

## **An Abstract of the Thesis of**

JoAnne Lynn Bratten for the degree of Master of Science in Scientific and Technical Communication presented on October 29, 2001. Title: Negotiating Between Conflicting Discourse Communities: Scientists Writing Technical Marketing Copy.

Abstract Approved **Redacted for Privacy**

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This case study investigates how scientists who write technical marketing copy experience and resolve the tension that results from the conflicting demands of their local (company) and global (research science) discourse communities. Twelve scientists, who are currently technical marketing writers at a small biotechnology company, were interviewed by e-mail over the course of three months, and they were also asked to submit writing samples. The results of this study challenge the theory that a writer's perception of audience, which is also linked to philosophical orientation (positivist/constructivist), is the primary factor that determines whether they will write persuasively or informatively. Killingsworth's concepts of local and global discourse communities were applied to help develop a comprehensive picture of the tension experienced by these authors. Although all of the positivists in this study did choose a strictly informative writing style, there appeared to be a number of factors affecting whether the constructivists wrote persuasively or informatively. These factors included the strength of a writer's professional identification with the local (company) or global (research science) discourse community, the level of tension created by the conflicting

demands of the local and global discourse communities, and the extent of a writer's perception of audience.

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Negotiating Between Conflicting Discourse Communities:  
Scientists Writing Technical Marketing Copy

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JoAnne Lynn Bratten

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JoAnne Lynn Bratten, Author

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## Table of Contents

	<u>Page</u>
Introduction .....	1
Literature Review.....	4
The Social Perspective of Scientific Discourse .....	4
Defining Discourse Communities .....	6
Local and Global Discourse Communities .....	7
Methods.....	11
Site and Participants.....	11
Situating the Writers .....	14
Data Collection and Analysis.....	15
Results and Discussion .....	18
Philosophies of Scientific Truthmaking.....	18
Manifestation of Philosophical Orientation .....	20
Professional Identification and Perceptions of Community Membership .....	28
Experiencing and Resolving the Tension Between Communities.....	31
Conclusions.....	35
Negotiating between Conflicting Discourse Communities.....	35
Implications and Suggestions for Further Research .....	39
Bibliography .....	41
Appendix: Interview Questions .....	43

## List of Tables

<u>Table</u>	<u>Page</u>
1. Participants' identification numbers, gender, education and job titles .....	13
2. Participants' job titles and types of workplace writing .....	15
3. Comparison of participants' philosophical orientations and workplace writing styles .....	25
4. Participants' professional identities and communities .....	29
5. Summary of the case study results .....	36

# Negotiating Between Conflicting Discourse Communities: Scientists Writing Technical Marketing Copy

## Introduction

In a recent staff meeting, one of the technical writers from the Marketing Department engaged me in an unexpected debate. This writer, a Ph.D. scientist, produces copy to market biotechnology products to research scientists, both at other companies and at academic and medical research institutions. In the interest of maintaining a consistent corporate image and voice, I recommended that the company's research scientists submit their scientific posters through the corporate editing process before displaying them at conferences or publishing them on the company's Web site. The writer disagreed that the posters should be polished by the Marketing Department, because she believed that "dressing up" the posters would make them look like instruments of marketing rather than the results of scientific research. She offered the following explanation:

...[research] scientists, by and large, think of themselves as purists and tend to distrust and dislike money-grubbing business-people represented by those pesky sales reps that come into your lab, dressed in their fancy suits, interrupting your experiments, and not really having any idea how to talk to you about your science. So, if we [in Marketing] look like scientists (Birkenstocks, t-shirts, maybe a rumpled jacket at the most for men over 50), act like scientists (make posters on construction paper that are pinned up with tacks), and talk like scientists (facts, good experiments, no hype), then our customers come to see us more as colleagues and less as 'the enemy.' Although the only really important thing is that we have good experiments to back up our marketing claims, often, good science is equated with Birkenstocks and ratty posters in many people's minds...Or, 'my science is so good, I don't have to dress up either myself or my poster to impress you.'...Bottom line: this correlation is [such] an ingrained part of the scientific culture that it behooves any biotech marketing department to tap into [it].

As a three-year veteran editor in the Marketing Department, this was not the first time I had found myself in an argument with one of the technical writers regarding the best practices for technical marketing writing in this environment. Most of the exchanges were perplexing because they obviously involved more than simple differences of opinion about effective marketing writing strategies. They seemed to be connected to large-scale differences in viewpoint; differences that might be related to a writer's professional identity.

From this writer's argument, it was clear that her science education and her experience in the laboratory had taught her that research scientists have certain accepted conventions for communication; for example, "facts," "good experiments," "no hype" should be presented through the medium of "posters on construction paper that are pinned up with tacks." However, these discourse conventions were in conflict with the marketing strategies preferred by her workplace (represented here by my suggestion that the posters be polished to reflect a corporate image). As a result, the writer experienced 'lines of tension' between the expectations of two discourse communities: her workplace and the research science community. In this particular scenario, she chose to resolve the tension by insisting that the posters representing the company's products needed to "look like, act like, and talk like good science" in order to be accepted by the global (research science) community, and she implied that adhering to global community conventions would be the most appropriate marketing strategy for this audience.

This particular interchange was a catalyst for some important questions about the unique position of scientists writing marketing copy: How does a writer's loyalty to the conventions of scientific communication conflict with the conventions of marketing

communication? Do scientists writing technical marketing copy perceive the tension between the conventions of these two discourse communities? How does the strength of a writer's professional identification with the research science community intensify or lessen the tension? What strategies do the scientists use to mitigate the tension while still meeting their workplace obligations? This case study was designed to explore these issues.

## Literature Review

### The Social Perspective of Scientific Discourse

Traditionally, scientific authors are taught to operate from a positivist perspective, which asserts that the scientific truth (the “facts”) can be observed and reported objectively. Positivists are confident that scientists can use established methods to control for the elements in the research environment that might affect the objectivity of experimental results. According to Stephen Cole, positivists view science as “differing from other areas of human endeavor in the ability of scientists to achieve consensus based upon the dispassionate evaluation of objective empirical evidence” (6).

Thomas Kuhn was one of the first philosophers of science to suggest that empirical observations of science are not necessarily objective (Cole 7) and to challenge the idea that one scientific theory is proven superior to another based solely on data from empirical studies (Cole 10). Instead, Kuhn proposed that the validity of a particular scientific theory is determined through a complex interaction between the shared values and the shared experiences of specialists in the scientific community, which “ensure that most members of the group will ultimately find one set of arguments rather than another decisive” (200). Other early theorists in the sociology of science, like Stephen Toulmin, Imre Lakatos, and Ludwik Fleck, also proposed that factors in a scientist’s social context affect the communication of scientific results (Bazerman 163).

On the heels of these and other challenges to the positivist perspective, rhetoricians began to incorporate theories of social construction (see, for example, Berger and Luckmann (1966)) into their considerations of scientific discourse, producing social

constructivist perspectives on scientific communication. In general, social constructivism asserts that “reality, knowledge, thought, facts, texts, selves and so on are constructs generated by communities of like-minded peers” (Bazerman 774). Knowledge and its influence are “community-generated, community-maintaining symbolic artifacts” (Bruffee 777). According to Cole, the constructivist viewpoint can be summarized into three main tenets:

First, all constructivists dispute the traditional view of science as a uniquely rational activity. Second, almost all constructivists have adopted a relativist epistemological position which emphasizes the under-determination of solutions to scientific problems and deemphasizes or altogether denies the importance of the empirical world as a constraint on the development of scientific knowledge. Third, all constructivists argue that the actual cognitive content of the natural sciences can only be understood as an outcome of social processes and as influenced by social variables (35).

The social view of scientific discourse, then, proposes that scientific truths are determined through consensus among members of a scientific discourse community. From individual decisions and activities in the laboratory to the dissemination of results in the scientific discourse community, knowledge-creation in science is affected by social factors. In separate studies, sociologists Karen Knorr-Cetina, and Bruno Latour with Steve Woolgar, observed scientific research in laboratories to investigate how social factors influence the actual content of science. As Knorr-Cetina argues,

...the products of science are contextually specific constructions which bear the mark of the situational contingency and interest structure of the process by which they are generated, and which cannot be adequately understood without an analysis of their construction. This means that what happens in the process of construction is not irrelevant to the products we obtain (5).

## Defining Discourse Communities

Written scientific discourse is defined and influenced by the community, or multiple communities, of which a writer is a part. James Porter defines a discourse community as “a group of individuals bound by a common interest who communicate through approved channels and whose discourse is regulated” (39). To establish membership in a particular community, an individual must demonstrate a certain level of discourse competence, or familiarity, with that community’s conventions (Anson and Forsberg, Bizzell, Faigley). Graduate students within academic disciplines like science are

initiated into the research community through the reading and writing they do, through instruction in research methodology, and through interaction with faculty and their peers. A major part of this initiation process is learning how to use appropriate written linguistic conventions for communicating through disciplinary forums. (Berkenkotter, *et al.* 193).

Once a discourse community establishes standards for approval and regulation of acceptable communication, these rules can also become the means by which certain types of discourse are excluded from the community (Cooper and Holzman 210, Freed and Broadhead 156). A discourse community’s culture, social roles, group purposes, communal organization, and ideology (Faigley 235) create an environment that places constraints not only on the text, but also on the writer (Freed and Broadhead 162).

## Local and Global Discourse Communities

M. Jimmie Killingsworth argues that Porter's definition of discourse community "fails to theorize adequately the lines of tension that coexist and interfere with the lines of influence among discourse communities" (114). He notes that two different levels of discourse community, local and global, need to be defined in order to characterize the multiple discourse community membership experienced by writers. A writer's local discourse community is defined as the workplace, "the classroom, the company, the department, or the office with which the writer is associated, the site of the occupational practice by which he or she is identified in demographic descriptions" (111). In contrast, global discourse communities "are defined by likemindedness, political and intellectual affiliation, and other such 'special interests' and are maintained by widely dispersed discourse practices made possible by modern publishing and other communication technologies" (111). A writer may identify with the global community but also feel strong pressure to conform to the conventions of the local community, creating an internal conflict (Killingsworth and Gilbertson 162). Killingsworth explains that the local discourse community,

always dominates the site of communication at the time the discourse is initiated; while the global community, which the individual perceives as distant — or even abstract and metaphorical — exerts pressure for change over and against the demands of local practice. A user of discourse will be involved simultaneously in both local and global discourse communities and will feel challenged to favor one over the other (114).

He also suggests that what writers experience cannot be described in terms of a simple conflict created by membership in differing local and global communities:

...it is clear enough that every writer must negotiate between the demands of the local discourse community and the demands that the writer brings to that community. It is also clear that these demands overlap and interpenetrate in complex ways. The writer's dilemma is not, as it is often imagined, merely a conflict between workplace and academic values, nor is it, in any simple sense, a struggle between the individual and society. It involves an attempt to choose between two possible subject positions or to create an alternative position. Whichever choice the writer makes, there will be concrete effects within the local discourse community (115).

Using audience analysis rather than discourse theory, Vincent Brown (1996) examined how the positivist/constructivist orientations of scientists and engineers affect their workplace writing. His discussion of the study focused almost exclusively on the two-way interaction between writer and audience, theorizing that it was primarily an author's perception of audience that determined whether they wrote informatively or persuasively. Brown proposed that those with a positivist perspective would write with little attention to audience, whereas those with a constructivist perspective would write with more attention to audience.

However, Killingsworth's theory regarding local and global discourse communities may offer a more comprehensive picture of the motivating forces behind the choices the authors in his study are making as they write. As Bizzell suggests, "discourse theory goes beyond audience analysis because what is most significant about members of a discourse community [are]...the expectations they share by virtue of belonging to a particular community" (218). For writers like those in Brown's study, the decision to write informatively or persuasively may be motivated by more than philosophical orientation, which Brown sees directly related to an awareness of audience; how they choose to write may represent an attempt to resolve the lines of tension between the conventions of the local (workplace) and global (scientific) communities. According to

Killingsworth, a writer's resolution of this conflict represents an often complex and individual choice between the views of two discourse communities or the creation of a new alternative view (114).

Using information gained through in-depth interviews and text analysis, this case study examines the relative philosophical orientations (constructivist/positivist) of authors who write marketing copy for a biotechnology company. By exploring these writers' perceptions of membership in the local (the company) and global (research science) discourse communities this case study seeks to determine both whether the writers experience tension due to the conflicting writing conventions of these communities and also what strategies they use to resolve the tension. This research sought to answer the following questions:

- Do scientific authors who write for this biotechnology company primarily identify with the positivist or constructivist philosophy of scientific truthmaking?
- Do they perceive their writing as "informative" (positivist) or "persuasive" (constructivist)? How does the positivist/constructivist orientation manifest itself in the work of these writers?
- Which discourse community, local (the company) or global (research science) does these writers identify as their "professional community," and whom do they include as members of this professional community?
- Do the writers perceive the differences between the writing conventions of the local (the company) and global (research science) discourse communities, and do they experience conflicts between the requirements or conventions of these communities?

- How are these conflicts manifested in their workplace writing, and how do the writers resolve the lines of tension created by these conflicts?

## Methods

### Site and Participants

The participants in this case study were scientists actively writing or editing both technical and marketing copy in a nonacademic R&D setting. The site of the study was a small biotechnology company in the Northwest United States. This company specializes in the development of fluorescent dyes and related products for academic and medical research. The company's Marketing and Publications Department employs scientists as technical content writers. The writers are responsible both for producing technical literature about the company's products and for writing advertising copy that will be used in marketing publications (e.g., ads and brochures). I gained access to the site and participants through my employment as technical editor within the Marketing and Publications Department of the company. Because I had worked with the writers in this department for three years prior to conducting this case study, the participants knew and trusted me.

Of the fifteen writers who were sent a recruitment e-mail message, twelve agreed to participate in this case study. The participants, six male and six female, were either currently or previously employed for the site company in marketing and technical communication positions. The participants were selected because they fit a particular profile: Each participant 1) was a subject matter expert (SME) in the field of biotechnology, 2) chose to pursue a professional writing or editing career rather than to continue conducting laboratory research, and 3) had obtained their written

communication skills primarily through their formal science education and experience on the job.

A subject matter expert (SME) is defined as a person who has achieved the level of expertise that qualifies them to write accurate scientific content (both technical and marketing) for an audience of other scientists. For each individual, this level of expertise was gained through a unique combination of education and experience. All but one of the participants obtained SME status, as defined for this study, through the completion of an M.S. and/or a Ph.D. degree in a scientific field (see Table 1). The participant who did not have graduate-level scientific training qualified as a SME because she had two undergraduate science degrees and had worked as a technical assistance representative in the field for four years, helping Ph.D. scientists solve technical problems with their experiments. She was subsequently promoted to Product Manager, a position that previously had only been obtained at this company by scientists with graduate-level training in science.

**Table 1. Participants' identification numbers, gender, education, and job titles.**

ID *	Gender	Degree(s)	Current Job Title
1	M	B.S. Cell Biology, Ph.D. Molecular Biology	Cell Biology Product Manager
2	F	Ph.D. Biochemistry	Director, Scientific and Technical Services
3	F	B.S. Biochemistry, B.S. Chemistry	Product Manager and Technical Assistance Representative
4	M	B.S. Chemistry, Ph.D. Biochemistry	Technical Editor
5	M	B.A. Biology, Ph.D. Biochemistry	Assistant Biosciences Director
6	F	Ph.D. Molecular Biology	Product Manager
7	M	B.S. Biochemistry, Ph.D. Biochemistry	Product Manager
9	F	B.S. Biochemistry, Ph.D. Biochemistry	Web Content Manager
10	M	B.S. Genetics, Ph.D. Pure and Applied Science	Director of Marketing
12	F	B.S. Biochemistry, Ph.D. Biochemistry	Freelance Science Writer/Editor
13	F	M.S. Analytical Chemistry, M.S. Biochemistry/ Molecular Biology	Product Manager
14	M	B.S. Physics and Astronomy, M.S. Physics, Ph.D. Physics	Product Manager

\* Participants 8 and 11 withdrew from the study without responding to any of the questions.

The subjects were initially contacted by e-mail and asked if they would be willing to participate. Because this case study included the use of human subjects, an application was filed with and approved by the Oregon State University Institutional Review Board (IRB). An informed consent letter was then e-mailed to those who indicated an interest in participating. The letter described the data collection and analysis procedures that would be used in the study. It also informed the participants that any information obtained in connection with this study that could be identified with them would be kept confidential to the extent permitted by law. Finally, it indicated that participation in the study was completely voluntary and that they could refuse to participate or withdraw

from the study at any time without penalty. Those who agreed to participate were asked to send an e-mail response to the letter indicating their consent.

### **Situating the Writers**

In their workplace writing, the participants in this case study produce a broad range of documents and may find themselves simultaneously writing experimental protocols for products, marketing brochures, journal articles and Web site content. For example, participant 13 produces advertisements, brochures, “stuffers” (also called “toss sheets,” these are short marketing pieces included in customer mailings) and text for technical manuals; she also reviews scientific journal articles. See Table 2 for a detailed summary of the participants’ job titles and the types of writing they do in their workplace.

**Table 2. Participants' job titles and types of workplace writing.**

<b>ID</b>	<b>Job Title</b>	<b>Types of Workplace Writing</b>
1	Cell Biology Product Manager	Protocols for products, marketing flyers, book chapters, journal articles for advertising purposes.
2	Director, Scientific and Technical Services	Large technical documents (FDA regulatory documents), client reports, company brochures, information booklets, web text, promotional letters.
3	Product Manager/Technical Assistance Representative	Product information sheets (detailed product information and protocol), advertisements, text for catalog and catalog supplements.
4	Technical Editor	Catalog of research products, including detailed descriptions of both published and proposed research applications.
5	Assistant Biosciences Director	Protocols and product information sheets; edit marketing pieces.
6	Product Manager	Combined catalog/textbook, periodical of new products and applications, brochures, flyers, protocols.
7	Product Manager	Protocol sheets, marketing flyers and features, academic journal papers.
9	Web Content Manager	Web articles and advertisements; edit newsletter articles.
10	Director of Marketing	Brochures, advertisements and journal articles; review technical notes and protocols.
12	Freelance Science Writer/Editor	Product catalogs, technical bulletins, textbook chapters, product information sheets, protocols, advertisements, journal manuscripts, grant protocols and web page content.
13	Product Manager	Advertisements, brochures, stuffers, technical manuals; review journal articles.
14	Product Manager	Marketing brochures, information/protocol documents for specific products.

## **Data Collection and Analysis**

Participants in this case study were asked to respond to a three-step semistandardized interview and also to submit short writing samples. Both types of data, the interview responses and the writing samples, were collected electronically.

### ***E-mail as a Valid Medium for Interviews***

E-mail interviewing offers some potential advantages over traditional face-to-face interviews; interview administration by e-mail costs less, in terms of both money and time, is not hampered by geographical location or time zone, is less obtrusive and often “friendlier” to participants (Selwyn and Robson). E-mail interviews are also easy to distribute, have good response rates and times, and eliminate the introduction of errors that can occur during transcription (Selwyn and Robson). However, e-mail tends to eliminate “human factors,” such as visual and non-verbal cues and respondent personality, which may either serve to enhance or impair the interview results (Boshier). For example, whereas a shy respondent might be more comfortable with e-mail than in a traditional interview setting and therefore provide more information, with most respondents, “a great deal of tacit information that would be conveyed in a conventional interview situation is lost” (Roberts *et al.*; see also Selwyn and Robson, King). The current literature suggests that e-mail research methods are valid alternatives to traditional techniques only in situations like this case study, which address a specific and narrowly defined population that has e-mail access (Schmidt).

### ***Semistandardized Interviews***

Using a semistandardized interviewing method, as outlined by Bruce Berg (33), each respondent was asked the same set of questions in a specific order, much like in a standardized interview. However, when appropriate, the interviewer asked individual respondents relevant nonstandardized questions to gain additional information. The study participants were presented with three sets of standardized questions by e-mail over the course of four months and were given at least a week to respond to each set of questions. The questions were open-ended, and participants were told that there were no limits on answer length. The appendix contains the full text of the three sets of

standardized questions. The data from the semistandardized interviews were organized and coded using a freeware program called *CDC EZ-Text* (Carey, *et al.*).

Twelve respondents answered the first set of questions, ten answered the second set and nine answered the third set.

### ***Writing Samples***

Participants were also asked to provide writing samples for analysis. Specifically, these samples were to include drafts that showed a text's progression throughout the writing process. They were also asked to submit the finished piece, unedited by anyone except the participant. In response to this request, nine of the participants submitted text samples. These samples were collected to provide evidence of actual workplace writing practices so that they could be compared with each participant's claims regarding their writing practices.

## Results and Discussion

### Philosophies of Scientific Truthmaking

To determine whether they identified themselves as positivist, as constructivist, or as taking a position of compromise between the two views, participants were asked to select from among three statements that represented these philosophies of scientific truthmaking (See Appendix A for the full text of this question). The first statement, (a), represented a positivist viewpoint. The third statement, (c), represented a constructivist viewpoint. Finally, the second statement, (b), represented a compromise between the two views.

In response to this question, three respondents identified themselves as positivists by choosing statement “a,” and they were able to clearly explain their reasons for taking this viewpoint. However, all three positivists added the caveat that human subjectivity and the physical limits of a researcher’s measurement tools both interfere with the objective observation of concrete truths. Participant 7 explained that by using various replication techniques, researchers could control for subjectivity to reveal the underlying truths.

Seven respondents identified themselves as constructivists by choosing statement “c.” Of these seven, six offered explanations that suggested the existence of an internal tension between the constructivist view they claimed to hold and the positivist view traditionally held by scientists. For example, participant 14 said he believes in an “observer-independent ‘reality’ that follows a certain set of physical laws (i.e., concrete scientific truths),” a statement supporting the positivist view that truths exist independent

of context. However, he also made the following statements, which support the constructivist view:

...on the other hand, how can we be sure that our observations of this reality are not subjective? We are limited by our observation techniques and we have no guarantees that these are not flawed. Thus our scientific knowledge is context-dependent.

Similarly, part of participant 6's response supported her claim that she is a constructivist: "all experiments are subjective, both in the way they are designed and in the way they are interpreted." However, she also made statements suggesting that she still holds the positivist belief that concrete scientific truths exist:

Finding the truth requires rigorous interpretation from well-designed experiments that control for subjectivity as much as possible. One can acknowledge that truth is discovered when the use of data from experiments enables one to accurately predict the outcome of subsequent experiments.

Only one of the seven constructivists, participant 10, demonstrated a lack of dissonance between his claim to the constructivist viewpoint and the traditional positivist view held by other scientists. His response reveals a conscious awareness of the change in his perspective from positivist to constructivist over the course of his career; the discomfort he expresses in the last sentence suggests a realization that his constructivist viewpoint is uncommon among scientists:

My own thinking I'm sure has progressed from a) to c) over more years than I care to count. I also think this idea has progressed from being scientifically true to universally true. I find that a) is easily dismissed by considering multiple observers and b) is simply a compromise. Subjectivity and bias are just one recognized, observable part of context. Concrete scientific truth only exists in context. So, as context changes

truth also changes. Since we are never aware of all of the contexts in which we observe truth or anything else, then truth is a variable...Does anybody else think this way? Now I'm worried....

## **Manifestation of Philosophical Orientation**

It is important to recognize that due to the scientific nature of its content, even technical marketing copy is to some extent informative. However, there are distinct textual differences between strictly "informative" (scientific) text and the text that is defined as "persuasive" (marketing text) for this study.

In "informative" (scientific) text, a writer uses the passive voice to minimize the presence of the personas of both author and researcher from the reader's "view;" this contributes to the sense that the text is "objective." There is also heavy use of the static verb "to be." Finally, the text discusses the product in formal language using technical terms that are unique to the vocabulary of science (for example, "tetrapyrrole chromophore" and "fluorescence resonance energy transfer"):

Bilirubin is a major product of hemoglobin decomposition that is eliminated via secretion in bile. Its conjugated tetrapyrrole chromophore produces strong absorption at about 450 nm. The fluorescence of bilirubin in fluid solutions is very weak.[reference] Its absorption spectrum overlaps the emission spectrum of dansyl-labeled phospholipids, allowing quenching by fluorescence resonance energy transfer to be used to investigate bilirubin transport mechanisms.

At the site company, "informative" text is generally produced for use in the catalog/textbook piece and for the product information sheets that accompany a product post-purchase.

Conversely, “persuasive” text is produced for marketing purposes and is used in brochures and advertisements, as well as on the Web site. “Persuasive” text is conversational; the author speaks in the active “corporate voice” directly to the researcher, using pronouns such as “we” and “you.” As part of the active voice, the verbs used are much stronger than those found in the “informative text.” The “persuasive” writing style also uses descriptive words and phrases like “the ultimate in convenience,” “added security,” “easily,” and “ideal” to emphasize the benefits of using the product being discussed. Comparisons with a competitor’s product are rarely made, and then only if such a comparison will serve to demonstrate the inferiority of the competing product:

The ultimate in convenience, our precut silicone isolators allow you to easily isolate specimens for imaging applications, whether you have tissue sections on a slide or cells growing on a coverslip. These gaskets are ideal for fixing and staining a variety of applications, including immunochemistry, *in situ* hybridization, organelle staining, and calcium measurements. These new leak-proof silicone gasket products have adhesive on one side for added security or permanent mounting. We offer several configurations so you can find the right one for your experiment.

### ***Using Information to Persuade***

In order to examine how writers’ philosophical orientations (positivist or constructivist) influence their ability to write effective technical marketing copy, participants were asked whether the purpose of their workplace writing was primarily to inform or to encourage a purchase. In response, all of the participants said that their writing served both purposes.

The three participants who had identified themselves as positivists placed a higher priority on presenting “complete and accurate technical information” than on “encouraging a purchase.” They explained that this was the best way to help a customer “evaluate” a product. If this presentation served to “encourage a purchase,” then that was a beneficial secondary result of their writing. For example, participant 7 stated that although he recognized that encouraging the purchase of a product is what “pays the bills,” the best way to accomplish this is “by presenting technical data and supporting literature as clearly as possible and allowing the readers to evaluate it and formulate their own conclusions.”

Interestingly, the constructivists’ responses to this question were similar to those of the positivists. Like the positivists, the constructivists claimed that they use technical information to help the customer to “evaluate a product,” and make a decision to purchase that product. For example, participant 12 said, “My job is to both inform and encourage, but I rely much more heavily on informing my audience of the technicalities so that they can make an informed decision about a purchase or application.” Similarly, participant 14 stated, “In theory [my writing] does both. I write primarily to inform; if this information shows that the product is superior and the customer buys it, then it serves both purposes.”

However, participant 10, also a constructivist, offered some insight into the constructivists’ apparently contradictory choice to write informatively rather than persuasively. He pointed out that a text could be successfully persuasive if it was constructed to *appear* “informative” or “objective.” In his words, the reader simply needed to be “convinced by the objectiveness of the writing before they will consider

purchasing a product with a scientific application.” This supports Brown’s suggestion that perhaps when writing for an audience of scientists, an author’s attention to the technical details may actually also demonstrate attention to audience. It may be that the positivist writers are presenting what they view as “technical information,” and the constructivists are presenting texts that are purposefully constructed to “look like” technical information, but the resulting text appears the same to the audience.

### ***How Philosophical Orientation Affects Workplace Writing***

When participants were asked to describe how they thought their positivist or constructivist viewpoint affected their workplace writing, two of the positivists, participants 5 and 7, provided explanations that were consistent with their philosophical orientations. For example, participant 7 emphasized that he tries to “present material from a balanced critical viewpoint” and to “write text that will encourage the reader to think about the contents and not just accept them verbatim.” Also consistent with a positivist orientation, participant 5 expressed a sense of tension when he is expected to do “persuasive” (marketing) writing on the job, and emphasized his preference for “objective reporting”:

When I do technical writing as part of my job, I feel a distinct separation between presenting straight scientific facts/objective observations (the “Good”) versus putting a positive spin on the facts for the sake of marketing (the “Evil”). An example of the latter would be overemphasizing the positive features and ignoring the negative features of a product – in essence, lying by omission. I do some of both (I always know when I stray over the line). Fortunately for my comfort level, my writing assignments require mostly objective reporting.

Consequently, his “informative” writing style demonstrates an adherence to the conventions of the global community. For example, he primarily uses the passive voice and very few adjectives, and he states product benefits only indirectly:

[The company] now offers three mouse monoclonal anti-human T-cell markers, anti-CD3, anti-CD4 and anti-CD8. The antibodies are available unlabeled or conjugated to one of our superior [proprietary] dyes...or to R-phycoerythrin. The approximate absorption and fluorescence emission maxima for each of the conjugates are shown in Table 1.

Note that his text sample comes from a Product Information Sheet (PIS); PIS's are available for viewing on the company's Web site prior to the product purchase, and PIS text is often “borrowed” for later use in marketing publications.

Although the third positivist gave a response that was difficult to categorize as consistent either with the positivist or the constructivist orientation (“I have to write about our products so that it shows them in the most favorable way”), her text sample demonstrates a writing style that is “informative” rather than “persuasive.” This style is consistent with her positivist orientation:

Fluorescent labelling, when combined with an appropriate imaging instrument, is a sensitive and quantitative method that is widely used in molecular biology and biochemistry laboratories for a variety of experimental, analytical, and quality control applications. Commonly used techniques, including total nucleic acid and protein quantification, Western, Northern and Southern blotting, PCR<sup>G</sup> product analysis, and DNA sequencing, can all benefit from the application of fluorescence-based methods for detection. Fluorescent labelling offers a number of important advantages over other labelling methods, several of which are described below.

The constructivists exhibited greater inconsistency between their answers and the writing strategies they were actually using. Their writing samples also revealed some discord between their philosophical orientation and their writing styles (See Table 3).

**Table 3. Comparison of participants' philosophical orientations and workplace writing styles.**

ID	Philosophical Orientation	Workplace Writing Style
5	Positivist	Informative
7	Positivist	Informative
13	Positivist	Informative
6	Constructivist	Persuasive
10	Constructivist	Persuasive
3	Constructivist	Informative
14	Constructivist	Informative
9	Constructivist	Informative
12	Constructivist	Informative

For example, participant 6 identified herself as a constructivist. As we saw previously, however, her justification for this perspective demonstrated some loyalty to the positivist view that concrete scientific truths do exist. Consistent with the discourse conventions of the global community, which emphasize providing “information” rather than using persuasive writing techniques, participant 6 said she supports her claims about a product with experimental data so that readers can decide on their own about the value of the product. To demonstrate her point, she provided this specific example from her work: “The product shows consistent staining from gel to gel — comparison of staining intensities measured for 1000 spots on identical 2-D gels show a correlation coefficient of

0.9.” However, a separate text sample indicates that she is not only aware of the writing conventions of her workplace (local community), but also applies them quite proficiently in her writing. Her writing creates persuasive appeals by making strong claims about the benefits of a product (e.g., “More data...less effort,” “most advanced fluorescent technologies”), and by using a variety of adjectives (e.g., “high sensitivity,” “streamlined procedures,” “advanced technologies”). Her writing directly addresses the reader through frequent use of the pronoun “you,” and she uses active sentence constructions:

**Get More Data With Less Effort** — Fluorescent protein detection methods offer high sensitivity, streamlined procedures and the opportunity for multicolor labeling. Our new...Western Blot Stain Kits capitalize on these advantages, combining the most advanced fluorescent technologies for total protein detection and immunostaining into powerful dual-staining kits. Using these kits, you can minimize the effort and time you spend staining your blots while maximizing the quantity and quality of data you obtain.

On the other hand, participant 14, also a constructivist, responded that his viewpoint “has very little bearing” on his writing. He explained that this is true because he feels that it is important to write, “as if we know certain facts”:

While we have no guarantees we are really learning the “truth,” we can at least build a logical model of the universe and continue to fit things into place as long as the model makes sense. To do otherwise would be defeatist. I write as if we know certain facts, but in my mind there is always an unwritten caveat that says, ‘This information is based on the best of our current observations within our human generated view of the universe, which may be dead wrong.

Inconsistent with his constructivist orientation, but in line with this explanation, he presented a writing sample that was more “informative” than “persuasive.” He does not directly address the reader and uses passive sentence constructions. He includes very few

adjectives and states product benefits only indirectly and with careful qualification (e.g., “help define spatial images” and “may also be useful”):

Nucleic acid stains are especially valuable counterstains for multicolor applications — an appropriate counterstain can lend contrast to images and help define the spatial relationships between cellular structures. Most of the counterstains listed in the table below are impermeant to cells and, therefore, are generally used on fixed and permeabilized samples. Nucleic acid stains that are cell-impermeant may also be useful as dead-cell indicators because the dyes readily penetrate only those cells with compromised plasma membranes.

Based on his constructivist orientation, one would expect participant 14 to place a priority on conforming to workplace (local community) writing conventions; however, his writing practices exhibit the conventions accepted within the global research science community. His strategy for resolving the tension between his orientation and the accepted conventions of the global community is to reflect that audience’s writing style; but this strategy does not necessarily result in the rhetorical appeal to audience that is characteristic of effective marketing writing.

Participant 10 was the only constructivist whose response to this question and whose corresponding text sample were completely in line with his philosophical orientation. He said his constructivist beliefs require him to constantly refer back to the context and to the goals of the text as he is writing. He provided a “persuasive” text example from an advertisement. The sample is conversational, uses active voice and the pronouns “you” and “I.” He deliberately uses short sentences and sentence fragments, as well as strong statements about the benefits of the product (e.g., “robust performance,” “No obstacles, no entry fees”):

I've just run 100,000 in 2 hours.  
When will you finish?  
It's about robust performance.  
Running SPA and reporter gene assays in 384 or 1536 format to  
get the throughput you need.  
No obstacles. No entry fees.  
100,000 samples in 2 hours.  
Routinely.  
Don't get left behind.

In terms of effectiveness, his writing is an ideal example of “persuasive” technical marketing writing. His skill as a marketing writer is evidenced by his long-term success in the position of Director of Marketing.

### **Professional Identification and Perceptions of Community Membership**

To determine within which community, local or global, each writer based their professional identity, participants were asked how they describe themselves professionally and whom they include as members of their professional community. They were also asked if they perceive the audience for whom they write (the audience of research scientists) to be part of their professional community. See Table 4 for a summary of participants’ responses to these questions.

If a participant identified himself professionally as a writer, rather than as a scientist, and he said that his professional community included other writers or publications people, this was taken as an indication that the writer identified strongly with the local community (his workplace). One would also expect him to state that the audience of scientists for whom he writes is located outside of his professional community. Conversely, if a participant identified herself professionally as a scientist,

rather than as a writer, and she stated that her professional community contained primarily scientists, then this presumably indicated a stronger identification with the global research science community. And one would expect her to say that her audience of research scientists is located within her professional community.

**Table 4. Participants' professional identities and communities.**

ID	Philosophical Orientation	Professional Identity *	Professional Community *	Audience Inside/Outside Community †
5	Positivist	Global	Local/Global	Both
13	Positivist	Local	Local	Outside
7	Positivist	Global	Global	Inside
6	Constructivist	Global	Global	Inside
3	Constructivist	Global	Global	Inside
14	Constructivist	Local	Local	Outside
10	Constructivist	Local/global	Local/global	Inside
9	Constructivist	Local	Local	Outside
12	Constructivist	Local	Local/global	Outside

\* Local community = workplace. Global community = research science. † Is the audience of research scientists inside or outside of your professional community?

### **Local Community Identification**

Among the participants who completed the third set of questions, four (three constructivists and one positivist) identified themselves professionally with the local workplace community; that is, they labeled themselves as writers or product managers rather than as scientists. Of these four, two constructivists and the positivist indicated that their professional communities primarily included members of the local community (for example, other writers, graphic designers, marketing and Web specialists), and that

they write for an audience outside of that community. The remaining constructivist indicated that her professional community included a mix of members from both the local and global communities (for example, writers, product managers, and research scientists), and stated that she does not write for an audience outside of her professional community. For constructivists, the descriptions of their professional identities as “local” and their professional communities as “local” are consistent with their philosophical perspective.

### ***Global Community Identification***

Four of the participants (two positivists and two constructivists) labeled themselves professionally either as scientists or research consultants, suggesting a strong identification with the global community. Three of these four (surprisingly, two constructivists and one positivist) also stated that their professional communities consist almost entirely of scientists (global identification) and that they never write for an audience outside of that community. The remaining positivist, participant 5, stated that his professional community primarily consisted of people at his workplace (the local community) and that he writes for both the local and global communities. The two constructivists (participants 3 and 6) who identify more strongly with the community of research scientists experienced significant tension between workplace conventions and their loyalty to the conventions of the global community.

### ***Identification with Both Communities***

Participant 10, a constructivist, was the only writer whose professional identity indicated equally strong affiliations with both the local (workplace) and the global (research science) communities. He stated that his professional community also includes a mix of members from both the local and global communities (for example, writers, product managers, and research scientists), and that the audience of research scientists is within his professional community. These responses suggest that participant 10 moves readily between the two communities rather than identifying more strongly with one or the other.

### **Experiencing and Resolving the Tension Between Communities**

When asked to identify the separate writing conventions of their local (marketing writing for this company) and global (scientific writing in general) communities, all of the participants were able to list one or more conventions in each category. Most of the writers were also able to describe the differences they perceived between the conventions used for their workplace writing and those used for scientific writing. Participant 6 described the differences in this way:

...the use of the second person in [the company's] literature varies from standard scientific literature. Our writing also tends to be much more concise than standard scientific writing. It's direct and to the point, usually, but can leave out important details. On the other hand, now, I find standard scientific writing to be quite circuitous and tedious.

Similarly, participant 14 said,

As I mentioned before, [marketing brochures] are sort of a cross between a technical document and a marketing flyer. So there is technical

information included, but often couched in more active wording than is normally used in scientific literature.

Participant 10 was the only one to describe the conflicting conventions in terms of the differing goals of the two types of writing, “Workplace writing is often about expressing opinion and initiating action. The conventions for objective reporting of events wouldn’t be effective at initiating anything.”

When asked if they saw any conflicts between the writing conventions required by the scientific community and those required by their workplace, most of the writers (except participant 10) indicated, either directly or indirectly, that they were experiencing a conflict. Their responses suggest that the interaction between a writer’s professional identification and philosophical (positivist/constructivist) orientation contributes to the conflict they experience. Participants’ responses also revealed a variety of strategies for resolving the tension they experience between the conventions of the local and global discourse communities.

For example, participant 5, a positivist who identifies himself as a scientist, experiences increased tension when he is required to write “persuasive” marketing text (which he characterized as the “Evil”). He avoids the conflict by taking writing assignments that are strictly technical, or “informative,” in nature (which he characterized as the “Good”). Similarly, participant 12, a constructivist who identifies professionally with both communities but prefers to write informatively, has avoided the tension she experiences by moving into a position that rarely requires her to write marketing copy:

I used to be more involved with the marketing pieces at [the company] and I struggled a bit with the loosening of rules in the small snippets of information that an advertisement allowed. I always wanted to say something that was true, but to achieve this standard, I needed a lot of words to explain any caveats or other conditions required of the statement.

My current writing...allows for more explanation, so I don't feel the conflict so strongly (but it is still there).

Participant 6, the constructivist who identifies herself professionally as a scientist (global community), responded that a conflict between her workplace writing conventions and those of the scientific community is not possible. However, her responses throughout the case study demonstrate that she is experiencing such a conflict. Although her writing usually adheres to the conventions of the local community, when she experiences high levels of conflict she changes the text to favor the conventions of the global (research science) community, the community to which her professional identity is tied:

If someone writes something so that it would not make sense to a member of the scientific community, or simply uses words that are appropriate, but not standard in the field, we generally change the writing so that it conforms with that required/understood by the scientific community.

This response and those earlier in the study indicate that she believes that making the text "look like" science is really the best practice for marketing writing at this company.

Participant 14, a constructivist who identifies himself professionally as a writer (local community), said that he does perceive a conflict and that he believes this occurs because his workplace community misunderstands its audience:

Including marketspeak in documents supplied to the scientific community is different than the usual scientific writing but an accepted practice. I would argue that this actually shows a lack of understanding of customers in the scientific community and therefore a marketing-style document is in conflict with the rather conservative scientific conventions.

He, too, resolves the conflict by invoking his global community audience and changing the text to reflect the conventions that he perceives are accepted by that audience.

## Conclusions

### Negotiating between Conflicting Discourse Communities

Because this is a case study involving a small number of participants, the results cannot be generalized to a larger population. The extrapolation of these results to other populations of writers is also limited by factors such as the specific location of the company (the Northwest United States) and the specific industry (biotechnology) on which it focused. Additional research will be needed to determine whether comparable case studies in different high technology and scientific industries with other sample groups would provide similar results.

It is clear that many of the writers in this case study experience tension between the accepted conventions of their local workplace community (a biotechnology company) and those of the global community (research science). Some were able to perceive the conflict, like participant 5, who characterized marketing writing as “the Evil” and scientific (“objective”) writing as “the Good.” Others, like participant 6, said they did not perceive a conflict, but in other ways clearly demonstrated that they were experiencing tension between the two sets of conventions.

The writers implemented a variety of strategies to more or less resolve the tension and to allow them to meet their workplace demands. These strategies included periodically adopting the writing conventions of the global community during times of increased tension, always reflecting the writing conventions of the global community, avoiding writing tasks that increased the tension, or passing the responsibility for resolving the conflict to someone “higher up” in the company, such as to an editor or a

marketing executive. Some of these strategies were more successful than others, in terms of producing effective marketing text.

The results of this case study do not support Brown's theory that there is a direct relationship between a writer's philosophical orientation (positivist/constructivist) and their adoption of an "informative" or "persuasive" writing style (see Table 5).

*Table 5. Summary of the case study results.*

ID	Philosophical Orientation	Professional Identity *	Professional Community	Tension Between Local and Global	Overall Writing Style
5	Positivist	Global	Global	No	Informative
7	Positivist	Global	Global	No	Informative
13	Positivist	Local	Local	Sometimes	Informative
6	Constructivist	Global	Global	Yes	Persuasive
3	Constructivist	Global	Global	Yes	Informative
14	Constructivist	Local	Local	Yes	Informative
10	Constructivist	Local/global	Local/global	No	Persuasive
9	Constructivist	Local	Local	Rarely	Informative
12	Constructivist	Local	Local/global	Yes	Informative

\* Local community = workplace. Global community = research science.

However, the results do support Killingsworth's ideas about the complex pressures felt by writers who are experiencing conflict between two discourse communities, local and global:

The issue is far from simple. But it is clear enough that every writer must negotiate between the demands of the local discourse community and the demands that the writer brings to that community. It is also clear that these demands overlap and interpenetrate in complex ways. The writer's dilemma is not, as it is often imagined, merely a conflict between workplace and academic values, nor is it, in any simple sense, a struggle between the individual and society. It involves an attempt to choose between two possible subject positions or to create an alternative position.

Whichever choice the writer makes, there will be concrete effects within the local discourse community. Established practice will become yet more strongly established by defending itself against internal attack, or it will be revised according to the outsider's knowledge. (116)

Participants 6 and 14 provide excellent examples of writers negotiating the complex, and often conflicting, demands of their local and global discourse communities.

Participant 6 says she is a constructivist, and even though her belief in the existence of concrete truths suggests some loyalty to positivism, she generally adopts the writing conventions of her workplace; she exhibits a certain level of comfort with using the persuasive style required in marketing text. Outwardly, she says she does not think a conflict between the writing conventions of the local and global communities is possible; however, she is clearly experiencing such a conflict. When the tension between these communities is highest, her strategy for dealing with the tension is to adopt the writing conventions of the global community. Several of her responses indicate a strong awareness of audience (she is the writer described in the introduction), and her writing samples demonstrate a rhetorical appeal to audience that is typical of effective marketing writing. She experiences tension between her constructivist orientation and her strong professional identification with the global community.

Participant 14 says he is a constructivist; however, his strictly "informative" writing style suggests an adoption of the conventions of the global community. He expresses tension about using the writing conventions required by the workplace (marketing) because he prefers to use the global community's conventions. He invokes the audience of research scientists and simply reflects their accepted writing conventions back to them in his writing, instead of using his awareness of audience to make a

rhetorical appeal. He explains this choice by proposing that to write persuasively is to misunderstand the audience; the local community should adopt the writing conventions of the global community, because that is what the audience of research scientists understands. His preference for using global community writing conventions creates internal tension, because his professional identity as a writer is strongly associated with the local (workplace) community.

Among the constructivists, only participant 10 is successful at negotiating between the conventions of the two communities while meeting the demands of his workplace. He demonstrates a conscious awareness of a change in his philosophical orientation from positivist to constructivist over time. He views himself professionally as a “biotechnology marketeer,” which indicates his equal identification with both communities, local and global. Also, he includes members of both communities within his professional community. His purposefully persuasive writing style is in line with his constructivist orientation and does not conflict with his professional identity. He expresses an understanding of the need to choose writing conventions based on awareness both of audience and of the intended goals of the writing. This awareness, combined with his willingness to identify professionally with both communities, results in a lack of internal tension between his professional identity and either set of writing conventions. The goal of the writing and the intended audience determine the approach he takes.

Participant 10 represents the ideal picture of a constructivist who is able to negotiate between conflicting discourse communities. By example, he suggests that a writer’s awareness of his own philosophical perspective may have an important effect on

the writing conventions he ultimately adopts. His example also suggests that success as a writer, especially in a job that involves an overlap between distinctly different discourse communities, may depend on the ability to separate oneself from strong professional identification with either the local or global discourse community, and to move readily between them.

### **Implications and Suggestions for Further Research**

Although all of the positivists in this study did choose a strictly informative writing style, there appeared to be a number of factors affecting whether the constructivists wrote persuasively or informatively. These factors included the strength of a writer's professional identification with the local (company) or global (research science) discourse community, the level of tension created by the conflicting demands of the local and global discourse communities, and the extent of a writer's perception of audience. The results of this case study indicate that there is no direct correlation between philosophical orientation and workplace writing style; however, these results do not reveal exactly how other factors, such as professional identity and perception of audience, are impacting each writer's decision to adopt a particular set of writing conventions. Also, although it is clear that some of the writers consciously make their text "look like" science, this may not necessarily be an intentionally implemented rhetorical strategy; instead, it could simply be another method for avoiding the kinds of inter-community tension revealed in this case study. Finally, the information provided by participant 10 in this case study suggests that a writer's ability to identify professionally

with and to move readily between both the local and global communities may improve workplace writing practices.

Further research into these all of these issues is warranted and will offer valuable insight into the decision-making processes of writers who are experiencing tension between multiple discourse communities. Such research will hopefully also provide more information about how the writers' strategies to resolve this tension ultimately impact workplace writing practices.

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## Appendix

## Appendix Interview Questions

### Set 1

NOTE: If you are not currently working outside of the home or are doing freelance work, please answer the questions with your most recent work experience in mind.

- 1) What is your educational background?
- 2) Do you have a specific area of scientific expertise? If so, what is it?
- 3)
  - a. In what field are you currently working?
  - b. How long have you worked in this field?
- 4)
  - a. What is your current title?
  - b. Please write a brief description of your current position.
- 5)
  - a. What type(s) of writing does your job involve (e.g., marketing, technical information)?
  - b. What kind (s) of documents do you produce, or help to produce, in the course of your work (e.g., protocols, journal articles, advertisements)?
- 6) Where did you obtain the writing skills that you use on the job?
- 7) Aside from any writing experience you have obtained through work experience, do you have any professional training in writing or communication? If so, please explain.

### Set 2

- 1) What is interesting or enjoyable to you about the scientific writing that you do on the job?

- 2) Which of the following statements most closely reflects your beliefs about the discovery and communication of scientific knowledge? Please explain your answer. If none of the statements resonates with your beliefs, please explain why.
- a. Concrete scientific truths exist that can be objectively observed and objectively reported.
  - b. Concrete scientific truths exist, but they cannot be observed or reported without subjectivity or bias on the part of the observer and reporter.
  - c. The content of scientific knowledge (what scientists call truths) can vary depending on context and also depending on the way it is observed and reported.
- 3) How do your beliefs about the discovery and communication of scientific knowledge (as discussed in question 2) affect the way that you write about science in your professional setting?
- 4) Is the purpose of the writing you do on the job primarily to inform your audience or to encourage them to purchase a product? Or does your writing serve both purposes? Please explain.
- 5) Please submit a sample of something you've written on the job recently. This should be either an unedited or self-edited piece of text that is self-contained (for example, a complete product description, an ad, or an entire product information sheet). Please do not send me anything that contains proprietary information.

**Set 3**

- 1) What professional classification would you use to describe yourself (e.g., biochemist, scientist, researcher, editor, copy writer, etc.)?
- 2) Who are the members of your professional community?
- 3) Give some specific examples of the forums of communication used by your professional community. (For example, societies you are affiliated with, titles of professional publications you read, and conferences you attend.)
- 4) Do you ever write for an audience outside of your professional community? If so, who are the members of this audience?
- 5) Do you write or have you written as a member of the scientific community for other scientists (e.g., publishing results of scientific research)?
- 6) If you write (or have written) for the scientific community, what conventions do you follow in order for the writing to be accepted (for example, use of the passive voice, the IMRAD form of the journal article, etc.)?
- 7)
  - a. Do you believe that it is important to follow the given conventions when writing for a scientific readership?
  - b. If yes, why are the conventions important?
  - c. What would happen if the writing did not follow these conventions?
- 8) Describe your work environment. Who is included in that environment? (For example, are your closest coworkers scientists, graphic designers, lab assistants?)
- 9) What are your primary responsibilities in your job? That is, what were you hired to do for your workplace?

- 10) What types of writing do you do as part of your work? You may include information about internal (memos, notes, etc.) as well as external written communication (articles, marketing literature, etc.).
- 11)
  - a. What conventions must you follow in your workplace writing?
  - b. Do you believe these conventions serve an important function?
  - c. If so, what is the function and why is it important?
- 12) Do the conventions for your workplace writing differ from the conventions used for scientific writing? If yes, what are the differences?
- 13) Are there any conflicts between the writing conventions required by the scientific community and those required as part of your workplace? If so, how do you negotiate these conflicts?
- 14) Who is the primary audience for the technical marketing literature you write or edit?
- 15) Give some specific examples of the forums of communication used for your work, if these differ from those used by your professional community (see question #3).