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# ELECTRONIC MAIL AS A MEDIUM FOR RICH COMMUNICATION: AN EMPIRICAL INVESTIGATION USING HERMENEUTIC INTERPRETATION

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## ABSTRACT

Recent studies on electronic mail have uncovered evidence of richness in communications using e-mail. This evidence contradicts information richness theory, which has provided the predominant research perspective on e-mail. This paper demonstrates the merits of hermeneutics as a perspective with which to account for the observed richness. The demonstration involves a hermeneutic interpretation of an episode of e-mail communication in an organization.

Is communication that uses electronic mail rich or lean? Information richness theory proposes that e-mail is lean. Hermeneutics, on the other hand, would explain that text-based media — such as e-mail — can support rich communication. Information richness theory has provided the predominant perspective in research on e-mail. However, recent studies have identified serious weaknesses in information richness theory (Contractor and Eisenberg 1990; El-Shinnawy and Markus 1992; Fulk, Schmitz, and Steinfield 1990; Kinney and Watson 1992; Markus 1991, 1992; Rice 1992; Yates and Orlikowski 1992). The findings include evidence of richness in communications that use e-mail. Information richness theory, whether in its original formulation (which pre-dates the widespread usage of e-mail in organizations) or in its subsequent refinements,<sup>1</sup> cannot easily explain e-mail's emergence as a medium that can readily support rich communication. The accumulating evidence is therefore indicating the need for additional perspectives, whether to bolster or to succeed the perspective of information richness theory. My purpose in this paper is to demonstrate the merits of hermeneutics as one such additional perspective.

Section 1 of this paper highlights the value of a hermeneutic perspective. Section 2 explains five concepts central to hermeneutic interpretation. Section 3 performs a hermeneutic interpretation of e-mail in an organization. Section 4 concludes by offering lessons in the context of recent studies (cited above) critical of information richness theory.

## 1. THE VALUE OF A HERMENEUTIC PERSPECTIVE

Information richness theory identifies documents as a medium lacking in "richness"<sup>2</sup> because they lack the capability for immediate feedback, use only a single channel, filter out significant cues, tend to be impersonal, and incur a reduction in language variety (Daft and Lengel 1986, p. 560). For the same reasons, information richness theory maintains that face-to-face interactions rank among the richest media and that, among the different types of documents, numeric documents are the "leanest."

However, in a remarkable study conducted outside the stream of research on e-mail, Boland (1991) shows how even numeric documents can be rich in what they convey. From the perspective of hermeneutics — a centuries-old discipline devoted to studying how documents are interpreted — Boland examines the responses of experimental subjects, each of whom was presented with documents (specifically, computer output) displaying numeric data describing the performance of two managers and their respective divisions. The task for each subject was to select one or the other manager for a promotion and to provide reasons for the selection. Boland's examination of their reasons is certainly worth reading in full, but the following paragraph captures the gist of his argument (p. 453, emphasis added):

Even though the reports [the computer output] contain only numbers — dollars of expense and simple performance category counts — **the readers [the experimental subjects] do not let the cold, dead numbers just lie there. Rather, they bring the people and situations behind the numbers to life. They appropriate a warm, human reality from the cold numbers. They take the hard, objective data and create a subjective reality of people with vibrant personalities, strong motivations, deeply-felt intentions and complex histories....They not only create but also play with the reality they appropriate from the text.**

For Boland's experimental subjects, the numeric documents were not "lean" at all. Instead, they supported communication no less rich than face-to-face interaction.

Another example of text that is rich in what it conveys is poetry. Poetry can be rich in meaning despite and perhaps even because of its economy of expression, which information richness theory would regard as "leanness."

Hermeneutics, therefore, promises to account for something that information richness theory does not, which is how (even numeric) documents can readily support rich communication. Before proceeding with a hermeneutic interpretation of e-mail, I will first provide an examination of what a hermeneutic perspective is.

## 2. FIVE CONCEPTS CENTRAL TO HERMENEUTICS: DISTANCIATION, AUTONOMISATION, SOCIAL CONSTRUCTION, APPROPRIATION, AND ENACTMENT

Numerous schools of thought permeate hermeneutics (Palmer 1979, p. 33; Tice and Slavens 1983, p. 297), just as numerous schools of thought permeate other fields, such as statistics, management science, medicine, and economics. I will begin with, and then modify and extend, some of the thoughts of Ricoeur (1981) and Boland (1991).

In explaining how the interpretation of text occurs, Ricoeur argues that it is unnecessary to refer to the author's intentions, the text's originally intended audience, or the text's originating culture. A document typically becomes separated from its author, its originally intended audience, and its originating culture, whereupon we can say that the text "takes on a life of its own." To illustrate Ricoeur's position, I offer the Bible as an example. For centuries,

people have read the Bible and found it meaningful, even when they have had no knowledge of its authors, original audiences, or originating cultures. Another example is computer output. We saw, above, in Boland's 1991 study that even computer-generated numeric documents, **although authorless**, can be rich in meaning to its readers. **Distanciation** refers to the separation, in time and distance, that occurs between a text and its author, its originally intended audience, and/or its originating culture and society. **Autonomisation** refers to the text's "taking on a life of its own" despite the distanciation. "By **appropriation** Ricoeur emphasizes that interpretation is 'to make one's own what was initially alien' as it 'actualizes' the meaning of the text for the present reader" (Boland, p. 445, emphasis added). Along these lines, Ricoeur adds, "the intended meaning of the text is not essentially the presumed intention of the author...but rather what the text means for whoever complies with its injunction" (p. 161).

Thus, the meaning of a text can refer, but is not restricted, to what it means to its author or what the author had "in mind." There is, in addition, what Ricoeur calls the text's "non-ostensive reference" — or what I call the already existing social construction, socially constructed reality, or world, of which the meaning of the text is a manifestation or artifact of. Because the term "socially constructed" has become commonly used (in my view, incorrectly) as a synonym for "subjective" in its pejorative sense, I will first explain what I mean by it. For this purpose, a good illustration of a socially constructed reality is Euclidean geometry.

Euclidean geometry does not exist in the physical world of nature. It is, strictly speaking, a fiction. People who carry knowledge of it can come and go, but the object that we call Euclidean geometry persists. Like a physical object, it can retain the same form across the different individuals who encounter it. In this sense, it is objective, not subjective. It is an objective, socially constructed reality.

Furthermore, suppose I am reading a Euclidean research paper. Its meaning is not restricted to the Euclidean argument that its author is making, but also involves the entire socially constructed apparatus that comprises Euclidean geometry — its axioms, theorems, symbols, and logic, all of which transcend what is in the paper and all of which were in existence prior to the writing of the paper. The paper itself is just one possible manifestation or artifact of this apparatus. Upon grasping this socially constructed reality (what Ricoeur would call the paper's "non-ostensive reference"), I become Euclidean myself and I could identify inconsistencies and suggest improvements in the paper. I could thereby transcend the author's own understanding and (as Ricoeur would say) even get to know the author

better than the author knows himself. This returns us to Ricoeur's notion of **appropriation**, which I take a step further: not only can I appropriate the text or what the author had "in mind," but also, the text and the socially constructed world behind it **can appropriate me**. Upon this appropriation, I am no longer an independent individual exercising free will (if indeed I ever was), but I become an agent of the socially constructed world of Euclidean geometry. Other individuals, placed in the same situation as me, would be likewise appropriated and transformed. We could then (and only then) engage one another in a dialogue about this Euclidean research paper, collectively enact some meanings for it, and — after some time, effort, and perhaps struggle — reach a shared understanding of it. Moreover, rather than being agents under the total control of the socially constructed Euclidean world that has appropriated and transformed us, we could still, as a group, eventually render change in this world, perhaps by contributing to its collection of theorems or by offering resolutions to logical inconsistencies or gaps that we identify in it.

Other examples of socially constructed worlds standing behind a text are the world of science standing behind an article in the *MIS Quarterly*, the world of American civilization standing behind an article in *Newsweek*, and the world of spirituality standing behind the Bible. Even when different readers bring different socially constructed worlds to a text (for instance, the world of positivist science and the world of interpretive science that different researchers now bring with them to their reading of articles on information richness theory), the text becomes meaningful for a reader only with one or another world ("non-ostensive reference") standing behind it.

Most pertinent of all to this paper's topic — e-mail — **there is the world of the organization standing behind any e-mail communication**. An organization is a social construction with an existence independent of the people who, at the moment, are populating it and the buildings that are housing it. The socially constructed world of an organization is what would persist even if there were complete turnover in its personnel and even if it were to relocate to different buildings in a different city. Just as the meaning of a text can include but also go beyond what its author had "in mind," the meaning of an e-mail communication can include but also go beyond what its sender had "in mind." Consider an instance in which I, as a manager, am reading some e-mail from a subordinate about a problem involving some office politics. By grasping the already existing, socially constructed world of the organization standing behind this e-mail communication — or rather, by letting this world **appropriate me** as I am reading the e-mail — I could even get to understand the problem better than the e-mail's author understands it. Upon this appropri-

ation, I can proceed to do what Weick (1969) would call **enacting** the meaning for the e-mail.

An important point is that **enactment** does not allow me, the reader of the e-mail, to imagine anything I wish. I do not exercise total free will; rather, as a result of the **appropriation**, I am transformed into an agent of the socially constructed world of the organization. Other individuals, placed in the same situation as me, would be likewise appropriated and transformed. We could then (and only then) engage one another in a dialogue about this e-mail communication, collectively enact some meanings for it, and — after some time, effort, and perhaps struggle — reach a shared understanding of it.

Still, while not exercising total free will, none of us would be under the total control of the socially constructed organizational world that has appropriated us. We could still, as a group, eventually render change in this organizational world, perhaps by adding to or modifying some of its already existing institutionalized values, behaviors, and customs (e.g., implementing a centralized information system as a means of centralizing political control).

Berger and Luckmann, in their theory of the social construction of reality, state (1966, p. 61, emphasis in the original): "*Society is a human product. Society is an objective reality. Man is a social product.*" They refer to these three "dialectical moments in social reality" as *externalization*, *objectivation*, and *internalization*, respectively. *Externalization* refers to not only how an enduring social construction (such as an organization) emerges from ephemeral daily human interactions, but also how ephemeral daily human interactions continually shape and modify an already existing social construction; *objectivation*, to how a social construction acquires the quality of objectivity and how an individual thereby experiences it as "given"; and *internalization*, to how an individual appropriates a social construction and is transformed into an agent through whom the social construction can act.

Altogether, these concepts have dramatic ramifications for research on e-mail as a medium for managerial communication. In undergoing electronic transcription, transmission, delay, and reconstitution, communication using e-mail might very well lack the capability for immediate feedback, use only a single channel, filter out significant cues from the message's author, tend to be impersonal, and incur a reduction in language variety. Yet, communication using e-mail does not necessarily lose richness. It can retain and even gain richness through **distanciation, autonomisation, social construction, appropriation, and enactment**.

### 3. E-MAIL USE AS A HERMENEUTIC PROCESS: ONE E-MAIL COMMUNICATION, A WORLD OF MEANING

In a recent study, Markus (1991) examined numerous e-mail communications in an organization. "HCP Inc. operates in the risk management industry, acquiring professional services for which there is variable demand and retailing them to large organizations for a fixed fee....In 1987, HCP Inc. had approximately 7500 employees, 825 of whom were managers (first level supervisors through corporate officers)" (pp. 10-11).

Markus examined HCP's e-mail from the perspective of information richness theory. However, HCP's e-mail also provides excellent material for illustrating distancing, autonomisation, social construction, appropriation, and enactment. In this section of the paper, I revisit an episode of e-mail communication at HCP from a hermeneutic perspective. I invite the reader of this paper to examine the e-mail communication shown in Figure 1.

As outsiders to HCP (and, indeed, from the standpoint of Galle herself, who was new to HCP and new to the use of e-mail), we can plausibly read this communication as a straightforward and innocuous request about a routine matter. The meaning that emerges, however, depends on the reader, the reader's position in the organization, and the organizational context.

Markus observes that Galle's request elicited quick action, but accomplished this by shattering HCP protocol (p. 43):

the five people on the "To:" line represented different organizational units and different hierarchical levels. CRANE was the vice president in charge of Data Processing, EDHCP a director in charge of a systems training unit that was organizationally independent of (did not report to the head of) Data Processing. By sending her message to both CRANE and EDHCP simultaneously, Nora inadvertently created a situation in which Nell [EDHCP]

Figure 1. Data from HCP, Inc. (Markus 1991, pp. 41-42)<sup>3</sup>

From: Galle 16-APR-1987 07:01  
To: EDHCP, CRANE, ALPHA, BETA, GAMMA  
Subj: (The Word Processing System)

To All Concerned:

In order to become better acquainted with (the) word processing system (on HCP Inc.'s distributed minicomputer system), I would like to request that I be allowed to participate in an extensive training program regarding same. Part of my job entails a tremendous workload of word processing for purposes of documentation as regards...I am especially interested in the advanced features of the software....

As there are no individuals in (my branch) who could be classified as an 'expert' in relationship to this system, we have the only option of contacting (headquarters) when we encounter questions....If offered the opportunity for extensive training of this system, I can, in turn, offer training and support for those users in (this branch). At this time, I am familiar with the basics of the software, therefore, I would be interested in learning the more advanced techniques applicable....The manuals which have been supplied (the branch) are not as comprehensive as the on-hands training I anticipate would be received via instruction from a qualified representative.

Your immediate response to my request would be greatly appreciated.

I thank you in advance for your anticipated response.

Nora Galle  
(title)

was required to respond immediately, whether she wanted to or not, or run the equally undesirable risks of having CRANE 1) intervene on Nell's turf or 2) witness her failure to respond to Nora quickly.

Therefore, what was straightforward and innocuous for Galle turned out to be politically sensitive and managerially troublesome for others. The request turned out to be so extraordinary that it quickly involved HCP's President (who received an e-mail "forward" of Galle's original request, unbeknownst to Galle) and HCP's Executive Vice President. The nature of the meanings collectively enacted for Galle's e-mail communication is evident in the reactions it elicited (p. 42-43) (see Figure 2).

We can supplement Markus's analysis with a hermeneutic interpretation.

First, by committing her words to electronic transcription, transmission, delay, and reconstitution, Galle had set into motion the hermeneutic phenomena of **distanciation** and **autonomisation**. Her words, in becoming separated from herself, took on a life of their own and acquired the latitude to speak for themselves, regardless of whatever intentions she had for them. These words became no longer (if, indeed, they were ever) the property of only their author (Galle) and their originally intended audience.

Second, CRANE, Yvonne, EDHCP, and the President did not let the electronically illuminated pixels comprising Galle's e-mail communication simply lie there, on the screens of their computer monitors. Rather, they brought the people and situations behind the electronically transmitted bytes to life. They **appropriated** a rich, complex human reality from their computer monitors. They actualized a world in which there appeared (1) an MIS department, (2) telephone help, (3) a DPCOORDINATION unit, (4) D.P. Coordinators, and (5) computer programs. *We note that Galle's e-mail itself mentioned none of these five things.* They did not come from Galle's e-mail. They came from the rich, complex human reality which Galle's e-mail had induced CRANE, Yvonne, EDHCP, and the President to invoke.

Third, as a result of the four people's **appropriation** of this rich, complex human reality, they **enacted** a politically sensitive and managerially troublesome meaning for Galle's e-mail.

Fourth, the four people did not arbitrarily invent this rich, complex human reality. It did not spring randomly from their "subjective" imaginations. Nor did CRANE and EDHCP fabricate the demarcation in organizational turfs between them. Rather, this rich, complex human reality is the objective **social construction** that we have been calling "HCP." It was in existence long before Galle sent her e-mail communication and likely even before Yvonne, CRANE, EDHCP, and the President even entered HCP. As a socially constructed reality, its existence would not have lapsed even if its inhabitants had turned their attention elsewhere. Indeed, one of them — Galle — even had no knowledge that this socially constructed world was standing behind her words or that her words would trigger its actualization by the four people.

Fifth, the meaning that the four people enacted for the e-mail transcended what the e-mail's author had in mind when she composed it. Instead, the four people enacted their meaning for Galle's e-mail in accordance with the possibilities and constraints presented by the socially constructed world of HCP — a world that appropriated and transformed these people into its agents. As members of this socially constructed reality, **the four people came to understand the e-mail communication better than its author did:** "[T]he intended meaning of the text is not essentially the presumed intention of the author...but rather what the text means for whoever complies with its injunction" (Ricoeur, quoted above). Appropriated by the same socially constructed reality, the four people were able to engage one another in a dialogue about Galle's e-mail, collectively enact some meanings for it, and reach a shared understanding of it.

Notably, there was one person — the Executive Vice President — who did not read Galle's e-mail communication, but who nevertheless became appropriated by the same world that appropriated the four people and who participated in their development of a shared understanding of Galle's e-mail.

We outsiders to HCP (I, the author of this paper, and you, its reader) become able to enact the politically sensitive and managerially troublesome meaning of Galle's e-mail only when we turn our own attention to and appropriate the organizational reality of HCP (and, at the same time, let this organizational reality appropriate and transform us). Indeed, our initial reading of Galle's e-mail, above, had resulted in our original enactment of a straightforward, innocuous, and routine meaning for it **precisely because we ourselves had not yet undergone this appropriation.**

## Figure 2. Reactions to Galle's E-Mail Communication

at 14:46, from the President to EDHCP (obviously in reply to EDHCP's

FORWARD):

you need to ask Ray (the executive vice president) what his feelings are on the need to train in (the branch). one would think with an mis (Management Information Systems) dept there they could do their own training. dave

at 15:38, from EDHCP to Executive Vice President:

Ray, Nora Galle asks for...training in...altho there are MIS people there. Do you think we need to train...? I think that with manuals and phone help from...and myself they should be fine...But I haven't been there yet so I don't know the extent of the need....Nell

at 16:06, from Executive Vice President to EDHCP:

I don't know who Nora is. They know how to use email. I would try the "long distance" training approach first. Ray

at 20:02, from CRANE, to his subordinate, Yvonne, in a forward of Nora's request:

Yvonne, please coordinate with Nell ...

at 20:02, from Yvonne to EDHCP:

Nell, how would you like to go about this? We sent her a manual today but it looks like she wants to learn a whole lot more. If there is anything I can do let me know. Thank-You, Yvonne

at 13:40 on 17-APR, from EDHCP to Yvonne:

Yvonne, what is the nature of Nora's (word processing)-related contact with DPCOORDINATION (Yvonne's unit) to date? Thanks, Nell

at 13:54, from Yvonne to EDHCP:

She has not placed any calls as far as our (computer) program shows. She may have called our D. P. Coordinators directly. I think she wants to start learning (the word processing program) from scratch so she can become the resident...support person.

The organizational reality of HCP is not the only socially constructed world of meanings available for enactment by the President, CRANE, EDHCP, Yvonne, you, and me. Each one of us has access to multiple worlds of meanings that each of us actualizes at different times, in different situations. I, when reading a memorandum from the Financial Affairs Committee of the Faculty Senate, enact meanings from the world of faculty-administration politics at my university. I, when reading an article published in a research journal, enact meanings from the world of formal

logic, mathematics, and principles of experimental design. I, when reading a letter from my sister, enact meanings from the world of kinship relations rooted in the culture of the country from which my great grandfather emigrated to the United States. Each such world is not private and imaginary, but public and objective: other individuals in my position, reading the same document, would enact meanings from it in compliance with the same rules, assumptions, possibilities, and constraints presented by the same social construction, where these individuals are also

members of the Faculty Senate at my university, scientific researchers in my discipline, or members of my family.

Galle's e-mail was not "lean." The meanings that it conveyed were not limited to those of the dictionary definitions of the words in which it was written. Instead, through distanciation, autonomisation, social construction, appropriation, and enactment, it conveyed, literally, a world of meaning.

#### 4. CONCLUSIONS

This paper's hermeneutic perspective joins Fulk, Schmitz and Steinfield's "social influence" perspective (1990), Contractor and Eisenberg's "emergent network" perspective (1990), and Yates and Orlikowski's "genre" perspective (1992) in the growing movement away from information richness theory. All four perspectives reject the information-richness-theory bias for evaluating media separately from their use by knowledgeable actors in their social, historical, and political contexts.

Fulk, Schmitz and Steinfield target the core premise of information richness theory — that "information richness" is an inherent, physical property of media. Based on this premise, information richness theorists have even offered rankings of media along a single "information richness" continuum, where a medium's ranking is considered to be invariant across different users and different social contexts. In the social influence model that Fulk, Schmitz and Steinfield offer, different individuals can perceive the same medium differently; also, richness of communication can vary with the social context.

Contractor and Eisenberg, similar to Fulk, Schmitz and Steinfield assumption that "each medium has an 'objective' social presence" (p. 145). Instead, in their emergent network perspective, they incorporate (p. 150) the proposition by Markus and Robey (1988) that "the uses and consequences of information technology [such as a communication medium] emerge unpredictably from complex social interactions." Unlike information richness theory, the emergent network perspective's unit of analysis is not the individual, but the relationships ("network") between individuals.

Yates and Orlikowski expose the failure of information richness theory to account for different communication genres. The same medium can carry messages employing different genres, just as the same genre can be carried in different media. For instance, the medium of e-mail can carry messages taking the form of business letters, memoranda, informal personal notes, and also what Markus

(1991) calls "mosaic messages" and "shotgun messages" — each of which Yates and Orlikowski would consider a different genre. The significance is that the same medium, in carrying messages employing different genres, can support communication with varying levels of richness.

If the above (and other) claims of conceptual limitations in information richness theory are correct,<sup>4</sup> then these limitations should also show up in the form of unfavorable results in empirical testing. Indeed, this is the case. In a study of HCP, Markus (1991) presents evidence of e-mail communications that, **even according to information richness theory's own criteria**, are rich, not lean. In another study of HCP, Markus (1992, p. 36) observes that "actual media use behavior [by managers] was inconsistent with [information richness] theory." Rice (1992, p. 493) finds no support for information richness theory's assumptions of "symmetry" and "nonmonotonicity" and only mixed support for its "general hypothesis that task analyzability influences the relationship between media usage and performance components." Neither El-Shinnawy and Markus (1992) nor Kinney and Watson (1992) find empirical support for some of the important claims that information richness theory makes. Fulk, Schmitz and Steinfield and Yates and Orlikowski cite additional studies exposing empirical weaknesses in information richness theory. Finally, although not framing her study of electronic text as a hermeneutic critique of information richness theory, Zuboff (1988) uses a concept she calls "textualization" (p. 376) to explain the richness (the "sociality that infuses professional exchange") she observes in communications that use e-mail and computer conferencing.

This paper's hermeneutic interpretation suggests three lessons in accord with this stream of research. First, information richness theory is simply inadequate for studying and managing communication that uses e-mail. The point is not that the medium of e-mail inherently possesses a richness greater than what information richness theory has indicated it to be, but that e-mail has the capability to support rich communication, depending on how e-mail fits into people's efforts of appropriating social constructions, enacting meanings, and working toward shared understandings. This paper's hermeneutic interpretation of e-mail at HCP presents evidence of this capability. The mechanisms and circumstances through which distanciation, autonomisation, social construction, appropriation, and enactment culminate in the capability's realization — or, just as important, result in its remaining latent — are unknown and therefore designate an important topic for future investigation.

A second, corollary lesson is that the presumption of a single "information richness" continuum along which



different media may be ranked is just plain wrong. For IS researchers crafting theories of computer-mediated communication and for IS practitioners deciding on the purchase of one or another communication system, better guidance would likely come from an inquiry into the presence of any socially constructed worlds that a medium's users already have in common or a pilot test of a medium's capability to support users in appropriating a shared social construction and enacting a common set of meanings. Because there is no single "information richness" continuum, future research needs to establish how many different continua or appropriate dimensions there are, as well as what specific characteristic each one is a continuum or dimension of. This could require a zero-based reconceptualization of what "richness" is.

Last, e-mail systems are but an instance of information systems in general, to which past lessons learned about IS could still apply. For instance, researchers taking a socio-technical systems perspective have long known that an information system is more than just "the computer" — it is a socio-technical system, consisting of interacting social and technical subsystems. Hence, any attempt to optimize the functioning of an IS by optimizing its technical subsystem (hardware, software, data), without also managing its interactions with the social subsystem (people, organization, procedures), will incur suboptimal results or even an outright systems failure (Bostrom and Heinen 1977; Cherns 1976; Davis et al. 1992). Applied to e-mail systems, the lesson is that any attempt to optimize managerial communication by choosing the "richest" physical medium, without also managing its interactions with the social context, will incur suboptimal results or even failure. Socio-technical systems design is just one perspective. Other perspectives represented in past IS research surely harbor additional lessons useful for suggesting how we might, and might not, proceed when studying and managing e-mail as a medium for managerial communication.

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## 6. ENDNOTES

1. For a meticulous account of the evolution of information richness theory from the time of its original formulation by Daft and Lengel, see Markus (1992).
2. "Communication transactions that can overcome different frames of reference or clarify ambiguous issues to change understanding in a timely manner are considered rich. Communications that require a long time to enable understanding or that cannot overcome different perspectives are lower in richness" (Daft and Lengel 1986, p. 560).
3. Markus has altered all names and supplied the words appearing in brackets.
4. For another view of such claims and the perspectives that offer them, see Markus (1992).