SUMMARY

- Reports perceptions collected from technical writers about interactions with subject-matter experts
- Argues that SMEs and technical writers cannot fully alter their relationship without strategic management support

Technical Writer/Subject-matter Expert Interaction: The Writer's Perspective, the Organizational Challenge

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INTRODUCTION

n 1991 Debbie Walkowski, a technical writer at Digital Equipment Corporation, published an article in *Technical communication* entitled "Working successfully with technical experts—From their perspective." Despite her admission that "a writer's conduct is not (and should not be) solely determined by an engineer's expectations" (p. 67), Walkowski's findings suggest that aspects of the interpersonal relationship between writers and technical specialists can be controlled by writers. The appeal of her data is that writers—who tend to be audience-oriented to begin with—can gain some insight into the perceptions and prejudices of engineers toward writing and the role of documentation in high-tech settings.

Walkowski surveyed 19 software engineers in her company and asked them two questions: "What qualities do you most appreciate in a technical writer?" and "What qualities do you least appreciate?" The engineers' responses fell into five categories.

Technical knowledge

Engineers did not expect technical writers to have the same level of technical knowledge that they had, but they did expect them to have a fundamental knowledge of the subject area at hand. Only then could writers take highly technical explanations and turn them into user-friendly materials. SMEs complained of writers who did not ask informed questions and of writers who pretended to understand technical concepts when they did not (p. 65).

Writing and language skills

The engineers wanted to work with technical writers with superior writing and language skills. They complained of writers who sacrificed technical accuracy for the sake of stylistic and grammatical issues. SMEs were frustrated by writers who could not understand subjects well enough to be more than copy editors (pp. 65–66).

Communication ability

The engineers expected writers to have good communication skills and, in effect, to be good editors as well as writers. They wanted writers to be able to clearly articulate what was wrong with a document and what changes needed to be made.

Attitude

The engineers resented working with technical writers who held condescending attitudes toward an engineer's writing ability, or "who secretly (or not so secretly) want[ed] to be engineers and competed with them at every turn" (p. 66). They enjoyed working with technical writers who enjoyed their roles as writers.

Professionalism

Engineers liked working with technical writers who "knew their stuff," could work well as team members, took responsibility for their assignments, and met deadlines. In their eyes, the writer's credibility depended on his or her degree of professionalism (p. 66).

What Walkowski did not address in her study were the perceptions and attitudes of technical writers toward subject-matter experts. In this article, we present the technical

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writer's perspective toward interacting with SMEs based on an informal, Internet-based survey of 31 technical writing professionals.

SURVEYING TECHNICAL WRITERS

We posted a brief survey to elicit responses from technical writers on how they feel about working with SMEs. We also included questions that would provide us with some demographic information about the writers who responded to our survey. The seven survey questions were

1. How long have you been a technical writer?

2. Are you a contract worker, or do you work for a company? If you work for a company, what type of company is it?

3. How often do you work with subject-matter experts?

4. What aspects do you like about working with subject-matter experts?

5. What aspects do you dislike?

6. In your opinion what is the technical writer's role when interacting with the subject-matter expert?

7. What can subject-matter experts do to make the process easier?

We posted the survey on the TECHWR-L listserv for professional technical writers, which has approximately 4,000 subscribers. We also sent the survey to four high-tech companies in Research Triangle Park, NC.

Limitations of Internet survey research

Because we distributed our survey primarily through a professional listserv and asked subscribers to respond voluntarily, we assumed that self-selection had occurred, though self-selection biases occur in all survey research to a degree. To minimize the shortcoming of a self-selecting sample, we designed the survey carefully in terms of formatting, wording, and clarity (Plumb and Spyridakis 1992).

Hill (1998) has outlined the research on Internet survey research and concludes that it conflicts in three notable ways:

- It is not clear what sample size is necessary for generalizable results.
- ◆ Small sample sizes may generate significant differ-

Half of the writers reported that they interacted with SMEs on a daily basis. Some suggested that they worked with them constantly or on an hourly basis. ences for differences that are actually inconsequential or meaningless in larger samples.

• The Internet population may or may not be representative of a general population of professionals who do not subscribe to listservs or contribute to electronic discussion groups.

We understood the risks involved in making generalizations from our dataset of 31 technical writers and were careful not to accept the respondents' positions on subjectmatter experts without careful consideration.

SURVEY RESPONSES

We received 31 responses: 29 responses from the listserv and 2 from Research Triangle Park companies. With these responses, we were able to compile a profile of writers' preferences, a list of their likes and dislikes, their perspectives on roles and relationships with SMEs, and suggestions for the SMEs.

Writer profile

The typical writer who responded to the survey:

Had 7 years of experience as a technical writer. The range was from 2 months to 25 years. Five writers had less than 1 year of experience writing in corporate settings. Ten writers had 10 years or more experience, and of those 10, 2 had 20 years or more experience.

Worked for a software company. Four of the respondents worked as contract writers. Of the 27 who reported they were employed by companies, 16 worked for software companies—59 percent of the total surveyed. Other industry areas represented were aerospace, environmental, machine manufacturing, and dairy production.

Worked with SMEs on a daily basis. Half of the writers reported that they interacted with SMEs on a daily basis. Some suggested that they worked with them constantly or on an hourly basis. Those writers who had less than one year experience reported working with SMEs approximately two or three times a week.

Pleasures of working with SMEs

Responses to the question "What do you like about working with subject-matter experts?" fell into two categories: acquiring information and interacting with other people.

Acquiring information The majority of the writers seem to be enthusiastic learners. Seventeen of them suggested that they enjoy learning about new technologies or new products. Typical comments were "it's rare that I don't find something interesting about whatever project I'm doing." Learning on the job included working specifically with

SMEs ("The [benefit] of interacting with [an] SME is exposure to new ideas and procedures") in addition to working with new technologies ("I enjoy learning about our products and the tools that our machines grind").

Other writers were not as enthusiastic about their relationships with SMEs. When responding to this question, some writers reported that they enjoyed working with SMEs primarily because they "have all the information I don't have," or because they offer "verification/reassurance that my documentation is technically accurate." This perspective contrasted dramatically with the enthusiasm of other surveyed writers who enjoyed the learning process and the SME's inevitable role in it. The enthusiasts outnumbered the unenthusiastic respondents 17 to 7.

Interacting with people Several writers also reported that they enjoyed the personal interaction and teamwork involved in working with SMEs. One writer wrote that she enjoyed "meeting and working with a variety of people. I learn best through dialogue." Another writer pointed out that "All SMEs know different amounts of information, so I get to talk to lots of them before I'm confident I have the whole picture. I love talking to people who can educate me."

Some writers enjoyed working with the SMEs because they thought the SMEs were interesting personality types. One writer wrote, "As people, I've always liked my SMEs: they are interesting, generally fun, highly motivated, focused, and hard working. They think differently than I do, usually more [linearly], and it's fascinating to find out how and why their widget works the way it does."

Two writers mentioned that they enjoyed playing the role of user-advocate when interacting with SMEs. One of these writers commented, "I like being involved at the beginning of the project, working out the requirements for the product and acting as the advocate for the customer/ audience, asking questions that the customer might ask."

Shortcomings of working with SMEs

The two most common responses to the question "What do you dislike about working with SMEs?" were "they don't give enough of their time" and "they don't respect the writer's role in the development process." Writers also stressed that some SMEs do not understand the importance of the documentation process. Other writers complained of SMEs with poor communication skills. Three of the 31 technical writers surveyed had no complaints about the SMEs they worked with.

Time and accessibility What writers disliked the most about working with SMEs is that they did not give the writers enough of their time. The writers complained of SMEs who missed deadlines or who did not inform them when changes

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to the product were made. In these situations, writers were often left waiting for SMEs to make time for critical meetings. As one writer emphasized, "They're just as busy as I am, and their work is more important to them than mine is to them, so scheduling becomes a problem."

Time constraints were not always the fault of the SME but sometimes of the company for which the SME and the writer worked. Instead of staggering deadlines, often the SME and writer shared identical or parallel deadlines. Naturally the SME chose to meet his or her own deadline. But sometimes the lack of time was related to the second complaint of the writers: the SMEs did not respect the writer's role in the development process.

Respect for the documentation process Several writers expressed the sentiment that the SMEs did not respect the writer as an important element in the product development process. One writer directly attributed the problem of time with the problem of lack of respect. He wrote that some SMEs "won't return review copies of documents or answer questions in a timely fashion, and don't seem to realize that this is something they need to do because the writer's needs are just as real as every one else's."

Other writers cited examples of SMEs who behave in condescending ways or who use inflated terminology to describe readily understandable concepts. One writer reported that on occasion, she has "run up against truly hostile folks or people who don't want to cooperate for political reasons." Another writer complained of SMEs who "think I'm stupid just because I'm not a programmer."

Writers also observed that some SMEs did not see the importance of documentation in general. They failed to understand that documentation supports their work, explains their work to customers, and *in fact* represents their work, and writers therefore found themselves in the awkward position of trying to justify what they required to accomplish their tasks and why. According to one writer, "Many SMEs feel that documentation is an 'afterthought' and isn't as important as development and even testing." Another writer commented that SMEs "sometimes cannot see beyond their own role to what the customer needs."

Communication skills Writers also expressed their frustration with some SMEs' communication skills. They

wrote of SMEs who were unable to talk on the user's level, or of SMEs who were "just plain hard to understand." Lack of communication clearly frustrates both parties in any interaction. As one writer suggested, "It is very hard to talk on the same level with someone who knows *way* more than I do about a product. I end up feeling stupid, and they end up exasperated that they can't get their point across."

Technical writers' views of their role

Understanding how technical writers see their role when interacting with SMEs is important to understanding the dynamics of the technical writer-SME relationship. The writers who participated in this survey resented the stereotype of writers as "glorified secretaries." Instead, they saw themselves as playing vital roles for their companies and for users. They defined their role in terms of learning, being prepared, interviewing (including listening and asking questions), and acting as the link between the company and the user.

Learning in the profession The writers in this survey responded most frequently that their role as technical writers is to learn—and to get as much information as possible from SMEs. They saw themselves as "information gatherers." In the words of one writer, "My role in the company is to provide useful information to the users of the software. Therefore, my role when interacting with the SME is to get the facts and data I need to write useful information for the users of the software."

But getting this information was not always a straightforward process and, predictably, involved constructing as much as it involved collecting information. One writer described her role as "syringe and sponge—syringe to extract the information with a minimum of difficulty, and sponge to soak it all up."

Being prepared Writers felt that being prepared was part of their role when interacting with SMEs. Being prepared improved the possibility that interactions with SMEs would be informative and friendly. When writers were prepared, they were able to formulate clear questions about the subject matter and to assure SMEs that they understood the topic enough to incorporate and interpret the SMEs' information. One writer wrote,

Writers need to anticipate what users need to know and must elicit that information from SMEs. Our role when working with SMEs is to go into an interview having done some homework. Nothing's more annoying to the SMEs I've worked with than for a writer to plunk himself or herself down in the office and say, "So, what's up with XYZ product?" We need to be as knowledgeable as possible and look to the SME to fill in some blanks and to provide a more real-world context for the product we're documenting.

Of course, preparation and the effective use of time were intimately connected; as one writer concluded, "Be prepared. Be intelligent. Take notes. Don't waste their time."

Knowing interview strategies When interacting with SMEs, writers often take the role of interviewers. To get the information they need, technical writers have to "listen, question, and capture the essence of the topic." Writers thus need to be comfortable interviewing because, as one writer asserted, "The technical writer is responsible for getting every important piece of information from the SME—we can't just expect the SME to just give us what we need without asking." Writers have to establish a rapport with SMEs and, during interaction, one writer wrote that she finds herself simultaneously playing the role of "interviewer/ego booster/listener/negotiator/journalist/friend."

Acting as a link Another role that writers fill when interacting with SMEs is as a link or liaison between companies and their users. Writers need to anticipate what users need to know and must elicit that information from SMEs. One writer characterized his role as that of a translator and wrote, "I have to take what they give me and communicate it in a way that almost anybody can understand. The writer is essentially the middleman in the whole process."

What SMEs can do

In response to the last question, "What can SMEs do to make the process easier?" the writers' responses fell into four categories: the SMEs need to make time, understand the importance of the documentation process, respect the writer's organizational role, and learn to communicate more effectively.

Making time The major complaint about SMEs was that they did not give writers enough of their time, so, not surprisingly, the most frequent response to how SMEs could make the process easier would be for them to free up more time for interacting with technical writers. Writers suggested that the SMEs need to schedule time for interviews, to meet deadlines so that the writing process does not have to be hurried, and to notify the writer as soon as changes to the product are planned. SMEs need to "realize that it is part of their job to provide information."

Writers identified with SMEs who could "remember that they are subject-matter experts and that not everyone else is."

Understanding the importance of the documentation

process Many of the writers who commented that SMEs should give more of their time added that SMEs also need to understand the importance of the documentation process. Good documentation does not simply benefit the writer; it benefits the company and especially the users of the company's products. Effective documentation represents the SME's product accurately. As one writer suggested,

If the SMEs understand that good documentation makes for an overall better product and that they will be commended for good product reviews from the field, they are more likely to work with me when I need help. The process will only get easier when we realize that we're in the same boat... We're here to help the user perform better at his or her job. Their good code and my good documentation are both necessary.

Another writer pointed out that SMEs must be aware that "they are a teacher for the writer and a partner in the development of the document."

Respecting the writer's organizational role Respecting the writer's role goes hand-in-hand with understanding the importance of the documentation process. One respondent maintained that SMEs must "understand that the writer is just as much a professional as the SME, that asking questions is part of their job, and that the writer is the interface and filter for the engineer to the audience." Another suggested that SMEs "try to gain an appreciation for the users of the software that they create, and understand and appreciate the role of the technical communicator. If the experts can better understand and appreciate our role, then I think they are more willing to take time to share information."

Communicating more effectively Just as the engineers in Walkowski's (1991) survey appreciated writers with good communication skills, the writers in this survey appreciated SMEs with good communication skills. Part of what made SMEs effective communicators was being able to relate technical information while keeping users in mind. Writers identified with SMEs who could "remember that they are subject-matter experts and that not everyone else is." The SMEs also needed to be open to interaction and to realize that SMEs and writers "are part of a team and can't function well without each component."

INTERPERSONAL RECOMMENDATIONS

A comparison of Walkowski's (1991) findings and our own invites several recommendations for technical writers and SMEs, understanding that both are part of interdependent teams.

Technical writers

For writers, two recommendations appear several times in the interview data: Be professional and be prepared.

Professionalism The engineers in Walkowski's survey stressed that the more professional writers are, the more credibility writers establish. The writers in our survey reemphasized the importance of professionalism, stating that they wanted the engineers to view them as professionals of equal status with the SMEs.

Although professionalism is clearly a constructed rather than an intrinsic quality in anyone, several publications address this goal explicitly. In *The professional writer*, Alred, Oliu, and Brusaw (1992) recommend "keeping your professional knowledge fresh by formal education, continued reading, and active involvement in professional organizations" (p. 86). But professionalism may have less to do with activities that are external to one's organization than they do with behaving in ways that are predictable and that are defined as responsible within one's organization; thus, during his service as president of IEEE Professional Communication Society, James Hill (1989) recommended the following professional "behaviors":

- Be as responsible as possible.
- Deliver on time.
- ◆ Be flexible.
- Learn as much as you can about your organization or business.
- Push for the newest technology for communication functions.
- Fight for resources to do your job properly.
- Learn to be a diplomat (pp. 205-206).

Preparation It is useful to recall that the SME's argument in Walkowski's study was that "knowing your stuff" indicates professionalism. Hill's (1989) recommendations certainly involve "knowing . . . stuff, " but the range of knowledge expected of technical writers may be outside the training of any individual writer, including but not limited to project management (time, resource procurement), problem-solving (flexibility, diplomatic communication skills), and organizational knowledge and skills (Selber 1994).

Walkowski's SMEs did not appreciate having to explain what they felt was basic information, and the writers felt that they were better able to get the information they needed if they had done their homework before interacting with SMEs. Writers stressed that a critical part of this process involved learning how to interview effectively.

Levine (1984) points out that writers spend as much as 75 percent of their time gathering information, and a good part of that information comes from interviewing SMEs. Moreover, she suggests that technical writers' jobs "require them to be expert interviewers because interviewing is often the key to good technical documentation" (p. 55). Suggestions for more productive interviewing include the following:

- Prepare a list of questions beforehand.
- ◆ Remember the audience and ask questions that they would ask (Alred, Oliu, and Brusaw 1992, p. 85).
- Avoid questions that put your interviewee on the defensive, such as "Why didn't you do it like . . . " (Flammia 1993, p. 125).
- Learn to actively listen, and do not let a preconceived bias interfere with what you comprehend (McDowell 1991, p. 16).
- ◆ Learn to read non-verbal clues such as when your interviewee appears defensive (for example, by sitting with arms and legs crossed), and attempt to give positive non-verbal clues such as direct eye contact, which shows interest (McDowell 1991, p. 9).
- ◆ Learn how to use different tactics with different personalities. For example, try an informal meeting in the SME's work environment with the SME who is intimidated with the communication process; with the SME who is contemptuous of the documentation process, meet in your work area, and be professional and formal (McDowell 1991; McDowell, Mrolza, and Reppe 1991, p. 213).

Being prepared and being a skilled interviewer can make SMEs more receptive and more generous with their time and expertise (Levine 1984, p. 56).

Subject-matter experts

For SMEs, the data highlights a single, important recommendation: Learn the importance of good documentation. If SMEs acknowledge the integral role of documentation in any development process, the problems of time and of lack of respect will frequently take care of themselves.

SMEs may not value the documentation process for several reasons. Windsor points out in "Owning corporate text" (1993) that SMEs often feel that "meaning is encoded in the object itself," and "they see their products as speaking for themselves" (pp. 187–188). Engineers often define a product in terms of how it works, whereas writers define a product in terms of how the customer will use it (p. 183).

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And this disciplinary orientation begins very early in our disciplinary enculturation. For example, Geisler, Rogers, and Haller (1998) have shown that advanced students in software engineering exhibit more awareness and focus more of their discourse on technical issues in contrast to advanced students in technical communication who stress human issues and concerns (p. 18).

SMEs may also subscribe to the myth of technical transparency, believing that if they had the proper resources, they would create systems that do not require support materials. Products, interfaces, and computer applications, if designed well, would not require materials that explain their use and functionality and would be immediately useful, easy to understand, and powerful; unfortunately, this ideal downplays the complex interaction between human learning, performance, and the use of tools to accomplish tasks (for example, users often insist that they want more features and not fewer, despite the difficulties that they will experience learning to work with increased functionality). Of course, the goal of product transparency, while admirable, frequently leads to devalued support materials that are limited, poorly designed, and created as development afterthoughts (Mehlenbacher 1993).

SMEs and writers must interact with end users in mind and realize that, as Flammia (1993) asserts, "good documentation will increase a product's success and reduce calls to user support lines" (p. 129). Ideally, SMEs and technical writers will respect the professional knowledge and skills that their colleagues bring to each project. If research on the importance of multidisciplinary perspectives in the design of effective projects suggests anything, it reinforces the importance of the SME and the technical writer working as a team to build complete, user-ready products and product support (Tomasi and Mehlenbacher 1998).

ORGANIZATIONAL RECOMMENDATIONS

What neither Walkowski's (1991) study nor our study account for is the importance of factors influencing the SMEtechnical writer interaction that are *outside* the control of either the SME or the technical writer. Thus, we were surprised, when we compared our data to the original study, to find significant parallels in the goals and expectations of SMEs and technical writers. One would expect two groups to work well together if they share the same values and perspectives toward professionalism, timeliness, and expertise. Conversely, since Walkowski's (1991) study and our results show that the two groups experience tension and frustration in their interactions, we would think that their goals must be opposing ones.

Another explanation for the tension between SMEs and technical writers seems possible-that the organizations and management structures that create their need to collaborate are, in fact, rewarding the value of their work in significantly different ways. Redish (1995) argues that one way to understand our value as technical communicators is to look at the literature from other professions. Her description of the experiences of trainers, usability and human factors specialists, and forms designers as professionals who perceive themselves as being treated like second-class citizens is very similar to the situations described by our surveyed technical writers. Similarly, Hackos (1994) cites personality conflicts, physical constraints, organizational politics, and limited time and resources as impediments to effective collaboration in her examination of the relationship between publications and training departments (p. 430).

Spilka's (1995) two-year qualitative study of professionals in a government agency elaborates in detail on these conflicts, emphasizing that "the professionals routinely experienced tension when attempting to fulfill both internal goals of their own organizational unit and various external goals of the partnership (or of select organizational units involved in the partnership) that conflicted or were incompatible with those internal goals" (p. 442). Moreover, these patterns of tension were further complicated by "the constantly changing nature of the social parameters of the partnerships and of select units within the partnerships" (p. 444).

Ultimately, Redish (1995) suggests that the burden of responsibility for changing the way a corporate culture treats certain types of professionals may well fall on the managers of those organizations and groups; Pieratti (1995) echoes this recommendation, arguing that "management must encourage and actively support integration and collaborative work" (p. 67).

Yet technical writing textbooks frequently de-emphasize the role of technical communication managers and the serious tensions that can exist between managers from different departments or divisions within the same organization. Alred, Oliu, and Brusaw (1992), for example, stress coordination, cooperation, and synchronization between departments, and only briefly mention the conflicts and inter-departmental negotiations that can occur over personnel and resources (p. 41). And although Allen and Deming (1994) do not focus on conflict in the introduction of their *Publications management: Essays for professional communicators*, they do highlight the important "promotional" role that managers need to play in their organizations:

A manager's responsibilities for publications staff should include ensuring that their needs and potential within the organization are communicated to other managers so that publications staff receive the esteem and the resources they need to do their jobs. The manager must also be concerned with communication channels within the organization that guarantee access to people and information critical to the performance of publications staff. Good managers are also aware—and communicate their awareness—of the importance of publications in marketing products and in conveying the attitudes and values of an organization to its public (p. ix).

If technical communication managers are unable to convey the importance of documentation to the organization at large, then it is likely that responsibility for poorly designed support materials and documentation will continue to fall on the technical writers or on their project leaders. Or, worse, users will bear the consequence every time they experience a failed interaction with a system's documentation. Certainly, it is unheard of that the manager of the software development group would share responsibility for the poorly designed documentation. And it is this division of the product from the product's documentation that establishes fully the service or secondary role of technical writers in many large corporations. Johnson-Eilola (1996) highlights the fundamental problem with identifying ourselves as playing a support role in high-tech corporations:

The support model of technical communication encourages corporations to view technical communication as something to be added on to a primary product. Because the value is located in a discrete, technological product such as a piece of software, support becomes easily devalued, added at the end of the project (with too little

Research that focuses on how organizational cultures establish, facilitate, and support interactions between SMEs and technical writers is surely required. *time or too few staff members), or perhaps omitted entirely. (p. 248)*

Research that focuses on how organizational cultures establish, facilitate, and support interactions between SMEs and technical writers is surely required.

In the meantime, technical writers can enhance their professional ethos and elevate tensions that they experience when working with SMEs beyond the interpersonal and into the organizational level by making these tensions issues for their entire technical writing team. Grove, Lundgren, and Hays (1992) recommend that technical writers, in addition to learning more about the technical subject matter that they are documenting, can facilitate organizational involvement by

- Organizing and giving symposia and lectures on communication-related issues to all employees
- Learning more about their "clients" needs and expectations of them
- Encouraging their managers to meet regularly with the managers of other divisions
- Holding high-level debriefings so that all team members can discuss "lessons learned on the project" (p. 392)

Similarly, Spilka (1995) anticipates that conflicts often occur beyond the SME-technical writer level at the managerial and divisional level of the organization. Her recommendations for upper-level professionals are that they acknowledge both the social and the rhetorical realities of their particular organizations. Technical writers should support managers who accept conflict as a potential part of any divisional interaction, who are organizationally proactive rather than reactive decision-makers, and who insist that their division is well-represented, visible, and productive. This organizational orientation should ensure that inter-divisional collaborations and partnerships are supported and rewarded (pp. 445–446).

IMPLICATIONS FOR FUTURE RESEARCH

Although our study sheds some light on the original (1991) findings of Walkowski, we would encourage similar studies of the relationships between project leaders and their managers, between product and documentation department managers and upper management, and between organizational divisions such as marketing, training, and usability, and the pieces that make up their total product-lines. It may be tempting to dismiss our findings as simply confirming what many practicing technical writers already know and experience on a daily basis on the job: SMEs are critical to their goals and can help or hinder their ability to create successful documentation. But it is also possible that we are guilty of focusing our attention on the least significant (or most subjective and interpersonal) level of the

larger organizational contexts being investigated. Without thoughtfully examining the organizational contexts that surround and interact with technical writers and their tasks and goals, we run the risk of making recommendations that succeed or fail depending on the particulars of given collaborative situations. And the technical writer's value as a professional continues to be defined as something that SMEs and their managers define for us. **TC**

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