COHERENCE IN WORKPLACE INSTANT MESSAGES

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ABSTRACT

In our case study, we examined the instant messaging (IM) workplace discourse of a pair of expert IM users. We found that the participants maintained discourse cohesion and thus coherence via short, rapidly sent transmissions that created uninterrupted transmission sequences. Such uninterrupted transmission sequences allowed each participant to maintain the floor. Also, the participants used topicalizations and performative verbs to maintain coherence. We also found that the participants' use of short transmissions may have ambiguated their enactment of their institutional roles and the rights afforded to them by those roles.

When many of us think of instant messaging (IM), we may first think of teenagers and young adults using the text-based communication tool to chat, perhaps while they do homework or even as they listen to lectures during classes. Indeed, much of the research that examines IM's use has focused on the ways in which teenagers and young adults use IM, mainly because in the 1990s young adults and teenagers quickly adopted the tool [1, 2]. Thus, many studies of IM tend to describe teenagers' and young adults' social interactions via IM [3-5]. But IM is now a mainstream means of communication, and not just for social purposes. More and more, people use IM in their workplaces to carry out a variety of tasks, including but not limited to socializing [6].

Managers and employees who just a few years ago used e-mail as their only means of computer-mediated communication (CMC) now use IM regularly. In fact, a recent study showed that 26% of people who use IM for social communication also use it at work [7]. This percentage, it appears, will only continue to grow as people in the workforce grow more comfortable with it and as their work in teams and groups makes use of IM necessary rather than optional. Indeed, according to research analyst David Mario Smith, 95% of workers will use IM by 2013 [8]. That is to say, many people will soon be using this communication medium, which is often characterized as a hybrid of spoken and written discourse [9]. Even so, workplace IM discourse has not received its share of attention in the professional and technical communication research.

This situation is unfortunate, given that professional and technical communication researchers, particularly researchers interested in discourse analysis of CMC such as IM, could describe IM discourse and, potentially, develop methods for improving people's use of it and satisfaction with the medium. In particular, closer inspection of workplace IM can lay the groundwork for techniques that help IM users mitigate a common problem in IM discourse: a breakdown in cohesion and thus coherence [10]. The term COHESION refers to the linguistic linkages that generate discourse COHERENCE, a term that refers to "unified" and "meaningful" discourse [11, p. 14]. When an IM user's responses do not cohere to the relevant utterances from his or her interlocutor, discourse coherence can degrade. Closer inspection of workplace IM could, potentially, help IM users sustain and improve the coherence of their workplace IM discourse. In the process, analysis of workplace IM might also help IM users interpret the institutional roles—and the power associated with those roles—that their interlocutors construct and the ways that the IM medium mediates their construction of those roles. Such analysis is important and interesting given that some strategies that create coherence may ambiguate participants' institutional power relationship.

In this article, we use a case study of an office Director (the superior) and an office Employee (the subordinate), expert users of IM in general and experts in using IM to communicate with each other. Our case study participants were both early adopters of the IM medium, using it regularly at work over 8 years. In addition, our participants were experts at using IM to communicate with each other. They had used IM to communicate with each other for over 6 years. We analyze their IM interactions to discuss a challenge to using IM for workplace communication: maintaining coherence during IM interactions. Specifically, we analyze strategies that this pair of expert IM users used to create and maintain coherence.

DEFINITION OF IM DISCOURSE TERMS

Throughout our discussion of challenges to using IM for workplace communication, we use as an example a case of two people, an office Director and an

Employee, who routinely used IM to communicate for work. Although we believe this case is interesting and worthy of study in its own right, we use it here to analyze and discuss exchanges like that in excerpt 1 to discuss how our case study IM users, with the exception of occasional breakdowns in cohesion and coherence that we discuss, maintained coherence in their workplace IM interactions:

Excerpt 1:

1	9:02:25	Director:	u have the camra?
2	9:02:33	Director:	be sure to bring back for calss. . by wed
3	9:02:35	Employee:	yeah i am getting it tomorrow
4	9:02:39	Director:	k. . great
5	9:02:47	Employee:	i forgot abt today, i told mike I will get it tomorrow
6	9:02:53	Director:	k.. kewl
7	9:03:01	Director:	thanks for fill-in

Excerpt 1 is typical of the exchanges in our case study (described in more detail below) and is useful for defining and exemplifying some of the terms we will use throughout this article. In excerpt 1, lines 1 and 2 each constitute one IM TRANSMISSION. A transmission is one line from one participant that ends at the point the participant presses "enter" and sends the transmission to his or her interlocutor. Line 1 constitutes one transmission (from the Director of the office). Line 2 constitutes another transmission. Together, lines 1 and 2 form one TRANSMISSION SEQUENCE. A transmission sequence is a group of related transmissions strung together by one participant without intervening transmissions from another participant in the exchange. The counterpart to a transmission sequence in a face-to-face conversation is a TURN or TURN-AT-TALK, in which one person contributes, then either selects or makes way for another participant to contribute to the interaction. We discuss transmission sequences and turns more later on.

Excerpt 1's lines 1–7 constitute one INTERACTION, a set of participants' transmissions (and their sequences of transmissions) that occurred between an initiation of contact between two IM participants and that contact's termination. In short, an interaction is an entire conversation between two IM users. In excerpt 1, the time-stamped transmissions reveal that the interaction lasted just 36 seconds. Using these definitions and our case, we hope to help professional and technical communication researchers who are interested in workplace IM investigate how people create and maintain coherent interactions and negotiate their relationships in their workplace IM interactions.

RESEARCH ON SOCIAL AND WORKPLACE IM

Researchers interested in CMC have paid most attention to social uses of IM [12], but just recently more researchers have examined how people use IM at work. In fact, a recent issue of *IEEE Transactions on Professional Communication*

contains a section devoted to workplace IM. Two studies in this issue [13, 14], in addition to research published in other journals, focus primarily on use of IM in relation to other communication tools, such as e-mail or phone [15, 16]. Other studies in the issue examine workers' perceptions of IM's usefulness and the effects of monitoring on workers' disclosures during IM interactions [17]. Far fewer studies have examined the kinds of discourse tasks that people on the job use to accomplish tasks via IM (e.g., scheduling an appointment), with the exception of Cho, Trier, and Kim's study of working relationships in a Korean organization [18]. Such research explains people's workplace communication practices and their perceptions of IM's suitability for different communicative tasks. Further discourse analysis of IM, for example, can elucidate how IM users maintain coherence in their interactions as they carry out those tasks and how they assert and construct roles that grant power. As noted before, some strategies that create coherence may ambiguate the power relationship that participants construct. That is, the IM medium may moderate how power is enacted and interpreted.

DESCRIPTION OF THE WORKPLACE IM CASE STUDY

The data for this case study consisted of the IM transcripts of the Director and the Employee, the two participants. Both worked in the media center of a technological university in the Midwest. The data also consisted of interviews with the participants. The Director managed the media center and was the superior of the Employee, who worked as a liaison between the university's community development office and the media center. The two had been working together since 2000 and had been communicating via IM since 2001 (over 6 years at the time of this study). In our interviews with them, which were carried out separately, both said that IM had become part of their daily interactions. Thus, the two were not only experienced IM users in general, but also they were experts in using IM with each other.

We collected 70 transcripts of the participants' interactions with each other. The interactions took place over 90 days in late 2006. Both participants used MSN Messenger, an IM client that automatically saves each day's log as an html file and stamps the time each transmission was sent. Both participants were typing from standard computer keyboards, mainly in their offices at work but occasionally at home. Tables 1 and 2 describe the corpus of transcripts that we analyzed. Table 1 shows the Director's and the Employee's volubility (i.e., the amount of discourse that they contributed). Prior research suggests that volubility is complex, but in some discourse contexts, power afforded from an institutional role affords the right to contribute more talk to the interaction [19].

Table 1 makes clear that the Director, who has more institutionally granted power via her superior role, did not contribute substantially more words to the IM interactions than the Employee did (a word defined as a single, typed unit of

Table 1. Case Study Participants' Contributions
to the IM Corpus

	Words-in-interactions	Percentage words in interactions	Transmissions-in-interactions	Percentage of transmission in interactions
Director	2452	55.1	462	50.9
Employee	1997	44.9	444	49.1
Total/Combined	4449	100	906	100

Table 2. Description of Participants' Transmissions
and Interactions

	Average words-per-transmission	Average transmissions-per-interaction	Average duration of interaction (minutes)
Director	5.30	—	—
Employee	4.49	—	—
Total/Combined	4.89	12.9	9.8

letters, including contractions like *gotcha*). That is, while the Director was more voluable, contributing about 20% more words than the Employee, the volubility in the interactions was balanced. The participants were also balanced in the number of transmissions per interaction that they contributed. In short, in relation to volubility, power differential did not have a strong effect.

Table 2 shows a slightly different view. The Director's transmissions were on average about 0.8 word (or 15%) longer than the Employee's, a finding more in keeping with the idea that the discourse participant with more institutional power can contribute more discourse to the interaction if doing so serves his or her purpose.

However, both participants averaged shorter transmissions than have been found in social IM [19]. That said, the most important differences between our case study and prior findings on social IM come from the relative lack of long transmissions in our participants' IM. Only 6 of 906 transmissions were longer than 20 words. In addition, our participants' interactions were far shorter in

duration than social IM interactions. Our participants' interactions average 9.8 minutes in duration compared to 23.7 minutes in Baron's study of social IM [20, p. 43]. This finding makes sense given that workplace IM likely displays participants' concern for efficiency more than the IM discourse of IM users interested in socializing and talk for its own sake.

This description of the Director's and the Employee's contributions to 70 interactions is meant to make clear the source of our excerpts but also to suggest that the institutional power difference manifested itself somewhat, but not strongly, in participants' volubility. (Of course, other factors, such as individual personalities, might have played a role in the volubility difference as well, but institutional power difference is a likely factor.) The potential effect of institutional power becomes important when analyzing participants' unmitigated directives, such as *Tell him he's got to go.* Such directives are face-threatening speech acts.

BREAKDOWN IN COHESION AND COHERENCE

Studies examining IM have determined that IM challenges discourse coherence—the participants' cohesive linking of one part to the other in a way that makes sense and produces a larger discourse [10, 19]. That is, IM may threaten discourse cohesion (micro-level connection) and, thus, coherence (global-level interconnectedness). Because IM is quasi-synchronous (nearly synchronous), IM users' transmissions may overlap, leading to breaks in transmission sequences relevant to each other. Even our expert IM users' discourse displayed occasional overlaps leading to breaks in cohesion.

In excerpt 2, in which the Director and the Employee discuss the upcoming purchase of a high-definition television (HDTV), miscommunication occurs because the adjacency of participants' transmissions is disrupted.

Excerpt 2:

1	1:19:10	Director:	have u seen them before?
2	1:19:16	Employee:	the issues is a lot of companies will come out
3	1:19:21	Employee:	liek the ones who made lcd monitors
4	1:19:32	Director:	[name].. we are bying within 2 wks
5	1:19:32	Employee:	problem is how to parse thru them
6	1:19:43	Director:	in 2 weeks. not much will change
7	1:19:53	Director:	shipping for free is a huge deal!

In line 1, the Director asks the Employee if he has seen a specific brand of television before. What follows this question, though, is not a response from the Employee to the Director's question. Rather, the Employee states an assertion that does not address the Director's question. The Employee asserts that he and the Director can expect to find that many new models of HDTVs will appear on the market (lines 2–3). In line 4, the Director addresses what the Employee has asserted in lines 2–3 about the wave of new models, but the Employee has not

seen her assertion when he continues to discuss the problem of sorting through the many HDTVs that will hit the market (line 5). That is, the Employee is still thinking about the problem of sorting through the many HDTV options even while the Director is reminding him that they will be purchasing the television within the next 2 weeks and that few new options will appear on the market in that time. Miscommunications like the one in excerpt 2 may add up throughout an extended interaction, and they may have a negative effect on coherence.

THE CONVERSATIONAL FLOOR IN WORKPLACE IM

Prior research on face-to-face communication has examined how people exchange the conversational "floor"—the right to speak. According to Edelsky [21] and Erickson and Schultz [22], the floor is co-constructed; participants ratify other participants' contributions. Thus, holding the floor is more than uttering or transmitting words (i.e., it is more than taking a turn), it is having one's contribution ratified by others via their attending to it. Researchers like Sacks, Schegloff, and Jefferson [23] long ago pointed out that in a process called TURN-TAKING, people contribute to a conversation and then make way (or select) the next contributor to the conversation, and for the most part, people engage in this process effortlessly. Sacks et al. stated 14 critical observations about turns-at-talk. The two that are most important for workplace IM interactions are these:

1. most often, one person speaks at a time; and
2. transitions between turns usually occur with no gap or overlap [23, pp. 700-701].

In other words, people do not talk over each other, and their contributions flow seamlessly one from the other. One person contributes, holding the conversational floor, and then the other participant contributes, taking and subsequently holding the floor for the duration of his or her turn. Face-to-face interactions facilitate smooth exchanges between participants because they provide visual and audio cues such as facial expression, eye contact, body language, and prosody, all signals of when one participant is stopping and when the other should begin [23].

These observations are particularly important to IM because IM may disrupt people's ability to contribute one person at a time and transition without overlap. IM's lack of simultaneous and reciprocal feedback, caused by lack of audio and visual cues and an inability to overlap contributions (as in face-to-face inter-actions), disrupts participants' contributions. Breakdowns in coherence can occur in IM because a participant can take a turn at talk without gaining the floor if the other participant is simultaneously taking a turn. (It is important to note, though, that unlike MSN, some IM clients attempt to alleviate this problem by allowing IM users to see what their interlocutors are typing, keystroke for keystroke.)

As Herring points out, in IM participants' transmissions are posted in the order received by the system no matter the prior contribution to which they correspond [24]. Two IM transmissions from one person that are relevant to one another may be separated by an interlocutor's transmissions, possibly non-relevant transmissions at that. When an IM user's transmissions are separated from each other, cohesion is broken and discourse coherence is threatened [23, p. 4].

MAINTAINING COHERENCE WITH SHORT TRANSMISSIONS

Baron's research on social IM revealed that IM users created and maintained discourse coherence via short transmissions [20]. When IM users employed short transmissions, keeping their transmissions adjacent, they increased their chances of maintaining the floor because the interlocutor has a better chance of understanding their intent to hold the floor and ratify that intent by refraining from transmitting their own turn.

Indeed, in our case study, the Director and the Employee used short, multiple, sequential, and rapid transmissions in transmission sequences, which appeared to help the participants maintain adjacency in their transmission sequences. That is, the short transmissions in sequences made it less likely that the other participant, the interlocutor, could interject his or her own transmission. Of the 906 total transmissions, 397 (43.8%) constituted part of a transmission sequence. For example, in excerpt 3, the Director uses rapidly submitted and short transmissions, continuing her sequence without interruption:

Excerpt 3:

1	10:25:52	Director:	the Employee
2	10:25:58	Director:	the furniture has arrived
3	10:26:04	Director:	at the school
4	10:26:22	Director:	how do u want to get the compters overthere?

In the IM sequence excerpted above, the Director got the Employee's attention by using his name, informed him about an issue that had recently arisen, and questioned him about dealing with the issue. Because she made her transmissions short and sent them in rapid sequence, she increased the chance that all of the acts she was doing with words—getting attention, informing, and questioning—would appear with no intervening and disrupting transmissions. To accomplish the task of getting the new computers moved out of the office to make way for the new furniture, the Director held the floor of the IM interaction.

The average length of the Director's and the Employee's transmissions, 4.89 words, in comparison with the longest transmission in their interactions, 26 words, suggests that they, for the most part, kept transmissions short. In fact, as noted before, of the 906 transmissions sent in the corpus of 70 interactions, just six were 20 words or longer. In general, these six occurred when no ambiguity

existed as to who had the floor, such as at the beginning of an interaction. This finding corresponds to Baron's study of social IM; she found that multiple short transmissions allowed discourse participants to maintain the conversational floor [19].

Whether Baron's participants used this strategy consciously is not clear, but the Director in our case study stated that she did indeed use this strategy consciously. In fact, she explicitly stated that she used short multiple transmissions as a "floor holding" technique. Both gave several potential explanations for the short transmission length. In our interview with the Employee, he mentioned when he instant messages, he types as though he were speaking, making transmissions short and choppy like contributions to a face-to-face conversation. However, he did not explicitly state that he realized his short transmissions helped him hold the floor and keep the Director from interjecting her own contribution before he could finish his thought.

INSTITUTIONAL POWER IN WORKPLACE IM

Workplace IM users' short transmissions are interesting also because they may ambiguate participants' institutional roles, as constructed in their IM discourse. Specifically, IM users' politeness manifests participants' roles in their interactions and the power associated with those roles. In general, with more power comes the right to use less politeness and be more direct in carrying out communicative acts [25]. As Holmes puts it, "Differential power tends to be considered largely as a factor accounting for deferent behaviour (i.e., more mitigated [face-threatening acts] FTAs) by the person with less power, or for the use of less mitigated FTAs by the more powerful recipient" [26, p. 164]. For example, the Director scheduled a face-to-face meeting with the Employee by asking a question, as in line 1 of excerpt 4:

Excerpt 4:
1   8:31:01   Director: when u wanna do these picture reviews?
2   8:31:20   Employee: well if they are ready this morning
3   8:31:21   Employee: in 15
4   8:31:25   Director: yep..drop over

In scheduling the meeting, the Director could have used any of a variety of utterances to accomplish her communicative act rather than the question she used (*when u wanna do these picture reviews?*). For example, she could have asked, *Do u have time to do these picture reviews?* This question, unlike the one she used, would have suggested that the Employee had the right to say *no* to her request. Thus, it would have politely acknowledged the Employee's autonomy and free will. Alternatively, the Director could have signaled her institutionally granted power more explicitly; she could have carried out the scheduling task with a BALD-ON-RECORD directive—an unmitigated directive. That is, she could

have used less politeness by issuing a directive, such as *Do the picture reviews with me at 11,* that contained no politeness strategies. Politeness is the difference between *Do u have time to do these picture reviews?* and *Do the picture reviews with me this morning.*

As linguistic researchers have pointed out, those with greater institutional power use more direct utterances, and direct utterances including those that occur over IM transmissions, tend to be less polite. Thus, *Find out if he sent them* is more direct and less polite than *Would you please find out if he sent them.* In workplace IM, which tends to be task-oriented (e.g., [18]), people who are keeping transmissions short (consciously or unconsciously) may be less likely to use politeness strategies (such as hedge words like *possibly* or alternative syntax like a question in place of an imperative). That is, strategies that help maintain coherence may ambiguate utterance force and, therefore, ambiguate the relationship the IM user is negotiating. Holmes, Stubbe, and Vine found in their analysis of face-to-face workplace interactions that explicit directives (e.g., *so check to see what time the plane actually lands*) were not used by subordinates, like the Employee [27]. Their institutional roles did not sanction such speech acts.

Workplace IM discourse, like any communication, manifests participants' assessments of their relationship, including their power—or lack of it—over each other. In our study, the Director's institutional role afforded her the right to be more direct, getting the Employee to do what she wanted him to do; that is, she had the right to issue bald-on-record directives. Excerpts 5–7 show transmissions in which the Director issued directives with no mitigating politeness strategies:

Excerpt 5:
1   9:02:33   Director: be sure to bring back for calss . . by wed

Excerpt 6:
1   10:23:12   Director: cancl urs for earler in the day

Excerpt 7:
1   1:53:44   Director: call me when u off. . to talk about mirna

These examples illustrate the Director's use of unmitigated directives; her instructions do not include politeness strategies like question syntax or hedge words. In addition, the Director used more directives than the Employee: 33 to his 7. This unsurprising finding is in keeping with the participants' institutional roles and the power those roles afford to them. That said, the Director also used (in these excerpts and throughout her transmissions) shortened forms like *u* and *ur,* suggesting a concern for efficiency of communication as well (efficiency that would foster coherence).

Of course, the Employee issued fewer bald-on-record directives, and his use of fewer bald-on-record directives is not surprising:

Excerpt 8:

| 1 | 5:00:17 | Employee: | ask her if she wants 2 schools |
| 2 | 5:00:19 | Employee: | please |

In terms of maintaining coherence, the Employee's quick redress of his directive is ineffective; however, in terms of acknowledging the breach in the power relationship his FTA generated, his transmission of *please* is effective in that it rights the affront.

It seems that the workplace can offer those in less powerful institutional roles some leeway in their use of politeness, even in issuing directives to their superiors. The IMs of our case study participants suggest that people in superior-subordinate relationships will need to account for the medium's interaction in their enactment of their institutional roles. They can renegotiate what it means to be polite, prioritizing efficiency and coherence of communication.

Our point here is that the short transmissions that workplace IM users employ to maintain coherence may mediate their moment-to-moment enactment of institutional power in workplace relationships. We showed that the participant with the superior institutional role—the Director—used short transmissions like the Employee, a strategy that promoted discourse coherence. She also used more bald-on-record directives than the Employee—also not surprising given her greater institutional power. What is interesting, though, is that the strategy may also make participants' negotiation of power ambiguous.

EXPLICIT PERFORMATIVE VERBS AND TOPICALIZATION AS COHERENCE STRATEGIES

IM users' (conscious or unconscious) use of multiple, rapidly sent, and short transmissions has received some attention, but the discourse of our expert IM users reveals other discourse strategies that appear to facilitate more coherent discourse: use of topicalization to signal the participants' focus and use of performative verbs to make the participants' intent clear.

When participants topicalized their contributions, they used a word or phrase to introduce the focus of the contribution to come. By introducing a topic, the participant signals that there is more to come and decreases the likelihood that the interlocutor will disrupt the forthcoming transmission sequence. In topicalizing, participants not only contextualize their contributions but also signal that another transmission is going to occur, and thus decrease the chance of interruption or interjection of an off-topic transmission. For example, in excerpt 9, the Employee begins with the topicalization marker *abt mike* (about mike), indicating to the Director more on the topic, Mike, will be forthcoming:

Excerpt 9:

1	11:52:00	Employee	**abt mike**
2	11:52:08	Employee	how do we ahndle the 220
3	11:52:13	Employee	i mean he gets $220 for 2 weeks

In addition to topicalization, our case study participants also used verbs that explicitly state the speaker's intention. Performative verbs in IM discourse appear to help participants maintain coherence by explicitly signaling the participant's intended speech act (e.g., requesting). They may be particularly useful when miscommunication occurs, helping participants make their intent clear. For example, excerpt 10 shows a miscommunication that occurred in the IM case study:

Excerpt 10:

1	9:01:26	Director:	will u get notices from credit purchases?
2	9:01:49	Employee:	okie
3	9:01:49	Employee:	which email address?
4	9:02:19	Director:	**im asking you**..if it is setup that way..u have
5			been incontact with luna..or whoever sets that up
6	9:02:57	Employee:	k
7	9:03:15	Employee:	put to xxx@xxx.xxx

In excerpt 10, a miscommunication occurs because at the beginning of the interaction, the Employee thought that the Director already knew that notices for credit purchases were available. The Employee (in line 3) shows that he has interpreted the Director's question in line 1 to be an indirectly stated order to obtain notices for credit purchases. When the Director sees that the Employee has interpreted her question this way, she resolves the miscommunication by making her goal explicit. In line 4, the Director uses the performative verb, *asking,* to state explicitly the speech act that she is trying to convey. In doing so, she clears up a miscommunication that has occurred; she lets the Employee know that she is asking him a question about credit notices, as opposed to ordering him to get credit notices. The Director's performative verb generates greater coherence in that it indicates subsequent transmissions that will elaborate on her question, a question intended to disambiguate her meaning. The use of performative verbs to increase clarity is not unique to IM, and it serves the same function in IM as in face-to-face; in employing performative verbs, though, our expert IM users righted miscommunication.

CONCLUSION

In this article, we have examined a case of workplace IM. Our IM case study participants, expert IM users, maintained cohesion and thus coherence via short, rapidly sent transmissions that created uninterrupted transmission sequences and allowed them to maintain the floor. They also used topicalizations and performative verbs to maintain coherence. We also found that our participants' use of short transmissions may have ambiguated their enactment of their institutional roles and the rights afforded to them by those roles.

Whether IM users, particularly nonexpert IM users, can engage these strategies at will, as frequently as desired and during rapid-fire IM interactions, remains to be seen. This distinction between unconscious use and conscious employment

of different strategies is an important one in the field of linguistics but is not discussed as often in professional and technical communication: discourse "strategies" manifested in discourse participants' language are not necessarily consciously chosen. Strategies may be unconscious behaviors that IM users adopt because on some level users notice that the strategies create more coherent interactions. IM users use short transmissions [20], and these short transmissions seem to promote discourse coherence, but no research yet shows that IM users employ such strategies at will. In contrast to the Director's claim that she used short transmissions to create cohesive transmission sequences, neither the Director nor the Employee claimed to have used a performative verb or a topicalization consciously. A challenge for future research is to test the extent to which IM users can learn to employ such strategies on a moment-to-moment basis on the job.

In addition, researchers aiming to study workplace IM interactions might also analyze how cohesion and coherence interact with participants' construction of their institutional roles. Worthy of future investigation is uptake and interpretation of unmitigated directives: do IM users interpret directives with the characteristics of the medium in mind? Do they allow for IM's restrictions when processing a directive that seems curt?

Researchers who want to investigate use and learning of discourse strategies (ones for coherence but also others, such as strategies for generating rapport and facilitating recall) or workplace relationships via IM (and other CMC) might employ stimulated recall interviews, an interview method in which participants reflect upon recorded excerpts of their interactions soon after the completion of those interactions (e.g., [28]). That is, participants are asked about their intentions and their interpretations right away so that their intentions and interpretations are fresh in their minds. Stimulated recall could help make clear the extent to which users of IM in the workplace intend their coherence-building strategies and the extent to which they intend to assert their institutional roles. With such research, we may know whether it is possible to improve efficiency of workplace IM and expert and nonexpert users' satisfaction with it.

Finally, IM research is relevant to the study of other CMC; researchers interested in coherence and strategies for maintaining it and those strategies' potential effects on institutional roles in other CMC media are likely to encounter challenges in their studies of CMC that are similar to the ones outlined here in relation to a case of workplace IM. Thus, professional and technical communication researchers have a vested interest in considering the challenges of studying the discourse of IM, particularly workplace IM.

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