Abstract
This article illustrates how the hermeneutic analysis of text illuminates how shared understandings affect our interpretations of lean communication in distributed work environments. It is proposed that in contrast to the pessimistic conclusions of media richness theory that lean communication channels cannot support complex or equivocal work tasks, miscommunications are not the result of technology, but rather occur due to a lack of shared understandings among the individuals communicating. An illustrative case study based on fieldwork in franchise organizations is presented to demonstrate the possibilities for how the hermeneutic analysis of coherence, invention, intention, and reference can be used to discover how workers create and recreate shared understandings through text.

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Tesluk, & McPherson, 2002), removing traditional constraints of time and place from interaction. The term distributed work environment (DWE) encompasses contexts ranging from global distributed teams, which are transnational, transorganizational, and transcultural (Boudreau, et al., 1998) to isolated incidences of telecommuting (Davenport & Pearlson, 1998).

For instance, global virtual teams successfully manage volume sales contracts and partnerships across organizations, using extranets to exchange order and delivery plans, and email and memos to negotiate new sales agreements (Maznevski & Chudoba, 2000). Globally distributed open-source software development teams rely on written exchanges that span cultures, languages, and time zones to create complex software products (Sourceforge, 2004). In an ever-broadening range of contexts, collaborative communication technologies provide a common means for sharing information, coordinating activities, and sustaining relationships in distributed work environments (Moshowitz, 1997; Shao, Liao, & Wang, 1998; Wilson, 1999).

However, despite their promise, DWEs have inherent problems. Technology is a double-edged sword, because even as it enables individuals to connect across space, time, and organizational boundaries, heavy reliance on the technology renders DWE participants prone to miscommunications (Cornelius & Boos, 2003). From a theoretical standpoint, media richness theory (MRT) provides a superficial explanation for why miscommunications occur within DWEs. MRT proposes that communication media can be arrayed along a continuum of media “richness” based on differing objective characteristics of the communication channel (Daft & Lengel, 1986). These characteristics consist of immediacy of feedback, language variety, number of cues, and personalization. Daft and Lengel (1986) argued that managers could improve performance by matching the communication media to the complexity (based on either uncertainty or equivocality) of the organizational information-processing task.

According to MRT, text-based, asynchronous computer-mediated communication is a lean medium, restricted in the amount of information that can be conveyed. This leads to the assumption that since members of DWEs rely heavily on lean communication channels, DWEs cannot be used to accomplish complex or equivocal work tasks. Therefore, the question driving this research is “how are DWEs able to produce significant work outcomes despite the lean medium of exchange?” Since MRT does little to help explain the successes associated with DWEs, the purpose of this article is to present a different perspective, based on the role of shared understandings, to explain how individuals effectively and efficiently communicate through text.

First, we believe it is critical to shift the focus away from the objective characteristics of the communication channel. It is not the technology that causes miscommunication, but rather the lack of shared understandings among individuals (Hinds & Weisband, 2003). The complexity and equivocality of an information-processing task are not functions of the communication media, but are based on the perceptions of the individuals engaged in communication. To the extent that individuals have
shared understandings, such as can be developed through a history of communication, past coordinated action, and/or other common experience (such as professional socialization), lean communication media may be appropriate to organize complex tasks, because not all of the relevant information needs to be conveyed—some of the relevant information is already understood. In this article, we discuss how shared understandings among distributed workers can facilitate complex information processing tasks. Specifically, we focus on how shared understandings about organizational identity, goals, norms, power structures, and communication practices both enable and constrain the inscription and interpretation of text, making the complex coordination of tasks through lean media possible.

Additionally, we propose that while transience is one of the most important characteristics for categorizing different communication media, it is not acknowledged by MRT. While MRT considers face-to-face, oral communication to be the richest form of exchange, face-to-face communication is limited to physically co-located individuals, and is typically only retained in memory after the words are spoken. Therefore, face-to-face, oral communication is transient, impermanent, and difficult to share with others after its initial expression. In contrast to oral communications, distributed workers rely heavily on text-based communications that can be archived and made available beyond initial creation. Through email, chat rooms, electronic knowledge repositories, and other communication technologies, workers document their communications through written text. In DWEs, text serves as a primary channel through which workers complete tasks and develop shared understandings, and written text is an important means through which workers in DWEs are socialized, coordinate work, and engage in other aspects of organizational life.

We propose that by focusing more attention on how individuals inscribe and interpret written texts, managers and distributed workers can capitalize on the benefits of DWEs while reducing the occurrence of miscommunications. The main goal of this article is to illustrate how the analysis of text using hermeneutic analysis illuminates the interactions among text, social context, and shared understandings in DWEs. Formally, hermeneutics is “the study of interpretation, especially the process of coming to understand text” (Boland, 1991, p. 439). In this article, we ground our approach to hermeneutic analysis by investigating the interplay among Geertz’s (1983) and Becker’s (1979) complete set of four contextual relations—coherence, invention, intention, and reference—using an illustrative case study to reveal the potential mutual interactions among social context, communication practices, text-based communication (inscription and interpretation), and shared understandings. Hermeneutics as a methodological approach to interpreting texts enables the study of how shared understandings among distributed workers reduce the complexity and equivocality of information processing tasks, making possible empirical investigations of the initial research question of how complicated work can be coordinated through lean communication channels.

For researchers, using hermeneutic techniques to analyze texts generated through DWEs will enrich our theoretical understanding of DWEs, and support empirical
work to test the validity of current organizational theories—such as how to maintain shared knowledge among distributed workers (Cramton, 2001) or span spatial, temporal, cultural, and professional boundaries (Orlikowski, 2002)—by clarifying the processes through which distributed workers interpret meaning from text and enact shared understandings about their DWE over time. For managers, hermeneutic analysis could be an important tool for identifying sources of miscommunications and inefficiencies, highlighting problem areas in need of additional worker training. For distributed workers, training in hermeneutic analysis would help to improve the inscription and interpretation of text, enhancing individual performance and satisfaction by creating more accurate shared understandings among distributed workers.

The article begins with a discussion of shared understandings and text, including a discussion of social context and its relevance for creating shared understandings through text-based communication in DWEs. Next, a case study is used, developed from texts within a real-world DWE to demonstrate the possibilities associated with the hermeneutic analysis of text, to learn not only about the social context of DWEs, but also how social context influences the creation and interpretation of text-based communication. We conclude with a discussion of theoretical and practical implications, highlighting potential areas of future research.

**Shared Understanding and Text**

Written text is the central organizing activity of DWEs. Writing provides “fixity to meanings across space … whereby meanings separated by space become clearer and spatially separated cognitive communities [like DWEs can] be reliably built” (King & Frost, 2002, p. 5). Text-based communication occurs through two processes: the inscription of text by a sender and the interpretation of text by a receiver. Inscription results in the creation of text, which can then be interpreted by one or more other participants in the environment. The interpretation(s) in turn may or may not result in additional inscriptions.

Inscription occurs when individuals write down events, experiences, or thoughts occurring in the DWE. A distributed worker who sends an email message or posts a discussion forum entry has created a text through the act of inscription. Inscription has two important implications. First, inscription creates text objects from which we can glean meaning. The text itself is a cultural artifact available for scientific inquiry (Geertz, 1983; Ricoeur, 1991). This artifact serves as a permanent record of someone’s attempt to convey meaning. But it is not just the researcher or scientist who gleans meaning from text objects; participants in DWEs also must rely more heavily on text objects to communicate because they have fewer opportunities for face-to-face, oral communication. The second implication of inscription is that all texts document action. Individuals use text to craft a story or narrative of events that exposes a way of life and the organizing processes of a particular environment (Ricoeur, 1991). Since the text is permanent documentation of some action and available for subsequent reference, as opposed to the transience of oral
communication, it is a central component of the effort by those in DWEs to com-
municate and create shared understandings.

Inscription by itself does not result in communication. Once created, text must be read and interpreted in order for communication to occur. Since multiple possible meanings of text exist, interpretation is a necessary component of communication. Interpretation aims at the reproduction of lived experiences (Ricoeur, 1991), and when we interpret text, we make assumptions based upon our understandings to reconstruct the context in which the text was inscribed. Shared understandings are a “collective way of organizing relevant knowledge” that enable distributed workers to coordinate work and avoid miscommunications (Hinds & Weisband, 2003, p. 21). Having shared understandings across distributed workers enables people to predict the behaviors of others, facilitates the efficient use of resources, and reduces errors, frustration and conflict among workers (Hinds & Weisband, 2003). Through text-based communications, shared understandings develop across individuals, and assist these individuals in processing information and organizing activity. At the same time, text creates, reaffirms, or changes our shared understandings. Thus while the text itself may be fixed, the shared understandings and interpretations of text may be specific to a certain DWE, and evolve through additional communications over time.

**Dimensions of Shared Understandings: Social Context and Communication Practices**

Because shared understandings within the broader DWE influence the inscription and interpretation of text-based communication, it is important to consider the key social structures that shape shared understandings about a DWE. The social context and the “organization” that this article refers to is the one that is created for and reflective of the DWE. One of the complexities of DWEs is that workers are brought together from unique social and organizational backgrounds, each representing a different social context. Further complicating matters, individual workers may be involved in multiple social/organizational contexts at the same time, working polychronically (Panteli, 2004). While the perceptions of multiple social contexts (i.e., national culture, organizational culture, occupational culture, and task) all influence how communications within the DWE are understood, the DWE itself reflects its own unique social context that is developed and understood through repeated interactions over time.

Understanding the social context of the DWE is critical to the inscription and interpretation of text because the social context guides the way that information is attended to and processed. Shared understandings about the social context develop from information acquired through direct experience, such as manager-driven training, and indirect experience, such as poor communication experiences with other DWE members. When individuals receive new information, they interpret it based on their perceptions of the social context, using those perceptions to “fill in the blanks,” deriving expectations for interaction (Reis & Downey, 1999).
Four important constructs underlie the perceptions of social context in organizations (Scott, 1995): organizational identity, goals, norms, and power structures. Briefly, a DWE’s organizational identity depicts “who we are as an organization;” the goals define “what is our purpose;” the norms indicate “how we do things as an organization;” and the power structures signal “who has power to influence the actions of others.” Although these four constructs underlying the social context are not unique to DWEs, what is unique to the DWE is how the social context is created, interpreted, and changed through text-based communication. Each of these constructs and their relevance to DWEs are further explained below.

Organizational Identity
Individuals within a DWE make sense of their actions on the basis of an intermediate set of beliefs regarding their organization’s identity. Organizational identity is defined by the members of an organization, and is the answer to the question: “who are we as an organization?” Perceptions of organizational identity impose a structure to an information environment to give it form and meaning in a way that facilitates an individual’s interpretation and action (Walsh, 1995). Within a call center environment that relies on online chat for customer service, Dickey, Burnett, Chudoba, and Kazmer (2006) found that managers carefully shaped employees’ understanding of the “firm’s perspective” before allowing them to interact with customers, in order to ensure that employees appropriately conveyed the organization’s perspective to customers. Therefore, organizational identity is important in DWEs, because it is associated with how individuals identify and interpret issues, define actions, and develop strategies.

Goals
Individuals within the DWE must have a shared notion of the outcome they are working towards. A clear definition of what the organization wants to achieve is important in DWEs because goal setting is another way to structure and make sense of the information environment (Hinds & Weisband, 2003). These goals give structure to work tasks and motivate individuals to work towards achieving those tasks (Locke & Latham, 1990). For example, in distributed software development teams, when distributed workers are aware of the exact functionality required by the client and the deadline for when it needs to be built, distributed workers are better able to focus their efforts on creating the desired system and perceive higher chances of success (Hinds & Weisband, 2003).

Norms
Norms are standards of acceptable conduct that guide and regulate the life of a collective and are developed through repeated interactions over time (Coleman, 1990). Norms enable individuals to coordinate actions, provide stability, furnish information on socially acceptable behaviors, and act as a type of insurance that others will act accordingly (Reisman, 1990). Norms are important in that they allow
DWEs to function effectively by providing a structured set of rules for coordination, as well as setting expectations about how to interact. For example, Chudoba, Watson-Manheim, Crowston, and Lee (2006) identified norms for distributed meetings that employees at Intel enacted. Depending on the purpose of the meeting and the participant’s role, it was often considered acceptable for members to participate partially by multi-tasking during the meeting (e.g., checking email). The norm of partial participation made it possible for individuals to “attend” more meetings than they would otherwise have had time for.

**Power Structures**

Power is the capacity of an individual or a group to influence outcomes or to achieve desired objectives (Mintzberg, 1983; Pfeffer, 1981). The power structures in DWEs may reflect legitimate, formal hierarchical or contractual structures, or leaders with personal influence may emerge informally through interactions over time. Power influences how individuals interpret and perceive information, helping individuals to identify which messages require more attention or credence than others. Prior research in DWEs indicates that the most socially acceptable uses of power and influence are based on rationality, consultation, and assertiveness, while the use of sanctions, threats, and blocking information were considered more egregious (Elron & Vigoda, 2003).

Based on these four elements of social context, individuals develop communication practices unique to their organization. Communication genres are “a typified communicative action invoked in response to a recurrent situation” (Yates & Orlikowski, 1992, p. 301). Workers within DWEs develop communication practices to help structure and convey meaning through their text-based communications. Email messages, for example, are conventionally exchanged between inter- and intra-organizational members, using informal language (Orlikowski & Yates, 1994). A discussion forum posting is similar to an email message, yet has stricter norms with regard to classification by thread and subject area.

Even when DWEs are limited to text-only communication, individuals develop communication practices to convey a variety of signals and symbols. Individuals create faces using colon and parentheses keys (emoticons) to convey emotion. Individuals SHOUT AT EACH OTHER using capital letters to convey anger, frustration, or to gain attention. Individuals translate common sayings through the use of the symbols available in text, such as “let me add my $1/50 worth,” or by creating shorthand symbols (FWIW, BTW, IMHO). More broadly, communication practices also include the technologies and specific features that are used by members of a DWE. Such shared communication practices were found to have a significant impact on performance among workers in DWEs at Intel, whereas geographic dispersion by itself did not (Chudoba, Wynn, Lu, & Watson-Manheim, 2005). The communication practices characterizing a DWE are based on the social context of the individuals communicating, and facilitate the inscription and interpretation of text by creating standardized rules or formats, common expectations, and shared understandings across distributed workers.
In summary, the broader social context unique to each DWE shapes contributions to, and understanding of, text-based communication. In particular, shared understandings about a DWE’s social context and its communication practices are important determinants of how text is inscribed and interpreted. Over time, these shared understandings can become structures that reinforce the social context and communication practices. The key to the success of DWEs, and the ability to avoid miscommunications, is to leverage shared understandings about the social context and communication practices among distributed workers through written text. The perceived complexity of information processing tasks can be reduced when distributed workers understand who they are as an organization, what they are trying to achieve, how they do things, who has influence over decisions, and the underlying structures of communication practices, such that lean computer-mediated communication can become an effective channel for the coordination of complex work.

Focusing on the role of shared understandings rather than the objective characteristics of the communication channel to investigate DWEs accounts for findings from prior research, at the same time it illustrates the why behind those findings. For instance, Walther’s (1992) social information processing theory suggests that computer-mediated communication can be used to coordinate complicated tasks; it just takes longer to do so. Taking a shared understandings perspective provides insight into why time is important, since shared understandings take time to develop through a history of repeated interactions. A shared understandings perspective also accounts for findings from channel expansion theory (Carlson & Zmud, 1999). Channel expansion research suggests that when individuals have relationships with one another and experience with the underlying technology, individuals change their perceptions about the richness of text-based communications, leading to the observation that under certain conditions, media channels may expand in terms of perceptions of richness. A shared understandings approach suggests why relationships and experience with technology are important. These constructs are likely strong indicators of the development of shared understandings about the social context and communication practices of that particular DWE.

By focusing more attention on the importance of shared understandings about the social context and communication practices of the DWE, and how they affect the inscription and interpretation of written texts, managers and distributed workers can capitalize on the benefits of DWEs while reducing the occurrence of miscommunications. One way to accomplish this is through the hermeneutic analysis of text, which illuminates the interactions among text, social context, and shared understandings in DWEs. Formally, hermeneutics is “the study of interpretation, especially the process of coming to understand text” (Boland, 1991, p. 439). Hermeneutics as a methodological approach to interpreting texts enables the study of how shared understandings among distributed workers reduce the complexity and equivocality of information processing tasks. Additionally, applying hermeneutic analysis to the study of interpretation of texts also helps identify sources of errors and miscommunications, highlighting important areas for additional worker training.
The Study and Practice of Hermeneutics in DWEs

This section begins with a brief description of the components of our hermeneutic analysis, and then introduces an illustrative case study to demonstrate how hermeneutic analysis can be used to reveal the interactions among social context, communication practices, and the inscription and interpretation of text. In our case study, we have “fictionalized” generic components such as products, in order to protect the identity of our key informants and their sponsoring organization; however, the examples are derived from circumstances and texts recorded while conducting fieldwork in real organizations. Hence, while the case is grounded in a field study, readers should understand that the case does not represent a “verbatim” transcription of the text or products used in this DWE. The purpose of the case is illustrative rather than empirical, demonstrating the possibilities for how hermeneutic analysis can generate insights into the formation of shared understanding over time.

We base our hermeneutic analysis on Geertz (1983) and Becker’s (1979) complete set of four contextual relations—coherence, invention, intention, and reference. **Coherence** is the relation of textual units to other textual units in the text. **Invention** is the relation of text to associated texts. **Intention** is the relation of text to its creator or creators, and **reference** is the relation of text to non-literary events (Becker, 1979; Geertz, 1983). A hermeneutic analysis focused on these contextual relations allows us to demonstrate the interplay among social context, communication practices, text-based communication (inscription and interpretation), and shared understandings. The analysis illustrates how both managers and researchers can use hermeneutics to reveal the relationships between text-based communication and social context, in order to identify factors that enable and inhibit work processes in DWEs.

The case refers to Classic Cow, an ice cream shop franchise chain. The DWE was created to facilitate information exchange between the franchisor and franchisees, and takes the form of an extranet hosting threaded discussion forum. The DWE is organized and owned by the franchisor. Both franchisee and franchisor personnel participate in discussion forums (the DWE), which are shown in Figure 1. Threads for one of the forums are presented in Figure 2. This information alone enables readers of the text to make interpretations about the social context. The organizational identity probably reflects that these are people who enjoy retail in a family-friendly environment. The goals probably revolve around selling more ice cream and creating value for customers. While it is difficult to deduce specific norms from this information, other than that the franchisor is interested in supporting new communication channels with its franchisees, it can be assumed that the franchisor probably holds more power than franchisees (see, e.g., Kumar, 1996).

Investigating Coherence

Coherence refers to the “relations of textual units to each other within the text” (Becker, 1979, p. 212). Textual units may include words, phrases, sentences, or larger units of text. In all cultures, underlying sets of rules or grammars for a text exist that
enable its readers to make sense of it. In distributed and non-distributed environments alike, coherence in English language texts is derived from the hierarchy of textual units, such as sentences within paragraphs, combined to form documents. In DWEs, additional hierarchy may be created to aid interpretation. For instance, sentences and/or paragraphs are sometimes grouped into messages, and often sets of related messages are organized to form threads. Sets of related threads may also form higher-level textual units such as forums.

The concept of coherence is especially relevant for understanding the communication practices of a DWE. Analysis of the coherence of our Classic Cow example indicates that the DWE consists of multiple discussion forums with two hierarchical

Figure 1 The Classic Cow DWE

Forum: Let’s Talk About Ice Cream
- Summer Flavors
- Mango Madness
- Pineapple Upside Down Cake
- Praline Parfait
- Holiday Ice Cream Cakes
- Peanut Butter
- Coconut
- Packaging

Figure 2 “Let’s Talk About Ice Cream” threaded discussion forum: Main topic areas
levels of organization. The main page of the DWE provides general topic areas, and when a topic area is selected, users are taken to another page that breaks that general topic into specific discussion threads. To illustrate the concept of coherence, consider the following text:

Article 78746 of Mango Madness:
From: “Pete” <pete@classic-cow.com>
Subject: Sales of Mango Madness in Dallas
Date: Wed, 1 Apr 2005 23:33:21

--Hi everyone!

>Dean wrote:
>Has anyone tried to forecast summer sales by flavor?

>>Janice wrote:
>>According to the national quarterly reports, this quarter special event sales have been slow...(snip)

The flavor Mango Madness has been a better seller for us.

BTW -- The latest marketing plan doesn’t mention any special promotions for the upcoming holiday. But in the past, that has been our biggest cake selling opportunity. So I’ve attached some ideas for promoting the cakes, including artwork for in-store table tents. Happy selling! :^)

--Pete

Analysis of coherence suggests that this message can only be understood by a reader when interpreted in relation to other textual units. If we as readers see that the message appeared in the Classic Cow “Let’s Talk About Ice Cream” forum, we may assume that Mango Madness is an ice cream flavor. However, if the message appeared under the thread about ice cream cakes, we may assume the message was about cake flavors, not ice cream flavors. Furthermore, since we know the message appeared in a Classic Cow forum, we can safely rule out coffee flavors as the intended topic. The embedded text indicates that this message is posted in response to an exchange between Dean and Janice. Thus, threads, forums, and groupings of forums enable readers to assign meaning to the text based on social context information (how the forums are organized by topic) and the form of communication practices where individuals post messages in a specific hierarchical arrangement. The analysis of coherence allows readers of the text to reveal these communication practices and their relationships to the social context.

Investigating Invention

Invention refers to the “relations of textual units to other texts” (Becker, 1979, p. 212). Texts, especially those in the same DWE, are related to all previous texts within
a given context. When analyzing text with respect to invention, we look for the extent
to which it is repetition (“speaking the past”) or new (“speaking the present”).
Textual units “speak the past” when they express old texts or ideas. Repetition, such
as a repeated phrase (Have a nice day!), a company slogan (this cow doesn’t skinny
dip), or embedded messages (snippets of a prior post) almost entirely speaks the past.
As we repeat text, we reaffirm cultural norms or existing modes of thinking. At the
same time, the present is always at least part of the current context (Becker, 1979),
which also tempers textual meaning.

Textual units “speak the present” when they express new ideas. The content of
textual units can be thought of as new in comparison to the content of other textual
units that preceded it (Becker, 1979). The more imaginative the text, the more it
“speaks the present.” Examples of texts that purely “speak the present” do not exist.
“Completely spontaneous linguistic activity is impossible. Rather, other people could
not understand it—or even recognize it as language” (Becker, 1979, p. 214). So we
speak the past and present simultaneously, in varying degrees. Invention as a con-
textual relation, then, can be viewed as a continuum, with repetition on one end and
originality on the other.

Both form and content of text can be analyzed with respect to invention to inform
us about communication practices. In DWEs, textual units “speak the past” in form
when they adhere to the structural norms for communication in those environments.
The consistent “look and feel” of discussion forums and email user interfaces across
organizations is an example of repetition among similar textual units. In the header
of a discussion forum posting in Classic Cow, for example, the first line indicates the
message number and the forum to which the message is posted. The header also
indicates the author of the message, the subject, and the date. Textual units also
“speak the past” in content. Distributed communication practices include the use of
common abbreviations or shorthand text (such as BTW for “by the way”), “neti-
quette” (minimizing personal communication on work channels), or embedding
text from a prior post (Janice posted…). These communication practices influ-
ence our interpretation of text.

Content of textual units “speaks the past” not only with respect to communica-
tion practices, but also with respect to group norms and values. Let us use our Classic
Cow text as an illustration of how Pete repeats group norms in his language use.
Consider the sentence, “The flavor Mango Madness has been a better seller for us.”
Pete makes a statement about product sales at his store. If we analyze the text, the
verb has been implies that the statement is based upon past experience, so it “speaks
the past.” The use of the word better implies better than something else, which means
Pete may have written the statement to convince others to support one position over
another. Since Pete probably expressed the statement to build an argument, the
implication is that maximizing sales revenue (i.e., selling as much as possible) is
important not only to him, but to the message’s audience as well. At the very least,
Pete believes selling is important to his audience. Thus, Pete embeds his perceived
norm of sales maximization in the text. The collective interpretation of the message
by other members in the DWE, as evidenced by subsequent messages, should sub-
stantiate or refute the existence of the norm, and the degree to which it exists or does
not exist.

Textual content also “speaks the present” in varying degrees. Examination of
message content with respect to invention, for example, can reveal norms for inno-
vation. The expression of new ideas or application of existing problem solving
techniques to a new situation—any demonstration of imagination or originality
(Becker, 1995)—is an instance of “speaking the present.” Suppose that these mes-
sages are posted to the forum:

Sally: “I’ve had some customer requests for ice cream for the lactose intolerant.
What do you think about selling soy milk-based ice cream?”

Pete: “Give the customers what they want, and of course, charge ’em for it.”

Sally’s reference to a new product “speaks the present.” Pete’s message indicates
receptiveness to a new idea and supports prior perceptions that sales maximization is
important. The initial expression of an innovation and the subsequent response
provide indicators about the DWE’s norms to nurture new ideas or to reject them.

Investigating Intention

Intention refers to the relations of the units in the text to the creators of the text. The
intention of the author(s) must be analyzed with respect to textual content, the
medium, and the audience (Becker, 1979). To illustrate the relationship of
the author to textual content, consider the text: “Pete did it.” Context may assist
us in interpreting its meaning. If Pete’s co-worker sends this text in a private email to
the franchisor, the franchisor may be able to infer that (1) Pete engaged in some
behavior that deserves to be reported, and (2) since the message was conveyed
privately through email, the action might be negative. Alternately, if the franchisor
posts the same text to a discussion forum, the readers of the forum are likely to
infer that (1) Pete did something good for the organization, and (2) Pete deserves
congratulations for helping the franchise in some way.

Relational communication, however, is often complex. The first example reflects
the contextual relation that is simplest to interpret—the instance in which a textual
unit is created by a single person and received by a single person. Here, we need only
interpret the relational communication between one author and one recipient. How-
ever, in a DWE, a textual unit may have multiple creators, and may be directed to
multiple readers. For example, a report may be written by multiple authors, and is
generally intended for more than one reader. The intention of the creators may be
interpreted as though the authors have one voice, which some authors try to accom-
plish when writing collaboratively (Ede & Lunsford, 1990). But it is possible for the
authors to write such that intentions can be discerned as distinct, perhaps using sole
authored reports as a guide. To complicate interpretation further, a creator of text
may have multiple intentions, either for a single reader or multiple readers. Email, for instance, may be addressed to one individual, with a second individual copied on it (Skovholt & Svennevig, 2006). For the primary recipient, the creator may intend to invoke action, whereas for the secondary recipient, the creator may simply intend to inform. Alternatively, the use of copying an email to a second individual may serve as a signal to the primary recipient that the interaction is being documented by a third party. Thus, the interpretation of intention is multidimensional on a variety of levels, and may reflect differing perceptions about goals, values, and power structures.

Examination of content with a focus on intention can also reveal norms in a DWE. To extend our franchise example, we could say that Pete’s intention in both texts is to persuade. In addition, the intention of the “owner” of a DWE, with respect to overall objectives and norms for use, can be reflected in its structural environment. For example, the creator of the Classic Cow discussion forums, the franchisor, has organized the environment into functional areas—marketing, product, and supplies—with the exception of the forum “Shoppe Talk.” The creator, by organizing the forums, has established the norm that discussions will focus on operational issues. Inclusion of the forum “Shoppe Talk” may indicate willingness on the part of the franchisor to entertain discussion in any area, or to encourage the franchisees to use that forum to share with one another. An alternative interpretation may be that the franchisor does not want to encourage peer communication, since the forum was placed last on the list. If the franchisor censors and/or eliminates discussion forums, additional support may be provided for that interpretation. Although the structure of the DWE as a whole may reveal norms for knowledge sharing, careful examination of franchisor intention embedded in the text may provide additional context that may alter the interpretation.

**Investigating Reference**

Reference, the fourth contextual relation, refers to “the relations of textual units to nonliterary events” (Becker, 1979, p. 212), which occur independently of the text. When referenced in text, a nonliterary event becomes part of the social context, and understanding that event is important to ascribing meaning. Reference to momentous events such as landing on the moon certainly provides contextual clues, but reference to events known only within a narrow circle of individuals may also facilitate understanding. In our franchise text, two events are referenced: the issuance of a marketing plan and Pete’s creation of an additional promotional plan to take advantage of an upcoming holiday. Taking reference into account, we can infer that Pete believed that the marketing plan as issued was deficient, causing him to create his own plan and share it with others. If we look at other events over time, fuller interpretations may emerge. For instance, Pete may have a history of trying to discredit the franchisor and this message may have been yet another attempt. Alternatively, Pete may be altruistic, and wrote simply to try and assist other franchisees. Both the potential for power and the use of power are enacted in text when players in
the DWE cause or attempt to cause events, and other players then respond to those events. Assume that Pete’s intention was to influence other franchisees, and possibly the franchisor as well, to promote holiday ice cream cakes. In his eyes, Pete’s power was derived from his expertise (“expert power,” French & Raven, 1959). As a long-time franchisee, perhaps Pete felt equipped to influence the franchise community on the basis of his experience. The text reveals his understanding of individual and organizational goals in the DWE, and the power structures that influence which goals are enacted.

The Evolution of the Social Context and Communication Practices of Classic Cow

The social context and communication practices of DWEs are dynamic, and text is critical to both their affirmation and evolution and ultimately, the development of shared understandings. Specifically, communication practices are not static, since the rules of communication genres change over time (Yates & Orlikowski, 1992). Analysis of the text with respect to invention can reveal how or why changes occur in communication practices. Consider the Classic Cow extranet. Assume that the original purpose of the discussion forums was to provide content for the community at large. If peer-to-peer email is not supported on the Classic Cow extranet, discussion forums may evolve into an outlet for these one-to-one messages. As genre rules evolve or “speak the present,” we can learn about the development of new communication practices, or in essence, new social practices. In addition, since genre rules may be adapted or modified to reflect changes in the context (Orlikowski & Yates, 1994; Yates & Orlikowski, 1992), invention in communication practices can reflect changes in the DWE that can be instructive in understanding how participants successfully complete complex tasks using so-called lean media.

Adoption and diffusion of new communication practices or elaborations on existing communication practices can also be indicative of the goals and norms of the DWE. In text, distributed workers may offer new ideas that challenge existing norms and shift the balance of power, offering insight into the propensity for innovation. An individual who successfully persuades other group members in essence changes group (or shared) understanding. Likewise, an individual who proffers a new idea that is rejected by the group may be persuaded to change his/her individual understanding.

For instance, distribution is such an important facet of communication practices that features such as carbon copy (cc), blind carbon copy (bcc), and reply to, all are common icons in email programs (Skovholt & Svennigv, 2006). In contrast, some communication genres have no flexibility in the specification of distribution parameters. Discussion forum postings, for example, are automatically available to everyone in the DWE. The propensity for variance in the inclusiveness of distribution of texts may lead to differences in bases for interpretation. A member or subset of members not privy to certain texts may be unaware of some outside referent
events, expressed intentions, or negotiations of norms, which may affect the members’ ability to interpret subsequent texts correctly. Failure to distribute texts to all impacted parties in a DWE leads to disparities in “mutual knowledge” which can result in misattribution (Cramton, 2001). Further, misattribution can lead a distributed worker to inscribe text based on a misunderstanding, which then archives the misunderstanding. This sequence of events affects the cohesiveness of the group and its viability. Inclusiveness of distribution facilitates the creation of mutual knowledge and mutual understanding. If everyone in the DWE receives common texts, though interpretations may still differ, all have an inclusive set of texts to draw upon in subsequent negotiations of meaning.

Organizational identity and power structures also evolve and are negotiated through text in DWEs. Analysis of text with respect to reference to nonliterary events may show the enactment and evolution of these constructs that underlie perceptions of social context. Recall that in our example, we discovered Pete was relying on his “expert power” to influence the franchise community. Another franchisee may question Pete’s authority by posting a message asking the franchisor to authorize Pete’s proposal. In coming to understand power structures in this case, we can evaluate the franchisor’s responses over time to challenges of its “legitimate power” (French & Raven, 1959), in order to assess its relationship with the franchisees. Similarly, the franchisees’ responses over time to other franchisees’ attempts to influence outcomes can reveal peer relationships. For example, Janice, a franchisor representative, may respond to Pete’s message by affirming the franchisor’s legitimate power: “We addressed the promotion of ice cream cakes in our research and development, and found that though holiday sales for cakes were strong in some local markets, for the chain overall, sales did not warrant the promotional expenditures of years past.” Alternatively, she could choose to react positively to Pete’s posting by saying, “That’s a great idea!” This would affirm Pete’s expert power, and probably encourage him to continue to use his influence. Another response might ignore the posting and divert attention to another promotional idea, a subtle way of affirming the franchisor’s power and weakening Pete’s expert power at the same time. A more extreme response would be to delete Pete’s message from the forum entirely, an action that is unique to some forms of DWEs, cementing the DWE’s organizational identity as a hierarchy rather than a collective.

Subsequent franchisee responses to Janice’s posting could also affirm either the franchisor’s legitimate power or Pete’s expert power, thereby revealing the other franchisees’ relationships with both the franchisor and Pete. If Janice responds with the first statement listed above, Dean (another franchisee) could say, “That’s a real surprise. Holiday sales of cakes have always been very strong for stores in the Atlanta advertising cooperative.” This statement disavows the franchisor’s legitimate power, and affirms Pete’s expert power. Over time, if Dean and Pete tend to side together on issues and other franchisees follow their lead, the two may demonstrate that they are leaders in the franchise community, reaffirming their expert power and building a coalition to challenge franchisor authority. These examples illustrate the negotiation
of power structures and organizational identity, but they also demonstrate the various levels of understanding that can exist within the DWE. Dean and Pete share one understanding about holiday cakes while Janice has another. As Dean and Pete negotiate with Janice, inscriptions by other participants may reflect additional individual or subgroup understandings; however, the group collectively understands the company’s objective of selling ice cream for profit.

The “owner” of a DWE, such as a franchisor, may also attempt to reaffirm its authoritative power by controlling access to communication channels. For example, franchisors can elect not to support email contact between other franchisees within the extranet. “Owners” of DWEs have also been known to suspend or cancel communication capability. These behaviors can be interpreted as efforts to reaffirm (or negotiate) existing power structures and/or communication practices. In addition, access or denial of access to communication channels can reflect nurturance or discouragement of knowledge sharing practices, which can shed light on the normative climate for innovation.

Discussion and Areas for Future Research

Using an example of a franchise-based DWE, we have demonstrated the possibilities of hermeneutic analysis as a method to reveal the relationships between shared understandings and the inscription and interpretation of text. To summarize our perspective on why DWEs are able to achieve complex and significant work, we propose that the social context of the DWE, consisting of the perceived organizational identity, goals, norms, and power structures, influences the development of text-based communication practices. An individual’s perception of the social context and communication practices of the DWE influence how individuals inscribe and interpret text-based messages to create and recreate shared understandings in DWEs. Using hermeneutic analysis to investigate coherence, invention, intention, and reference, researchers and managers are able to reveal characteristics of the social context and communication practices of a DWE to better leverage DWEs as an alternative, flexible organizational form. Additionally, training distributed workers in hermeneutic techniques makes workers more aware/conscious of how they inscribe and interpret text-based communications, leading to better shared understandings and higher levels of productivity and satisfaction with the DWE.

Gaps in understanding, or a lack of shared understandings, result in miscommunications. In DWEs, gaps in understanding are inherently exacerbated by the distributed arrangement of work, which results in a variety of discontinuities. These discontinuities include: temporal (coordinating work across different time zones), spatial (coordinating work with non-collocated colleagues), cultural (coordinating work with colleagues from different culture backgrounds and customs), historical (coordinating work with colleagues that may or may not have worked together in the past), and technical (coordinating work among individuals with differing levels of technological expertise, as well as the coordination of work across different
technological platforms) (see Orlikowski, 2002; Watson-Manheim, Chudoba, & Crowston, 2002, for a review). Discontinuities can be problematic in that they involve situations where shared understandings may not have accurately formed (gaps in understanding), limiting DWE members’ ability to readily share information or coordinate activities. These gaps in understanding influence the speed with which group members communicate, the initial understanding of language, and the ability to effectively coordinate work. Although we believe that text based communication may result in shared understandings, the processes through which geographically dispersed individuals develop shared understandings may vary with attributes such as the enabling technology’s characteristics, individuals’ tenure in the group, or geographic location. We believe that a careful hermeneutic analysis associated with the occurrences of discontinuities in DWEs may yield exciting new insight and theory into how DWEs grow more or less efficient over time.

The analysis of text with a focus on shared understandings about social context factors is critical to furthering several areas of study with practical implications. Studies indicate that, in general, miscommunication in computer-mediated environments is a managerial concern (e.g., Cramton, 2001). For example, the use of web-enabled call centers with chat facilities to support distributed work is becoming more widespread (Wallace & Hulme, 2001). But despite the promise of chat as a useful communications venue in organizations—including contexts such as the formation of online communities of customers (Morse, 2003), team project communications support (Graveline, Geisler, & Danchak, 2000), distributed learning (Eastman & Swift, 2002), and customer relationship management (Feinberg, Kadam, Hokama, & Kim, 2002)—preliminary indications are that chat environments are prone to miscommunication (Cornelius & Boos, 2003). The hermeneutic study of chat communication archives can illuminate how miscommunication occurs and help researchers formulate implications for practice. Demonstrating to managers that customers have multiple interpretations of a single corporate policy can assist in clarifying the text and/or the policy so that customers and employees are more likely to develop shared understandings in a way that is consistent with the intention of the corporation’s management.

Further, with the growth of more rigorous firm-level IT usage policies, our hermeneutic analysis directs managers’ attention to considering the influence of how different communication policies constrain or enable the development of robust DWEs. For example, instant messaging and email policies frequently restrict employees’ communication to “work-related” matters, where in face-to-face environments, major personal life events become part of the shared understanding—the inscription and interpretation of meaning—penetrating the team’s communication. For example, when a person is absent for personal or non-work issues in their life such as the birth of a child or death of a family member, collocated team members are informally made aware of the reason for the absence. In a constrained DWE, such informal communication about a group member’s personal situation may never take place. As a result, DWE members may not know enough about each group member’s
context to fully comprehend factors influencing the frequency, depth, or breadth of communication. Hence, while it ostensibly makes sense to limit text-based communication to work related matters in face-to-face environments, managers may need to consider a distinct set of policies when monitoring communication in a DWE. Managers may want to establish norms that encourage sharing salient, non-work information that influences group members’ ability to communicate.

Another area of related research is the role of mixed media in the development of social practices of DWEs. Although communication via text is primary in DWEs, it is not the only avenue. Typically distributed workers also use the telephone to communicate, and may meet periodically face-to-face. The availability of alternative communication media has an important implication for conducting a hermeneutic analysis. Hermeneutics originally focused on the analysis of ancient texts; thus, the authors were not available to comment on their intentions or to negotiate a given text’s meaning. However, distributed workers usually are available, so they may negotiate meaning through inscribing text and in face-to-face meetings or by telephone. Thus, researchers may explore differences in processes through which distributed workers negotiate meaning in various media contexts.

In conclusion, our hermeneutic analysis illustrates the role of shared understandings in DWEs. Social context elements direct the inscription and interpretation of text in DWEs, and in turn, the interpretations of text influence the social context over time. When gaps in understanding surface, this drives the negotiation of meanings associated with the social context, which can lead to either the affirmation or evolution of the social context. In order to understand the complexities of DWEs, our own analysis and interpretation must focus on the relations text has with its context. The synthesis of hermeneutic perspectives in the study of text provides a unique approach to the analysis and understanding of DWEs and the coordination of work.

References


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