

# The Effects of Tutor Expertise in Engineering Writing: A Linguistic Analysis of Writing Tutors' Comments

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**Abstract**—*Writing tutors often have very little or no expertise in conventions of engineering writing. In this study, I examine the topics and politeness strategies of tutors' comments, investigating how non-expertise in engineering writing decreases the effectiveness of tutors' interactions with engineering students. I show how the three non-expert tutors gave inappropriate advice and often stated their advice with certainty. I also show how a tutor with expertise in engineering writing gave specific and useful guidance to her tutee and built rapport with him as well. I outline how writing tutors could be trained to help better engineering students.*

**Index Terms**—*Engineering students, expertise, technical writing, writing tutors.*

It is clear that writing tutors who are experts in engineering writing or, at least, who are familiar with the conventions of engineering writing will be able to help engineering students with genres like instructions and technical definitions more than tutors who lack such expertise. However, undergraduate and graduate tutors who help engineering students with their writing—for example, tutors who work in university writing centers—may have very little or no expertise in conventions of engineering writing or its common genres. In many universities, writing tutors seem to come mainly from humanities disciplines, especially English literature and secondary education, rather than disciplines that actually do or study technical writing, including engineering writing. Indeed, when I checked the web pages of the few writing centers that listed the majors and minors of their tutors, I found that many of the tutors were English majors. At Georgetown University, 15 of 27 tutors are English majors [1]. At Colgate University, 11 out of 22 tutors are English majors [2]. At Elon University, 18 of 32 tutors are English majors [3]. In addition, the majors of tutors not majoring in English tend to reflect social science or humanities disciplines like psychology, elementary education, political science, history, and journalism, fields that tend not to do or study technical writing in general or engineering writing in particular [1]–[3]. The tutor profiles on the web pages of Arizona State University and Purdue University follow this pattern as well [4], [5]. It seems, then, that engineering students are likely to encounter tutors who are more comfortable with writing from humanities and social science disciplines.

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This study is a linguistic analysis of four tutoring interactions about engineering writing. It first describes how three writing tutors who had no familiarity with engineering genres adversely affected engineering students' writing. Specifically, this study examines how three tutors not only gave advice that was inappropriate for engineering writing but also stated that advice with certainty. This study then examines how a tutor with expertise in engineering writing gave appropriate and specific advice and how her expertise helped her build rapport with her tutee. Thus, this study analyzes and delineates the components of tutoring interactions that fail or succeed based on the degree of tutors' expertise in engineering writing. It is hoped that this analysis will help those who tutor engineering students and other technical writers (and those who train them) to create more successful interactions.

## ROLE OF EXPERTISE IN EFFECTIVE TUTORING

As Thonus notes in her study of writing center interactions, "conventional wisdom" says that the extent of a tutor's expertise affects how the tutor interacts with his or her tutee, especially the degree to which that tutor asserts control during the interaction [6, p. 242]. Her assessment is supported by recent research on tutoring interactions in medical schools. In a meta-analysis of studies of medical tutors, Dolmans et al. found that tutors who were subject matter experts tended to direct tutorial discussions, as opposed to facilitating self-directed or collaborative learning [7]. Within the domain of tutoring writing, Hubbuch describes how a writing tutor who had recently graduated with a degree in International Affairs directed interactions with seniors writing theses in the same field, telling them what to do. Hubbuch writes, "It is a logical response; when an expert is asked a question for which he has an answer, it is natural for him to give that answer. But direct answers . . . may be detrimental to the student's development as a writer and active learner [8, p. 26]. Similarly, Kiedaisch and Dinitz warn that tutors who

are subject matter experts may appropriate students' papers, although the researchers conclude that the benefits of tutor expertise outweigh its disadvantages [9]. Thonus found that tutors made more suggestions when the domain of their tutee's writing fell within the domain of their own subject matter expertise than when it didn't. She also found that those tutors made more suggestions than tutors who lacked expertise in the subject matter of the writing [6, p. 243]. Thus, it appears that tutors who have expertise in the content of students' writing may be more likely to assert control over it because they can interact with students' writing on multiple levels; they can make suggestions about content as well as the presentation of that content.

Within the field of technical writing and engineering writing in particular, far less is known about the effects of expertise on tutoring interactions. Wong examined four interactions about engineering writing that involved engineers and engineering graduate students. She wanted to determine the extent to which the engineer tutors and the students would access each other's knowledge bases (about engineering writing and about the subject matter). She hypothesized that by accessing each other's expertise, tutors and students would create ideal communication: "discourse with a) balanced distribution turns and turn size between the participants, involving b) an exchange of information, in c) a context where both parties can determine the agenda of the discussion" [10, p. 450]. Wong found that tutors recognized and elicited students' expertise in subject matter in only 57 of 103 negotiable topic segments (55.3%). She also found that 33.6% of the time tutors failed to recognize student expertise even when negotiability of the topic was high. In many of these cases, tutors' use of hedges (e.g., *maybe*, *sort of*) suggested their own uncertainty about their statements, yet they still failed to elicit information from students. This finding suggests that tutors who lack subject matter expertise in the specific topics of students' papers but who have background in the discipline may be unwilling to acknowledge students' expertise and promote students' control over their writing, even when students clearly have greater expertise in the subject matter of the writing than their tutors do. Wong's findings require verification, especially in relation to tutors' suggestions, as opposed to the frequency with which tutors recognize and solicit students' expertise. In addition, her study leaves open the question of whether tutors with no subject matter expertise (i.e., tutors who are not engineers and thus do not know the discipline) similarly control their tutoring interactions with engineering students.

More recent research confirms the importance of investigating this question. Smith found (using think-aloud protocols) that the reading and evaluation practices of technical writing instructors differed from those of engineering instructors. Smith found that expertise in the subject matter of a student's paper not only helped in evaluating the validity of

the paper's argument or findings but had a rather ambiguous effect on a reader's ability to gauge rhetorical appropriateness [11]. Smith's findings show that readers who have expertise in the subject matter of engineering students' writing (readers like Smith's engineering professors) will engage with the writing in different ways than will technical writing teachers. Smith's findings make clear the need for further analysis of the effects of expertise on tutoring interactions about engineering and other technical writing. By highlighting the differences between engineering and technical writing professors' evaluations of engineering students' writing, Smith's study points to the need to examine what is perhaps an even more critical situation: what happens when a writing tutor lacks expertise in the conventions of engineering writing, as well as in the subject matter of a student's writing?

Answering this question is important because far less is known about how expertise, or at least familiarity with engineering writing genres like instructions and project evaluation reports, affect how tutors interact with engineering students. As Miller, Bausser, and Fentiman point out, "technical writing is the genre of academic writing that is in many respects least similar to the genres typically taught and studied by compositionists" [12, p. 445], a claim that underscores Dragga's argument that too much attention has been paid to responding effectively to academic essays, as opposed to technical writing [13]. Miller, Bausser, and Fentiman call for collaboration between compositionists and practitioners/teachers of technical writing to improve responding strategies and, therefore, to increase teaching effectiveness [12]. Through collaboration, they continue, we can improve "our understanding of how and why commenting strategies vary from field to field and genre to genre, and what the more effective commenting strategies in a particular field or genre might be" [12, p. 446]. The present study investigates how a lack of familiarity with engineering writing—its purpose and (depending upon the particular genre) conventions—decreases the effectiveness of three writing tutors' interactions with engineering students. The present study also investigates how a tutor with expertise in engineering writing was better able than the other three writing tutors to give specific and useful guidance to her tutee—even while allowing the student freedom to make his own decisions about his writing—and to build rapport with him as well.

## METHOD OF THE STUDY

Eight people participated in this study of four tutoring interactions about engineering writing. Four engineering students who were enrolled in an advanced writing course for engineering majors worked with four writing tutors. The two undergraduate tutors worked in the writing center of their university. They had taken a course in tutoring methods, during which they engaged in role playing of tutoring interactions and read selections from

tutoring manuals and academic journals. The two graduate student tutors each taught a freshman composition class and tutored freshman composition students in return for tuition remission. They had both taken a methods course for teaching writing. The training that both the undergraduate and graduate tutors received was representative of the training that other tutors working at the university received as well. All of the participants—tutors and engineering students—were paid \$25 for an hour of their time.

None of the engineering students had ever met with a tutor about their writing before, and none of the participants had met before their interactions. While there is little research that examines the effect of repeated interactions on tutoring discourse, Thonus found that the effect of repeated visits on the frequency, type, and mitigation of tutor suggestions is negligible [6].

In this study, I use the term “non-expert” to refer to the tutors who had little to no experience in reading or providing feedback on engineering writing. I use the term “expert” to refer to the tutor who had experience in reading and providing feedback on engineering writing. Table I shows that three of the four tutors in this study were non-experts in engineering writing and that the other tutor was an expert in engineering writing. It also shows the student with whom each tutor was paired, the genre of each student’s writing, each tutor’s affiliation with the university, and the extent of each tutor’s expertise (or lack thereof) in engineering writing.

I analyzed these participants’ four interactions, looking especially for differences between the three interactions involving the non-expert tutors and the interaction involving the expert tutor. I analyzed the following:

- (1) The **topics** of the tutors’ comments, such as their suggestions. For example, I examined the extent to which tutors focused on surface features of writing, such as capitalization and punctuation.

Analyzing the topics of tutors’ comments was necessary, given that previous research has made clear that the extent of a tutor’s expertise in a particular topic will affect the extent to which the tutor asserts control [6]–[9].

- (2) The **politeness strategies** (as delineated in [14]) that tutors used in their comments. For example, I examined the extent to which tutors used words like “probably” to soften their comments.

Politeness strategies signal the social relationship a speaker is constructing or maintaining [14, pp. 78–80]. I analyzed tutors’ politeness strategies to gauge the extent to which they asserted expertise. I also analyzed tutors’ politeness strategies to gauge the extent to which they attempted to build rapport and a sense of solidarity with students.

### NON-EXPERT TUTORS WORKING WITH ENGINEERING STUDENTS

Few people would expect writing tutors to have expertise in the subject matter of the engineering writing that engineering students seek help on. No one, for example, expects a writing tutor to have in-depth knowledge of wind generators or wireless networks. Not surprisingly, then, the tutors in this study were not familiar with the subject matter of their tutees’ papers. In fact, two of the three non-expert tutors admitted their lack of subject matter knowledge at the beginning of their interactions. Lisa, for instance, began her interaction with the following caveat, warning Ed about the limits of her expertise in the subject matter of digital music: *I’ve heard VCD’s before and stuff, but I didn’t know what some of these things—Um, so . . . That’s good. I’m not, I don’t know, I’m not real technical and stuff, so I can understand it. That’s good.*

It should be noted that Kathy, the one tutor in this study who was an expert in engineering writing (but not an expert in the subject matter of Tony’s writing), admitted her lack of knowledge as well:

TABLE I  
A description of the tutoring interactions

Interaction	Tutor	Student	Genre of Student’s Technical Writing	Tutor Affiliation with the University	Tutor Expertise in Technical Writing
1	David	Ken	Technical Definition	Undergraduate, writing center tutor	Non-expert: No experience with engineering writing
2	Lisa	Ed	Instructions	Undergraduate, writing center tutor	Non-expert: No experience with engineering writing
3	Doug	Mike	Project Evaluation Report	Graduate student in English, tutor for freshman writing students	Non-expert: Had encountered technical writing on several occasions when tutoring
4	Kathy	Tony	Instructions	Graduate student in liberal arts, tutor for freshman writing students	Expert: Over 20 years of experience as a technical writer; experience with engineering documents

Kathy: *Okay. All right. Well, there are, there's uh, good news and bad news about, uh, my reviewing your assignment. Uh, the bad news is that this is an area of technology that is, is going to be hard for me, so, so I guess what's good about that is, that if I can understand it, anybody can.*

If Lisa and Kathy were any indication, tutors feel comfortable in making the limits of their knowledge of the subject matter very clear to students. Their comfort likely stems from the fact that there is no expectation that they should have or develop a measure of expertise in myriad subjects that they encounter when tutoring. In fact, like Lisa and Kathy, tutors may frame their ignorance as an asset, implying that their reading can test the extent to which the writing can be understood by a novice audience. They may not be far off the mark in their assessment. Hubbuch argues that a tutee will benefit from a tutor who lacks subject matter expertise, provided the tutee does not feel compelled to give the tutor a crash course in the subject matter. She states that the tutee is more likely to defend the intrinsic logic of his or her writing, define key terms, and connect ideas [8, p. 27].

Although the tutors in this study acknowledged and, at times, even joked about their lack of familiarity with the subject matter of students' papers, the three non-expert tutors did not acknowledge the limits of their familiarity with the genres of engineering writing that the engineering students brought to them. All three non-expert tutors neglected to acknowledge their lack of familiarity with the genres of the tutees' writing at the outset of their interactions. Doug, for example, maintained a veneer of expertise until his tutee, Mike, asked him a question that he could not answer because he lacked the knowledge to do so:

Mike: *Also I'd like your opinion on the abstract. I don't know if you have a better grasp of—like a good content of abstract. But—*

Doug: *Yeah. Well, ah, like for—I know like with abstracts—what I do is basically a quick summary of like what the project is meant to do. Is that basically what it is for you as well?*

Mike: **Well—**

Doug: ***I want to make sure the humanities definition doesn't clash with the engineering one.***

Mike: *Well, the funny thing about the engineering definition, if you want to call it that, is they try to say it's LIKE a summary, but not REALLY a summary.*

Mike asked Doug to evaluate the content of his technical abstract in comparison to the content of a typical technical abstract. This task, of course, would have required Doug to describe the typical content of a technical abstract. Because he could not answer Mike's question, Doug described abstracts vaguely, saying that an abstract is a "quick summary." He then asked Mike whether he agreed with that assessment.

When Mike began to respond with the discourse marker *Well*, which may have indicated that he perceived an inaccurate assumption within Doug's question [15, pp. 106–107] or may have indicated possible disagreement [16, p. 70], Doug tried to save face, preserving his status as an expert by disingenuously distinguishing between a "humanities definition" and "the engineering one." Doug's maneuvers to hide his lack of expertise in the conventions of technical abstracts suggest that engineering students who seek help from writing tutors should use caution: tutors may very well not divulge what they do not know unless they find that they have no choice. When backed into a corner, Doug finally acknowledged his uncertainty about the conventional set up of technical abstracts.

### MISAPPLYING RULES ABOUT SURFACE FEATURES

Even though the three tutors who lacked expertise in engineering writing could have been expected to indicate little certainty in their comments to students, analysis of the non-experts' tutoring interactions suggests that this premise did not bear out. Instead, the non-expert tutors focused their interactions on topics about which they were comfortable and familiar and about which they could indicate certainty. Lacking the ability to analyze how well students' writing adhered to conventions of engineering writing, the three non-expert tutors disregarded what is considered good tutoring practice by focusing on surface features of writing. They did this rather than deal with how well the writing served its intended purpose or how well it adhered to the conventions of its genre, and they did this even though a focus on such matters is overwhelmingly discouraged in tutoring manuals. For example, in her popular tutoring manual, Capossela ranks surface features as eighth on a list of ten priorities for reading a student's draft, behind such matters as appropriateness, focus, organization, and development [17].

While the non-expert tutors' tendency to focus on surface features may be due, at least in part, to poor tutoring practice in general, it is more troubling that their suggestions about surface features were often inappropriate for the engineering writing genres that they were reading. For example, Lisa not only focused on the surface feature of capitalization, but she also made a blanket pronouncement that contradicts engineering writing convention. She stated that any phrase that will be abbreviated throughout a document, such as *digital versatile disk*, should be capitalized when it is being stated in its entirety (upon introducing the abbreviation). In other words, she claimed that the phrase should be written as *Digital Versatile Disk* when introducing the abbreviation *DVD*. In addition, Lisa stated her pronouncement with a linguistic marker of certainty, the modal element *have to* [19]:

Lisa: *Um, for the DVD, the digital versatile disk, when you abbreviate something to make it like an acronym or whatever, these **have to** be capitalized.*

Ed: *Okay.*

Lisa: *But it's—but you followed the right format in putting that—*

Ed: *Yeah, I didn't—I wasn't sure if it needed to be capitalized or not.*

Lisa: *Yeah, it does. Um, these are just—this is just like technical kind of stuff.*

The main problem with Lisa's advice is that no such convention about capitalizing phrases composed of common nouns exists in technical writing. For example, Rude does not capitalize the common noun phrase *certified public accountant* in her discussion of periods in abbreviations: "For example, CPA (certified public accountant) is more common now than the older form C.P.A." [18, p. 149].

Less important, but still troubling, is the certainty with which Lisa conveyed her advice about capitalization. She used *have to*, a **high-value** modal element that signals a high degree of certainty about the content of the utterance [19, p. 75]. Other high-value modals include *should*, *need to*, and *ought to*. Thus, when Lisa used *have to*, she conveyed to Ed that she knew for certain that she was correct in what she said. In addition, Lisa reaffirmed her certainty after Ed restated his own doubt about whether "digital versatile disk" needed to be capitalized. She said to him, *Yeah, it does*, a statement that suggests certainty in its conciseness and its lack of **low-value** modal elements like *probably* or *maybe* [19, p. 75]. That is, Lisa did not hedge her response by saying, *Yeah, it probably does* or *Yeah, maybe it does*. By conveying her advice with so much certainty, Lisa had essentially ensured that Ed would not question it and that he would follow the inappropriate path she had laid out.

Similarly, David gave inappropriate advice about expletive sentences. Like Lisa, he made a blanket statement, saying that writers should avoid expletive sentences altogether. He went one step further, though, misleading Ken about beginning a sentence with *there*:

David: **Anytime** you use "there is," "there are," "there have been," "there will be," "there can be"—it weakens—it weakens—**many times people think "there" can be the subject of a sentence, and it can't be.**

Ken: *Okay.*

Not only did David give inappropriate advice, advice that he conveyed with certainty by using *anytime*, a high-value modal element, he also ended up making an incorrect assertion about expletive sentences [19, p. 75]. Technical writers would likely take a far more nuanced approach to expletive sentences. They

would allow that less common sentence structures, such as expletive sentences, can be appropriate, depending on one's purpose and the flow of given and new information in nearby sentences. In *Revising Professional Writing*, for example, Riley et al. conclude their chapter on "Revising for Conciseness" by acknowledging that expletive sentences may help convey the tone the writer intends, and, therefore, "not all . . . expletive openings . . . can, or should, be eliminated" [20, p. 71].

## MAKING INFORMATIVE WRITING INTO PERSUASIVE WRITING

A lack of familiarity with informative genres contributed to the non-expert tutors giving other inappropriate advice. For example, Doug asked Mike if he had taken their university's course in freshman composition, a course in which students learn how to write a persuasive academic essay. Before getting an answer to his question, Doug applied the requirements of persuasive academic essays to Mike's project evaluation report, suggesting that Mike's introduction needed a "thesis" statement:

Doug: *I don't know if you've had Comp? Write, like a thesis for what you were trying to do. You know, kind of a topic for the whole thing.*

Because Doug knew academic writing (especially for his university's freshman composition course), he conveyed that Mike's purpose should be to persuade his audience and to begin that persuasion with an argumentative claim. That is, Doug did not convey that Mike's purpose should have been to inform his audience of his findings.

The same move toward persuasive writing can be seen in the excerpt from David and Ken's interaction below. Prior to this excerpted talk, Ken stated that the purpose of his paper was to write an extended definition of groupware. That is, he suggested to David that his intent was to inform, not to persuade. Even after Ken explained his intent, though, David continued to discuss Ken's paper in terms of persuasive writing:

Ken: *So when I write my papers—what I try to do is when—is I always try and—Okay. Group—exploring groupware. What is it? Who is its major players? And what are the current issues the major players are wrestling with to compete in this market? . . .*

David: *Yeah. That's fine. That's a good thesis.*  
The tutor's response to the student's explanation of his writing process showed that he was still assessing the writing in terms of persuasive writing, such as the academic essay writing often done in freshman composition courses and literature courses.

Of course, Doug and David may have had a broader sense of the word "thesis" in mind—one that included informative sentences that summarized as well as

argumentative claims. Statements that these two tutors made throughout their interactions, however, indicate that they believed that writing should persuade. For example, well into his interaction with Mike, Doug expressed a belief that writing should demonstrate certainty and avoid signals of uncertainty. He told Mike that “it doesn’t matter who you’re writing for, you always want to sound like . . . you’re very definite in what you’re saying.” What Doug didn’t seem to understand is that engineers would rather inform their readers honestly than make statements with insincere signals of certainty. Similarly, in warning Ken to avoid first-person pronouns, David said that the point of view “weakens your argument.” Only Lisa, the non-expert tutor who was giving feedback on instructions, noted that a thesis statement was unnecessary. Responding to the concluding statement of Ed’s instructions, Lisa said, “Most of your paper is just instructions . . . So I’m not really worried about your conclusion. It’s not like you have a thesis, you know?” Lisa’s comment suggests that non-expert tutors apply a persuasive writing model by default, but it also suggests that they can shift from this default model if the differences between it and the paper they are reading saliently differ. Because the genre of instructions signals its difference from academic essays and research papers quite clearly through its document design, Lisa realized that her default model likely didn’t apply to what she was reading.

### DEMANDING A FORMAL TONE

The non-expert tutors also failed to recognize that different genres of writing and different purposes in writing are served by different tones—both formal and informal and tones in between. Rather than acknowledging that informal language can serve a writer’s purpose and meet an audience’s needs, tutors who lacked expertise in engineering writing indicated that a formal tone is, no matter what, best. Their demand for formality likely stemmed from their familiarity with the typically formal tone of academic research papers and academic essays. A good example of this tendency can be seen below, another time in which David told Ken to avoid first-person pronouns and, in response to Ken’s effort to revise the sentence, implied a rather easy solution to the problem he perceived: simply delete the entire sentence:

David: *You could say something like—Uh—*

Ken: *“Since groupware is now defined”—um. Um. “I will go on”—“I will now”—“now”—uh. You don’t want that in there. “I will d”—“I will be doing”—*

David: *Yeah. That’s right. In your—I don’t think you need to have any of this. It’s—I don’t think you need to have any of this at all.*

Ken: *Okay.*

This solution suggests that David was unfamiliar with meta-discourse sentences like the one that Ken was

trying to formulate (*Since groupware is now defined, I will go on . . .*)

Admittedly, there are valid reasons for carefully considering any use of *I* and *we*. Doumont, for example, writes, “The first-person taboo, like most myths, is not totally unfounded” since it may “irritate readers looking for research outcomes, not autobiographies” [15, p. 15]. In other words, writers sometimes have good reason to eschew first-person pronouns and to use passive voice. However, David’s advice did not acknowledge that first-person pronouns are often useful in engineering writing. They are often used in meta-discourse sentences, like the kind found in the scope section of reports (e.g., *In the following section, I examine . . .*): Doumont notes that first person is also useful for focusing on the author’s role as researcher (e.g., *The model we built required . . .*) [21]. Applying the model of the academic research paper and failing to recognize that using first-person pronouns might set an appropriate tone, David undervalued how Ken had written this sentence, and, consequently, he gave inappropriate advice.

Similarly, Lisa implied that writing with a high level of formality is the best course of action:

Lisa: *One thing that I did notice right away was right here: “If you haven’t”—It’s not a thing that you have to do, but I recommend to anyone that comes and sees me that when you’re writing a formal paper, not to use contractions. ‘Cause it’s just not formal.*

Ed: *Yeah.*

Lisa: *So I would write “have not.”*

Lisa sent the message that formality is best first by pointing out that the contraction *haven’t* was something that she noticed “right away.” In saying this, she suggested that contractions stand out and implied that they detract from the rest of the document. Obviously, no technical writer would want to leave some glaring “error” unchanged. Lisa’s second method of conveying the message that Ed should take the contractions out of his writing was by implying that she considered Ed’s writing (and, likely, all writing done for college classes) to be formal and by stating with certainty that contractions do not convey formality (*‘Cause it’s just not formal*). With these two strategies, Lisa drove home advice that was quite inappropriate for Ed’s engineering writing.

In sum, these tutors’ lack of expertise in engineering writing led them to abandon good tutoring practices and focus their attention on the surface features of students’ writing, probably because they could discuss little else in the writing with a sense of confidence. In other words, tutors’ focus on surface features likely arose out of an inability to deal with the specific purposes and conventions of engineering writing and out of embarrassment from students

having more expertise in engineering writing than they did. It should be noted that focusing primarily on surface features is considered poor tutoring practice in interactions that revolve around **any** type of writing, not just engineering writing. This analysis has indicated, however, that non-expert tutors' focus on surface features when working on engineering writing may be doubly problematic because tutors may make suggestions that are inappropriate for engineering writing.

This analysis has also indicated that these tutors' suggestions also arose out of their automatic and uncritical application of conventions for academic essay and research paper writing, such as using a formal tone and writing to persuade, to engineering writing genres. As Hubbuch writes, "The attitude that there is only one way to write effectively, whether it is adopted by a literature major or a biology major or a communications major, simply ignores the pluralism of the world of existing texts; it points up an ignorance that a person who works every day with writing cannot afford to be guilty of" [8, p. 25].

It is possible that some engineering students might recognize inappropriate and incorrect feedback for what it is. If engineering students recognize tutors' feedback as unreliable, another problem emerges: engineering students might avoid writing tutors—all of them—in the future. Of course, if avoiding tutoring interactions would keep engineering students from receiving only worthless feedback, avoiding tutoring interactions would be justified. However, eschewing all tutoring about writing might also keep engineering students from obtaining feedback from competent and confident tutors. In other words, by making decisions based on one unsatisfactory interaction and by classifying all tutors together, engineering students could miss out on opportunities to enhance their writing process and their documents, as the analysis of Kathy and Tony's interaction suggests.

### EXPERT TUTOR WORKING WITH AN ENGINEERING STUDENT

All hope is not lost. Kathy, the tutor in this study who **was** an expert in engineering writing, demonstrated that a tutor with expertise can support a student's own decision making while providing appropriate and specific advice. Analysis of Kathy's interaction with Tony, an engineering student who was working on a set of instructions (how to copy music from a CD), suggests that Kathy's expertise in engineering writing—in this case, the genre of instructions—made her a far more effective tutor than the others, who lacked that expertise, because she knew how:

- (1) to treat her tutee's writing seriously, reading his instructions as a real document rather than as an academic exercise or assignment

- (2) to modulate the force of her suggestions in relation to the necessity of following them with what **negative politeness strategies** [14, p. 129]
- (3) to show approval, convey solidarity, and create a sense of good will with **positive politeness strategies** [14, p. 101].

Employing these tutoring methods and politeness strategies, Kathy improved her tutee's writing in the short term and facilitated his development as an engineering writer in the long term more so than the non-expert tutors did for their tutees.

### SEEING THE WRITING AS A REAL WORLD DOCUMENT

As noted before, Kathy's experience in engineering writing means that she understood that purpose and audience are important to any piece of writing and are especially important to consider when creating a set of instructions. Unlike the other tutors, Kathy focused on purpose and audience after she had asked Tony about the writing as a class assignment. In other words, once Kathy knew the requirements of the assignment, she moved on to engage the writing as a real world document, rather than an exercise in fulfilling a class requirement. Her outlook was apparent in the questions she asked:

*Kathy: What other advice—or what are your other goals besides, uh, having an introduction and background and giving clear instructions? What do you want your reader to, to take away from this? Anything?*

*Tony: Um, that even though it looks like it's complicated, it really isn't all that complicated.*

Once Kathy had established that the instructions require an introduction and that they must be maximally clear, she asked Tony a question that got him to think about his goal in writing the instructions. Her question conveys that Tony's writing is more than an assignment: it is a speech act that can affect the real world by helping someone learn how to do something. It is likely that Kathy's familiarity with engineering writing had given her a broader understanding of the work writing can do (beyond persuading a reader of the validity of a thesis statement).

Kathy's sophisticated understanding of purpose and audience in engineering writing can be seen when she encouraged Tony to use the informal tone in the text boxes that he used in the margins of his instructions. Her positive comments reinforced a lesson Tony had learned in his writing class: language, including tone, should fit the function of the writing: *It is wonderful that your more informal language—and you're establishing a relationship with ME by being empathetic is exactly what ought to be in these gray boxes—*

Kathy's comment here contrasts sharply with how the non-expert tutors (like David and Lisa) discouraged writing in anything other than a formal tone. Kathy's comments suggest how providing writing tutors with even a basic understanding of the importance of purpose and audience can, in turn, benefit engineering students who come to them for help.

Kathy's background in engineering writing means also that she understood the importance of visual, as well as verbal, language. Kathy engaged Tony's set of instructions holistically, looking at its global and page level design, the placement of its text boxes and graphics, and its color:

Kathy: *And looking at the three-page document, it seems clear to me that the first page is where you have, uh, introduced the topic and given me some background. And I even see that the bottom of the first page is a transition, um, that I like. (Laughs). "Let's make music." And then, a bulleted list of what I need to have with me. And then, um, an interesting technique in a shaded box that reassures me. And then I'm get some actual instructions. Looks as if they start with imperative verbs, which is wonderful. And then it's going to be wrapped up. Okay. As far as language and understandability, I'm actually going to read these sections aloud. 'Kay?*

Tony: *Okay*

Besides helping Tony convey the visual language of the document better, Kathy's focus on page layout and graphic elements underscored the idea that all textual elements convey meaning. That is to say, readers' interpretations are influenced by elements other than the words on the page, including bulleted lists and typefaces.

The non-expert tutors mainly ignored the visual elements of students' texts. One of them actually seemed to be surprised to find visual elements at all, exclaiming, "Oooh, you have pictures!" As noted before, the non-experts were accustomed to essays and research papers, genres that rarely incorporate visual elements [12].

In short, the engineering students who worked with the non-expert tutors missed out on a chance to learn how to read the visual elements of their documents, as opposed to the textual elements. Because he worked with Kathy, who understood how visual elements contribute meaning, Tony received richer feedback on his document.

### MITIGATING THE FORCE OF SUGGESTIONS WITH NEGATIVE POLITENESS STRATEGIES

One of the most important differences between Kathy's methods of tutoring and the methods of the other three tutors was Kathy's ability to soften or

strengthen the force of her suggestions—in other words, the certainty with which she conveyed her suggestions, depending on the degree to which following the suggestions was necessary. Because Kathy knew which conventions of engineering writing must be followed and which ones were dependent on purpose and audience, she could signal the extent of the negative consequences Tony would incur if he did not follow her advice. Kathy modulated the force of her comments by employing a variety of NEGATIVE POLITENESS STRATEGIES, words and phrases that minimize impositions like suggestions [14].

When Kathy wanted to indicate with certainty that Tony should heed her advice, she used forceful suggestions, as shown below. Kathy knew that visual elements like figures are numbered, labeled, and referred to in the text of engineering writing, so when she saw that Tony had not followed these conventions in his instructions, she issued a directive:

Kathy: *And take the time to label it "Figure 6."*

*Then that's the way that you should refer to it in the text. And that would be the same for all these, instead of saying "at right."*

Because figures are typically numbered and labeled in engineering writing, Kathy used a directive to indicate certainty in her suggestion (*take the time to label it Figure 6*). In doing this, she stated her suggestion in the most forceful way possible, indicating that Tony should, indeed, follow her advice. In addition, she used the high-value modal *should* to tell Tony to refer to his visual element in the text of his instructions (*Then that's the way that you should refer to it in the text*). Although this assertion is not as forceful as a directive, it conveys a strong sense of obligation.

Kathy's expertise in engineering writing gave her the ability to modulate her suggestions based on whether they were made to guide Tony toward adhering to conventions that writers are obliged to follow or among conventions that are dependent on genre or purpose. Thus, not all of Kathy's suggestions were stated as forcefully as those above. For example, Kathy suggests to Tony that he remove explanations from the steps of his instructions so that each step begins with a verb: ***I'm going to suggest that when you get into the clipped, clear—every sentence starts with the verb, uh, directions—that you leave behind these side thoughts.***

To convey that Tony was to some extent obligated to adhere to the convention of separating the step itself from any explanation of its results, Kathy used an ILLOCUTIONARY FORCE INDICATING DEVICE (IFID): *I'm going to suggest*. According to Searle, IFIDs lay bare the speaker's intended illocutionary force for his or her speech act [22], [23]. In this case, Kathy made clear that she was making a suggestion, though a fairly forceful one, rather than stating a mandate. Her suggestion, then, while conveying some sense of

obligation, also allowed for some amount of decision making on the part of the tutee.

Kathy used IFID's and other negative politeness strategies to mitigate the force of her suggestions even further when she wanted to convey to Tony that he was under no or little obligation to follow her suggestions. Below, for example, Kathy used an IFID to state explicitly that she was asking Tony only to "consider" her suggestion, not necessarily to follow it:

*Kathy: I'll ask you to consider, but not make a change just because I bring it up—that the word "its" is quite a ways from "EAC." And if you repeated apostrophe s, "EAC's error detection and correction algorithms," it might make it clear to me, the uninitiated.*

Because she used the verb *consider*, Kathy's IFID mitigates its suggestion more than the IFID she used earlier to suggest that Tony make the verbs of his instructions particularly salient. Here her IFID marks her suggestion as a possibility, a decision that Tony ultimately controls. In addition, Kathy explicitly stated that Tony did not need to make a change in his writing simply because Kathy had mentioned the change as a possibility. In stating this, Kathy circumvented that eternal problem of students assuming that following any suggestion that a tutor or other authority posits will necessarily constitute the best course of action.

Besides explicitly stating that Tony need not necessarily follow her suggestion, Kathy used negative politeness strategies that conveyed her suggestion with a sense of possibility rather than certainty. First, she used an *if*-clause hedge to acknowledge that Tony may not choose to follow her suggestion to use another apostrophe [14, p. 162]: *if you repeated apostrophes*. In addition, she used *might* (*it might make it clear to me*). *Might* is a low-value modal element, indicating a speaker's low degree of certainty in the content of what he or she has said. Kathy used *might* to indicate that the intended outcome of her suggestion—increasing the clarity of the sentence by using an apostrophe—is uncertain, just as whether Tony will choose to follow her suggestion in the first place is uncertain.

In short, Kathy used certainty when certainty was needed; she did not use it each time she made a suggestion. Thus, her suggestions were far more informative than those of the non-expert tutors because they revealed the degree to which the conventions and purposes of engineering writing mandate them.

## COMPLIMENTING SPECIFIC FEATURES OF WRITING AND SPECIFIC IDEAS

When one person compliments another, the speaker indicates approval for the hearer's accomplishments or goods by demonstrating that he or she has noticed

and valued some aspect of the hearer's experience. That people can accomplish such outcomes for social relationships with compliments put compliments into the category of POSITIVE POLITENESS STRATEGIES, strategies that help people create rapport [14].

Prior research on compliments, including Brown and Levinson's discussion of noticing, fails to distinguish between general compliments and specific compliments [14]. In interactions about writing, this distinction becomes important because specific compliments demonstrate noticing to a greater extent than general ones do. For example, a tutor who says, "This is good" after reading a paper has not demonstrated noticing to the same extent as a tutor who says, "I think your use of both metric and English measurement is good." The tutor who utters the latter compliment signals close attention to particular features of the writing.

In addition, when tutors compliment students on specific features of their writing, they reinforce good writing practices and, therefore, improve the document at hand and facilitate students' development into effective writers. For example, Kathy complimented Tony on his use of imperative verbs: *I'll be darned if you didn't start every one with a, um, imperative verb, which is great*. Kathy was able to compliment Tony on the imperative mood of his steps because she was familiar with the needs of users of instructions. Her compliment reinforced good practice in writing instructions—making the action of each step as salient as possible.

Kathy's familiarity with engineering writing allowed her not only to compliment specific textual features but also to point out times when Tony expressed an idea that demonstrated that he understood a principle of engineering writing. For example, after Tony said that he would define some jargon words in the first text box of his instructions, Kathy explained why her praise was deserved:

*Kathy: The reason is, this is fun and frivolous copy. But if you leave this in your first gray box, you probably won't get as much readership on the rest of the gray boxes. So, you're absolutely right. That's a terrific idea. Use this first gray box to index what your reader is going to be looking at and what it means.*

*Tony: Okay. Yeah.*

*Kathy: Whew! Good idea!*

With this compliment, Kathy pointed out that readers base their decisions of whether or not to read repeated textual items like text boxes on whether or not those text items have been useful previously. Her compliment, then, did much more than supply praise; it reinforced a concept—the importance of organizing content to maximize and maintain the interest of the reader.

In contrast, non-expert tutors did not pay many specific compliments. One of their more specific compliments was this one, from Lisa: *You have a lot of detail. That's always good in writing. You can never have too much of that.* Lisa's compliment picked out a particular feature of Ed's writing, detail, for attention and approval, but this compliment could have been more specific. Lisa could have, for instance, specified which details were effective or why detail is effective.

David, another non-expert tutor, offered a few specific compliments, but when he did, his compliments referred to surface features of Ken's writing, like punctuation: *Excellent use of a semicolon.* David's specific compliment is a reminder that compliments are, in the end, evaluations, and that in order to evaluate some particular feature of a student's writing, tutors need to know how that feature is conventionally or properly used. David complimented Ken on his use of semicolons because the correct use of semicolons is part of an aspect of writing, punctuation rules, that David knew well. In contrast, David could not compliment Ken on how well his writing adhered to the conventions of writing technical definitions because David lacked familiarity with that engineering writing genre.

Usually, though, non-expert tutors' compliments were general ones that occurred at the end of interactions. They functioned as interaction closings, a means by which to send students off on a positive note (e.g., *You have good flow and Like with the rest of it, it's clear.*) Although such compliments foster a sense of goodwill, they do not, like Kathy's compliments, reinforce a specific lesson in effective engineering writing.

This analysis of compliments, then, suggests that as tutors gain familiarity with the conventions and purposes of engineering writing, they will be more likely to offer related and specific compliments and, consequently, to reinforce good engineering writing practices.

### USING INCLUSIVE PRONOUNS

Kathy employed another positive politeness strategy that the non-expert tutors failed to take advantage of—INCLUSION—which means indicating that the speaker and the hearer are jointly carrying out the activity. About this strategy, Brown and Levinson write that “By using an inclusive ‘we’ form, when [the speaker] really means ‘you’ . . . he can call upon the cooperative assumptions and thereby redress FTA's [face-threatening acts],” such as suggestions [14, p. 127]. Kathy used this strategy to build solidarity when, near the end of the interaction, she summarized her most important advice, outlining changes that Tony could or should make on his own: *So we're going to look remember figure numbers, and we're going to look at, um, at the graphics.* Kathy sent Tony off to revise his instructions on his own. Even so, she used

the inclusive pronoun *we*. Kathy would not be with Tony when he made further changes to his document, but by using *we*, she conveyed solidarity with Tony in his work to revise and improve his instructions.

Compare Kathy's use of inclusive *we* at the end of her interaction with Tony to Doug's use of exclusive *us* at the end of his interaction with Mike:

Doug: *I always say, you know, like, with—with any academic writing whether it's you know—you know—humanities or science or whatever—it's like you know—it's not a mystery novel—just, you know, tell us what you're going to do and it—it makes a whole lot more sense.*

Doug's *us* pronoun referred to Doug himself and to Mike's readers, but it excluded Mike. In using this exclusive pronoun to point out that Mike alone was responsible for making the intent of his writing explicit, Doug set Mike apart from his readers and from himself. In doing this, Doug missed an opportunity to demonstrate solidarity and cooperation.

### USING HUMOR

Kathy also used the positive politeness strategy of humor, or joking, to create a sense of goodwill and to lighten the mood of the interaction. According to Brown and Levinson, joking is “a basic positive-politeness technique, for putting [the hearer] ‘at ease’” [14, p. 124]. For example, using self-deprecating humor, Kathy laughingly tells Tony that he had more efficiently stated what she has been trying to articulate:

Kathy: *Okay. Then the thing I would ask you to consider is let me know earlier that—I'm going to see this and, you know, I—maybe at the end of this uh, paragraph when you get to the “finish,” do something different.*

Tony: *Okay.*

Kathy: *I'm just looking for a little earlier heads up because I might not know when I get there.*

Tony: *Okay. Something will tell you to stop it on the screen.*

Kathy: *That's—(Laughing) You said in one sentence what I was saying.*

Kathy suggested to Tony that he could add an explanatory note that tells the user of the instructions what he or she will see upon completing the steps. In response to Kathy's suggestion, Tony articulated possible wording for such an explanatory note: *Something will tell you to stop it on the screen.* In response to Tony's quick thinking, Kathy self-deprecatingly compared her own efforts at conveying what needs to be stated in the explanatory note to what Tony has just stated: *You said in one sentence what I was saying.* Through humor, Kathy

showed approval for Tony's ideas and, in turn, helped to create a sense of goodwill.

Kathy's self-deprecation in comparing Tony's articulation of the explanatory note to her own is especially interesting because her comment conveyed admiration for Tony's writing ability, as opposed to his subject matter expertise. Thus, Kathy's humor not only improved the mood of the interaction, but it also promoted Tony's confidence in his capabilities as an engineering writer. It is likely that Kathy felt comfortable in bolstering Tony's sense of himself as a writer (at her own expense) because she was secure in her own competency in engineering writing.

Besides giving her enough confidence in her own expertise to use self-deprecating humor, Kathy's work experience in engineering writing enabled her to relay anecdotes related to the task at hand:

*Kathy: (Laughing). I tell you—I'm going to tell you a funny story. The first tech writing job I had was at Honeywell, and, uh, they were doing the F-16 computers—uh, writing manuals on. And the word on the street was you could always tell a rookie writer—tech writer because the manual would have twenty pages of copy on how to unpack the box: "Place the box on low, solid surface, being careful not to strain your back." Then when the manual got to theory of operation, where you had to talk about the whole, the—you know, the operating system and all this? It'd be like three paragraphs. (Laughing). "Oh yeah, I kind of skipped over that but I really got the person to unpack this box without ..."* So.

*Tony: (Laughs).*

Kathy's story about the misguided priorities of novice technical writers helped to lighten the mood of the interaction and create a sense of goodwill. It also illustrates the importance of prioritizing content in order to manage one's time and effort effectively. In addition, this particular story might have comforted Tony as he worked on his own engineering writing, in that it reassured him that all rookie technical writers struggle to create effective documents.

Finally, there is yet another way to analyze Kathy's story. It's possible to see the anecdote not just as a humor strategy but also as an example of a strategy Brown and Levinson call "giving gifts," such as intangible gifts of admiration and understanding [14, p. 129]. Kathy's story can be seen as a gift in the sense that it conveyed to Tony that she admired his writing enough to share with him her own experiences as a writer.

In short, Kathy's expertise allowed her to assess the visual elements of Tony's document, as well as the verbal language. It also allowed her to moderate the force of her suggestions, give specific compliments, and generate solidarity and goodwill through inclusive

pronouns and humor. Her expertise in engineering writing, then, broadened the scope of her comments and enriched her use of politeness strategies and, consequently, enhanced the effectiveness of her tutoring.

## CONCLUSION

This study extends previous research that examined how tutors' subject matter expertise affects their interactions about writing, investigating how the extent of tutors' familiarity with engineering writing influences the extent to which their tutoring is effective.

All of the tutors in this study lacked expertise in the subject matter of students' writing, expertise that might have led them to assert control over students' writing and, consequently, to counter the purpose of the interaction [6], [8], [9]. But the success of a tutoring interaction about engineering writing depends upon more than the extent of tutors' expertise in subject matter and the extent of tutors' control over an interaction because of that expertise. It also depends on the extent of tutors' expertise in engineering writing.

As noted before, the tutors in Wong's study illustrate the effects of both subject matter expertise and expertise in engineering writing. Wong found that engineer tutors failed to recognize and solicit students' expertise [10]. Wong's finding, at first glance, seems to conflict with this study's findings regarding the positive effects of Kathy's expertise in engineering writing because it suggests that Wong's tutors—experts in engineering writing and supposedly non-experts in the subject matter of their tutees' writing—behaved like subject matter experts rather than like engineering writing experts. It is important to note, though, that Wong's tutors were, in a sense, subject matter experts. Although they were not experts in the specific subject matter of their tutees' papers, they were, as engineers, experts in the discipline of engineering. Thus, they did have some measure of subject matter expertise, and that expertise affected the extent to which they solicited and recognized students' expertise. In addition, Wong found that the engineer tutors used hedges like *maybe* to mitigate their statements [10]. This finding suggests that the engineers at least signaled the force of their comments, a behavior very much in keeping with Kathy's methods.

This study found that the three tutors who lacked expertise in engineering writing disregarded good tutoring practice by focusing on surface features of writing like punctuation and capitalization. In addition, when focusing on surface features, they often misapplied rules of academic essay and research paper writing, causing them to give advice that was inappropriate for engineering writing. These tutors

also led engineering students astray by encouraging them to make their informative writing fit the mold of persuasive essays and by insisting upon a formal tone, no matter the document's intended audience. To make matters worse, these tutors often stated their faulty advice with markers of certainty, forcefully leading their tutees to follow their advice.

In contrast, Kathy engaged her tutee and his writing in a substantially different way. She focused her comments on the purpose and audience of the writing, as opposed to its surface features. She also used a variety of politeness strategies effectively. In the realm of negative politeness, she used strategies like *if*-clause hedges and IFID's to modulate the force of her suggestions, effectively conveying the necessity of complying. In the realm of positive politeness, she showed approval with compliments, conveyed solidarity with inclusive pronouns, and created a sense of goodwill with humor. Kathy's expertise in engineering writing made all of these politeness strategies available to her.

If all tutors who work with engineering students had the same level of expertise and experience as Kathy, more tutors would be delivering more effective tutoring interactions to engineering students. After all, in her 20 years as a technical writer, Kathy had read and edited thousands of technical documents. The conventions of those texts had become second nature to her, enabling her to mitigate or strengthen the force of her suggestions depending on the degree to which complying with common practice was necessary. In addition, Kathy had worked with hundreds of subject matter experts, so it is likely that she had unconsciously absorbed effective ways of offering suggestions and criticism even while fostering a sense of goodwill.

It is disheartening to think that it takes 20 years of working with engineering documents and with subject matter experts to achieve a tutoring interaction like the one Kathy engaged in with Tony. I believe, however, that there is reason to be hopeful. Like Scanlon, who wrote nearly 20 years ago about the importance of acquainting writing tutors with "theories pertinent to writing in different disciplines [than English]," I believe that tutors who are introduced to some of the common purposes and conventions of engineering writing can provide the kind of help to engineering students that Kathy provided to Tony [24, p. 40]. The main reason that I am hopeful is that all of the strategies that Kathy used in her interaction with Tony—with the exception of her humorous anecdote about technical writers—are available to tutors who have less expertise in engineering writing.

At a minimum, tutors could learn to differentiate between engineering writing that is intended to inform and engineering writing that is intended

to persuade, a distinction that would increase the effectiveness of their feedback by grounding it in the purpose of the document. They could read informative genres like instructions and process descriptions and compare these to recommendation reports. Such analysis would help them to see that all writing—even documents of the same genre—must be tailored to audiences who will have different purposes, expectations, and knowledge bases.

With a little more time and effort, tutors could learn some of the conventions of engineering writing that arise out of its audience- and purpose-driven nature. For example, tutors could learn conventions of using numerals, imperative mood, or active voice. Training tutors in these and a few other editing matters would likely go a long way in helping them to help engineering students. After all, many tutors are already interested and proficient in grammar and punctuation rules.

And with even more time and effort, tutors could receive training in effective methods for incorporating visual elements like tables and diagrams into engineering texts. To begin, tutors could learn about how to use numbers, captions, and labels and how to design readable tables and diagrams. In more advanced training, they could learn about how to use different types of charts and graphs effectively and how to design them so that they are easily comprehensible. Finally, perhaps the best way to help tutors understand engineering writing is by asking them to write a set of instructions for a simple procedure or a technical description of a simple mechanism. In doing some writing themselves, tutors would better understand the challenges that engineering students face as they work to create a text that accomplishes its purpose and adheres to its audience's expectations.

As it stands, it seems that writing tutors who lack engineering writing expertise as well as subject matter expertise can, right now, serve only as novice readers. While filling the role of a completely uninitiated reader has some value (as Hubbuch points out [8]), its pedagogical impact pales in comparison to what could materialize if tutors understood conventions of engineering writing. In addition, this study suggests that when tutors lack expertise in engineering writing, they not only fail to help, but they also fail to uphold the dictum typically expressed in medicine: first do no harm. That is, writing tutors who lack familiarity with engineering writing may hinder students' development into writers of good engineering documents.

As alluded to before, this study constitutes a preliminary inquiry into the effects of expertise in engineering writing on the topics of the comments tutors give about students' writing, as well as on the politeness strategies with which those comments

are given. I plan to gather more discourse data and juxtapose the findings of this research against new findings from quantitative as well as qualitative analysis. Through more study, I hope to suggest in more detail ways that writing tutors can create more effective interactions with engineering students and other technical writers.

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