Summarize, thank, maintain rapport)

Appendix D: Example interview transcript extract

I: So... First, I'd just like to say thanks again for agreeing to take part...(Interviewer describes purpose, motivation and timing of interview) First of all I just wondered if you could give me a bit of personal information about you? For example how long you have worked here, what your job title is, and where you are from?

S: I start my work here in February xxxx as a PhD student, yeah, my job title is researcher, I think... yeah.

I: Ok, and you are originally from whereabouts?

S: I am originally from Germany; my home town is in the centre of Germany, near xxxxxx about 200 kms north of xxxxxx

I: Ok, and regarding writing in English how many years' experience would you say you have now in writing scientific text or reports?

S: Yeah, about 5 years, I mean, um, I have more experience in reading but I think that I started to write my first reports in English about 5 years ago.

I: And have you had any reports or articles published in English?

S: Just one conference paper but journal articles no, not before. I wrote one journal article after my Master's thesis but it didn't get published.

I: Ok, how do you feel about what you have been able to achieve as a scientific writer in English up to now? (pause) What do you feel about it? Are you pleased with what you have done? Is there anything that you frustrates you or that you find difficult?

S: Yeah... of course... if you are not a native speaker and you write in another language there is always a lot to learn. So I think I started on a low level and I feel that now my writing ability improves gradually

I: You told me before you wrote one article but it didn't get published. But, can you tell me a bit about that experience, the experience of writing that particular article? Was that a good learning experience?

S: Yes definitely, the first draft of this article was mainly a condensed version of my master thesis but at that time I didn't realise that a thesis is completely different in the structure from an article. Yeah and then I modified it more and more to the structure of an article.

I: So you had some problems with structuring the material at the beginning?

S: Yes because I never had a course before about scientific writing. Because for me it was not so clear about how scientific articles are structured... So and then it was just .....some instinctive writing, how I did this.

I: Kind of intuitively?

S: Yeah, intuitively. You think, yeah, this should belong to this paragraph and maybe this description to this paragraph

I So you didn't have a clear overview, you were doing it a bit by feeling?

S: Yeah, I think the problem there have not been courses in scientific writing. I think there should be courses in scientific writing at least for graduate students maybe also for undergraduates.

I: So in Germany you had no input about writing for science?

S: No, no, because my study was based mainly on the engineering field and I think in the next reformation (sic) may be they'll add these courses. Because my study there it started at engineering but shifted now more to the scientific.

I: So do you think that gave you more problems than someone who had started in a scientific area?

S: Yeah, I am not sure if for scientific areas they provide such courses, I think that at some universities they do but not everywhere.

I: So do engineers write less then, do you think? I mean why would it be more difficult for an engineer?

S: No they write also articles but I think my study was not... I mean when this study was planned 20 years ago, maybe it was not intended that the students do their PhD and publish research but I think most of them should be just an engineer for industry and then it is a different kind of writing.

I: So they don't publish in scholarly journals?

S: No...And also if you publish an article in German it's completely different.

I: Ah ha, what do you think the differences are in writing in German and writing in English?

S: I always think about this. Meanwhile now the structure of the articles is similar but sometimes you read a very old article - 50 years ago many articles were also published in German... It's just a different use of the language (long pause)

I: Ah huh (pause) Can you be a bit more precise?

S: I am just think about it (pause) if I know an example (long pause) May be later.

I: OK, I mean if you were to write something in German then you wouldn't have the same problems? I mean it's your mother tongue I mean would you also go about it in a different way or would it be the same?

S: I mean sometimes for me it's really difficult to sort out my way of thinking in English. So in German it's much easier for me to find the structure in the text. In English it takes a longer time. And sometimes I have to do some pre-thinking in German and then just translate it but this is not a good way to work because you should just straight work in English it's better in my opinion.

Appendix E: Guidelines for keeping writing process journal or log

(Following Li, 2007)

Dear [first name],

I'm interested in finding out how you go about writing the first draft of an English research paper in your field. Please keep a record of the work you do on the draft, as thoroughly as possible. Don't think that any part of this process is irrelevant; just jot down a log entry every day (or several times a day, as you prefer), on what you have been thinking about, read, written, or discussed with anyone on your paper that day.

Once you begin thinking seriously about your paper, please start making regular entries in your log. Don't worry if you have to report "no work" many times; we all understand everyone works at their own pace. These questions might serve to guide your writing of the logs:

1. *What progress if any, have you made on your article today?*
2. *What difficulties (in terms of language and / or content) are you having now?*
3. *How are you trying to overcome the difficulties?*
4. *Have you talked with anyone (e.g. supervisor and/or fellow researchers) that might have given you insights?*
5. *How do you feel about your article now?*

Please be assured that in the future when I write up my research quoting anything from you, you will remain anonymous. While keeping process logs on your article writing, you are assisting me in my research. I would hope you will find this reflective process useful to yourself too. Thank you very much for your cooperation.

Best regards

Tom Armstrong

Appendix F: Example summary text history extract

Draft Number Section Page Line	Date if known	Main changes to text *with examples*	By whom	Feedback comment about change from actor Explanation about change from 1st author's log or interview	Researcher's or 1st Author's interpretation of outcome
D0-D1	22.01.10	**Reformulation and reduction of MSc thesis text** AR's MSc thesis used as the basis of the text	Rolli = 1st Author	*Extract from Rolli's Log:* *"I started preparing a draft title and abstract for the paper...The paper strongly builds on the results of a master's thesis we had in our group. ...I took many contents from A's (MSc Student) thesis and copied them into the draft in order to refine this later..."*	AR's 80-page MSc thesis reduced to a 10-page 1st draft by Rolli. Some sections are lifted directly from AR's original text for later refinement or reformulation by Rolli
D1-D2	04.02.10	**Reformulation of key finding** Basic algorithm revised and reduced to fit with shorter text	Rolli following discussion with peer CR	*Extract from Rolli's Log:* *"I reformulated the basic algorithm for the concept outlined in this thesis... I could present it with fewer text and more general and concise. I discussed the draft with a CR (peer/post doc) Basically he found it good and recommended to go further in writing this...I finished the draft... It still needs balancing and polishing."*	Scope of findings narrowed down by Rolli
D2-D3 Abstract	08.02.10	**Paragraph reshuffling and changes to argument** *"We call this new mechanism feature unweaving ..." (A D2 Line 19)* **Changed to:** *"In this paper we introduce feature unweaving."* *(A D3 line 11)*	Rolli following discussion with peer CR	*Extract from Rolli's Log:* *"More discussion with CR at our group about the article. Afterwards I realised I need to shift up the contribution earlier in the text."*	Foregrounding of new technique earlier in abstract by Rolli. Main purpose of paper made clearer, more central by Rolli.

Draft Number Section Page Line	Date if known	Main changes to text *with examples*	By whom	Feedback comment about change from actor Explanation about change from 1st author's log or interview	Researcher's or 1st Author's interpretation of outcome
D3-D4 Title	10.02.10	**Reformulation of title** *"Title: Refactoring Requirements Specifications into Software Product Lines"* **Changed to:** *"Title: Refactoring Software Requirements Specifications into Software Product Lines"*	DR = Professor	*Extract from Interview with Rolli:* *"DR changed the title to make it more specific"*	Title made more specific by DR. DR's changes are accepted by Rolli without discussion.
D3-D4 Abstract	10.02.10	**Reformulation of abstract** *"We motivate our approach with two-real world requirements examples from the governmental and industrial automation domains and show how..." (A D3)* **Changed to:** *"We motivate our approach with two-real world examples and show how " (A D4)*	DR	*Extract from Rolli's Log:* *"DR (Prof) revised my abstract but mostly from a language point of view – not really contents..."*	Abstract made more concise, reduced from 250 to 239 words. DR's changes accepted by Rolli without discussion.
D3-D4 Abstract	10.02.10	**Sentence level changes to abstract** *"In today's software engineering practice company's are increasingly developing..." (A D3 l1)* **Changed to:** *"In today's software engineering practice, companies are increasingly developing..." (A D4 l1)*	DR	*Extract from Rolli's Log:* *"DR (Prof) revised my abstract but mostly from a language point of view – not really contents..."*	Commas inserted in front of 4 introductory clauses by DR. Some minor grammatical errors corrected by DR.
D3-D4 Abstract	10.02.10	**Suggested change to argument** Three question marks inserted and wobbly line drawn underneath some of the claims such as *"We show that our approach can successfully support refactoring..." (A D4 lines 24-30)*	DR	*Extract from Rolli's Log:* *"DR (Prof) suggested relate it more to RE; say more precisely that it's model-based; say more precisely that it's about requirements models with implicit variability"*	No change at this point, but later drafts show this comment has been accepted by Rolli.

Draft Number Section Page Line	Date if known	Main changes to text *with examples*	By whom	Feedback comment about change from actor Explanation about change from 1st author's log or interview	Researcher's or 1st Author's interpretation of outcome
D4- D5 Abstract	11.02.10	**Sentence level changes to abstract** *"are increasingly developing" (A D4 l1-2)* **Changed to:** *"develop" (A D5 l1-2)*	ER = Post Doc colleague	*Extract from Rolli's Log: "ER wrote another version of the abstract, I took the abstract and improved mine based on this."* *Extract from Rolli's Log: "ER added many comments on the abstract; I tried to answer them in order to find points to improve..."*	Total length of abstract substantially reduced by ER. Changes accepted by Rolli.
		Changes to argument of abstract *"Unintentionally" (A D4)* **Changed to:** *"whether intentionally or not" (A D5)*	ER	*Extract from Rolli's Log: "ER also corrected some assumptions and cosmetics of the text"*	Hedge introduced by ER to reduce the strength of the claim made by Rolli. Changes accepted by Rolli
		Sentence reformulation and changes to argument of abstract *"Companies are increasingly developing variations of their core software products thus unintentionally shifting from traditional development towards software product line development" (A D4)* **Changed to:** *"To address the needs of different market and user segments companies are increasingly developing variation of their portfolio of their software products - thus shifting from traditional develop-ment towards software product line development, whether intentionally or not." (A D5)*	ER	*Extract from Rolli's Log: "ER wrote another version of the abstract, I took the abstract and improved mine based on this. ER added many comments on the abstract; I tried to answer them in order to find points to improve..."* *ERs feedback comments using Word review mode: "Welche Evidenz haben wir hierfür? Stattdessen: Anpassung an Markt und Nutzersegmente"* (What evidence do we have here for that? Instead of this: focus on the market and user segment.)	Cause or reason for the development foregrounded and effect backgrounded by ER. Changes accepted by Rolli.

Draft Number Section Page Line	Date if known	Main changes to text *with examples*	By whom	Feedback comment about change from actor Explanation about change from 1st author's log or interview	Researcher's or 1st Author's interpretation of outcome
		Sentence Reformulation and changes to argument of abstract *"Such specifications are error prone and rely on undocumented knowledge. Nevertheless, they are frequently not refactored into explicit product line requirement specifications." (A D4)* **Changed to:** *"Such specifications rely on undocumented knowledge and hence make requirement-dependent tasks like product variant definition, release planning and product line evolution person-dependent and error prone." (A D5)*	ER	*Extract from E's Log:* *"ER wrote another version better explaining the RE relevance... "I took ER's abstract and improved mine based on this. ER added many comments on the abstract; I tried to answer them in order to find points to improve..."* *Extract from ER's feedback comments using Word review mode:* *"Wir verbessern die Güte solcher Spezifikationen nicht, sondern nehmen an, dass sie korrekt sind."* (We aren't improving the quality of such specifications but take them to be correct.) *Extract from E's feedback comments using Word review mode:* *"Dies hilft uns die RE (Requirement Engineering) Relevanz zu erklären"* (This helps us to explain the relevance to the Requirements Engineering field.)	Based on ER's feedback Rolli provides more details of specific problems that can be avoided by using the new process the paper introduces. Relevance to the field is more clearly demonstrated.

Appendix G: Example of initial coding of feedback comments

Article Section Comment no.	Focus of Feedback Language or Content	Language used	Response: Accepted or rejected by first author
Abstract 1	[redacted]	German	Accepted
Abstract 2	In general, I am afraid that the paper will be rejected because it is not relevant for the RE community in the way [redacted] present it here.	English	Accepted
Abstract 3	Hast Du [redacted] "whether intentionally or not"	German	Accepted
Abstract 4	[redacted] zu "pay off in the later product development"	German	Accepted
Abstract 5	Ich verstehe diesen Satz nicht. [redacted]	German	Accepted
Abstract 6	Structure of this second paragraph: 1) contribution = feature unweaving (this is ok) 2) [redacted] 3) what are the benefits of feature unweaving in terms of the outlined problem? 4) how was the approach validated? what has been learned with the validation? Please refactor.	English	Accepted
Abstract 7	Heisst das, dass [redacted]	German	Accepted
Abstract 8	Motivation usually goes into the first paragraph of the abstract, where the context and problem are introduced. Instead of motivation, we can talk about benefits here at the end of the abstract. Please refactor the text accordingly.	English	Accepted
Abstract 9	This is a repetition of what you already have written in the second paragraph of the abstract – "compositional software product line engineering" will not be understood	English	Accepted
Abstract 10	No community-specific keyword here.	English	Accepted
Abstract 11	In general, I am afraid that the paper will be rejected because it is not relevant for the xyz community in the way you present it here	English	Accepted

Article Section Comment no.	Focus of Feedback Language or Content	Language used	Response: Accepted or rejected by first author
Abstract 12	In general, [redacted] should stop the effort for the xyz publication if our contribution is [redacted].	English	Accepted
Abstract 13	[redacted] Stattdessen: Anpassung an Markt und Nutzersegmente	English	Accepted
Abstract 14	[redacted] verbessern die Güte solcher Spezifikationen nicht, sondern nehmen an, dass sie korrekt sind.	German	Accepted
Abstract 15	Dies hilft [redacted] die Relevanz zu erklären	German	Accepted
Abstract 16	Rolli are you ready to demonstrate that?	English	Accepted
Intro 1	Bin mir nicht sicher. Ich kenne die Literatur zu wenig	German	
Intro 2	Wierderholung zum Ende des Paragraphs	German	
Intro 3	Rolli dies sind doch selbst gemachte Probleme ... Was brings Dein Ansatz im vergleich zu schon existierenden Ansätzen???	German	
Validation 1	Deine Fussnote mit Link ist gut	German	Praise
Validation 2	Rolli, please verify the calculations	English	
Conclusion 1	Rolli, dies klingt so wie das Paper nicht fertig ist ...Bitte hier noch angeben für welche Spezialsituationen diese Semantik noch nicht komplett formalisiert ist. Weiter evtl. noch angeben, was die added Value sein würde im Vergleich zum heutigen Zustand	German and English	

[redacted] Organisational/ structural comments

Comments showing awareness of community/reader

[redacted]

Addressing Rolli by name

Using Du/you

[redacted]

Praising

[redacted] Questioning

Making suggestions

[redacted] Politeness: using bitte/please

Appendix H: Example clustering of themes from Interview 1

Writer's perceptions of their progress in writing for publication

a) achievements
- general improvement
- increased motivation
- improved readability

b) difficulties
- academic style
- ordering information
- vocabulary
- grammar
- being precise
- cohesion and transitions
- organisational issues
- translating from L1
- being understandable
- being accurate
- journal requirements
- readership issues

Writer's perceptions of supervisor feedback
- supervisor as content expert
- ownership of text after supervisor's feedback
- amount of supervisor feedback
- supervisor as language expert
- supervisor dominating
- affordances for discussion of feedback

Writer's perception of peer feedback
- value of different perspective
- freedom to consider peer feedback
- informality of peer feedback
- immediacy and speed of peer feedback
- encouragement/motivation
- representative audience

Writer's perception of reviewer feedback
- positive review motivating
- lack of language feedback from reviewers
- reviewers as content experts

Writer's perceptions of writing process
- enjoyment of challenge
- awareness of the reader
- importance of feedback
- importance of motivation
- writing process leads to change in perspective
- awareness of the wider scientific community
- clarification of ambiguity
- learning by doing

Appendix I: Example initial diagrams representing trajectory of text