

Communication at a Distance

The Influence of Print on Sociocultural Organization and Change

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Socio-Cultural Organization and Change**

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Preface

"Communication" is a single word but not a single idea. This simple truth explains, among other things, why the economy has room for "experts" in communication with marvelously different talents. Take the marketing industry, for example. Market researchers spend years training how to locate the "right" audiences for a product or service, but may spend comparatively little time learning how to design the copy needed to make sales. Advertisers trained in writing and graphics know how to produce that copy but may have no expertise in evaluating whether their messages actually work, a skill often left to evaluation consultants. The division of labor among communicative expertise is real but not absolute. The market researchers could not locate target audiences as easily were they entirely innocent of the messages needed to rouse them. The advertisers could not sculpt these messages into rhetorical masterpieces were they not also sensitive to the message's prospects for persuading. The evaluation consultants could not improve these prospects without insight both into how demographics are broken down and how messages will "play to" different audiences in the breakdown.

The differences in emphasis obtaining among communication experts in the marketplace has also applied to communication researchers. Every communicative transaction depends on a communicator locating or making contact with partners, up close or at a distance, crafting and exchanging messages with them, and the partners then taking the effect of their exchange -- however slight or subtle, however shared or private -- with

them as they separate and go on to other pursuits, including further communicative transactions. The process of locating partners, exchanging information, and continuing on are regularities of all communicative transactions and all communication researchers touch on all these regularities, more or less, explicitly or implicitly, in their investigations. Yet here too there is a division of labor because it is almost never the case that communication researchers pay *equal* attention to each of these regularities. The empirical tradition in communication research has focused on the demographic selection of messages and their diffusion to audiences (in the case of mass communication) as well as the effect of specific messages aimed at audiences in controlled settings. The humanistic tradition in rhetoric and communication has focused on the specific exchange (and negotiation) of information between speakers and audiences, as played out through ordinary conversation, speeches or written texts in settings of assumed socio-cultural importance. These generalizations are not to suggest that the empirical tradition in communication neglects outright the production and reception of culturally complex messages; nor that the humanistic tradition focuses only on the meaning of messages apart from their demographics, diffusion and effect. We note only a difference in emphasis across these traditions.

There are occasions, however, when even a slight emphasis in either direction can impede inquiry, both for the humanist and the social scientist. Suppose we ask, What are the consequences for a community that conducts its communicative transactions in a particular way? This question lies outside the bounds of traditional humanistic questions about the conditions under which speakers produce and hearers interpret a

specific message; lies outside the bounds of traditional social science inquiry about the demographics, diffusion rates or effects of a specific message. For the question does not make reference to a *specific* message, audience or effect at all. It rather refers to a particular type of community and a particular way or a particular set of ways it chooses to structure its communicative transactions. It inquires about the consequences on the community of structuring its transactions as it does. Furthermore, it presupposes the entire communicative transaction and not a particular component as the integral unit of analysis for research.

This shift in presupposition has implications for the way a communication researcher frames his or her inquiry. While traditional research tends to make the *specific* audience, the message, or the effect the object of inquiry, the effect of the shift we are now discussing -- making the communicative transaction the integral unit of analysis -- is to bundle all these elements into a unit called a "transaction" and to allow for a certain degree of arbitrariness in the elements. With this shift, for example, the communication researcher may choose to study the implications of a *specific* type of communicative transaction within a population across *any* audience or message randomly chosen from it. The arbitrary element assures that the implications studied result directly from the nature of the communicative transaction itself and does not depend upon a particular set of individuals engaged in the transaction or a specific content being negotiated between them. This arbitrariness may seem like a reductive step -- and it is. But it is no different from the idealizations made in humanistic inquiry when a critic make a credible argument for a specific *interpretation* of a culturally complex message based on the reasoning of an

"ideal" reader (generalized from his or her own readings). With this shift, further, the communication researcher need not be fixed on a *single* transaction but can pursue the short- and long-term implications on a community of carrying out multiple, ongoing and over-time transactions of a particular type or of mixed types. The approach to communication under these shifted presuppositions can thus apply well beyond "one-shot" interaction and can be used to study the concurrent and over-time transactions that constitute the social life of a community. Focusing on the communicative transaction allows us to break down a number of distinctions that attend (and, in our opinion, restrict) traditional communication research, distinctions that tend to suppress opportunities to see and explore continuities between the content and context of a transaction; between the information exchanged within a particular transaction and the path of diffusion through which it comes to influence other transactions; and between the micro-actions of communicators participating in these transactions and the macro-structures that result as these transactions aggregate across time. Traditional research focuses on all these poles of communication but without also focusing on the continuities that hold them together.

This book is an example of communication research conducted with these continuities foremost in mind. We proceed from the premise that there are integral units called communication transactions, units that can help us explore continuities of social organization that arise from the circulation of information through concurrent transactions unfolding over time. This focus is particularly useful when one is foremost interested in comparing and projecting the aggregate and over-time implications of transactions

that differ chiefly because they rely on different media. This is our purpose here. We shall be comparing print-based and face-to-face transactions for their aggregate and over-time implications for socio-cultural organization and change. Setting up the terms of comparison between these transaction types is tricky, however, and problems abound in research that tries to compare the consequences of different media in social, historical and cultural terms. We can perhaps best introduce these problems by enumerating what seem to be some plausible "facts" about print.

Let us take print as a specific type of communicative transaction, one where communication takes place "at a distance," where the exchange of information is one-way (author to reader) and takes place through the vehicle of a text. Because of the physical separation -- in time, space or culture -- between the author and reader in print transactions, there is simply too much work in writing and deciding what to write for the author to be casual or unmindful of the separation with the reader; too much work in reading and deciding what to read for the reader to overlook the "absences, gaps, silences, and opacity" in the author's context (Ong, 1980:132.149). The author-reader encounter achieved through print takes place in the face of such separation. In print transactions, the interaction partners can be serendipitous strangers (some long dead) living in remote times and places. A single archived text can survive generations and can potentially matter to the "histories" required by the individuals of any contemporary generation to replenish the memories of their cultural inheritance and, conceivably, to add to them. As White (1984: 280) has observed, archived texts can be important purveyors of culture and community:

The written "text" has a unique place in the history of culture, for it reduces to permanence a process that is otherwise ephemeral and renders public, through the multiplication of readings, what is in the first instance essentially private. Unlike any other conversation, it has an unlimited number of anonymous but necessarily individual partners, located in an unlimited set of cultural contexts. It offers its reader an experience of cultural reconstitution that can be repeated in the imagination at any place or time. In this sense it is a part of the culture that transcends its own immediate location in space, time, and social context.

The "unlimited" number of anonymous readers White attributes to the written text is an exaggeration, but nonetheless an exaggeration first made made possible through the potential of print. To be sure, communication at a distance was not an idea born with the mechanical reproduction of the written word: it occurs whenever space, time, culture or any interaction thereof separate producers of information from recipients. Separations in culture always presuppose separations in space and often separations in time. Separations in time presuppose separations in space. But separations in space presuppose nothing about temporal or cultural separation. When space is the only important factor of separation (and time only incidentally relevant because of the physical fact that it takes time to travel from one site to another) communication at a distance is a rather banal notion and has been with us since time immemorial, carried out through a variety of stock roles and occupations: gossips, nomads, wandering minstrels, merchants, war correspondents, town criers, royal emissaries.

Long before print, moreover, there was a remarkable technology supporting separations in space but also important separations in time -- writing. Goody (1986) has argued that the economy, commerce, law and civic

organization of the ancient world relied on certain abstractions made possible only through the "distancing" assumptions of writing -- the fact that texts could function as a proxy for (and reminder of) agreements that had been made at sites removed in space (e.g., bills of sale, deeds, court records, licenses, tax records) but, even more importantly, in time (e.g., constitutions, histories, decrees). The capacity of writing to organize urban life required that texts not simply be a proxy for enacted social agreements but a durable proxy. One couldn't organize the life of a community if it were left to each new generation to renegotiate all its social agreements anew. Writing made it possible to preserve these agreements across generations.

Print, better than writing, overcame a more challenging author-reader separation, the separation of time and culture. The natural competitor to writing was human memory. Print also competed (well) with human memory because it shared with writing the property of archivability. But unlike writing, print was reproducible and so no longer held a text hostage to the material fate of a single physical surface. Print proliferated the life of a text into copies and editions and this proliferation increased the chances of a text (some copies, some editions) surviving into different cultural epochs. Despite its important ties to long-term archiving, print's most important contribution, for our purposes, was in the way it helped redefine social interaction. Specifically, print entirely redefined the relationship between messengers and messages as they had been understood in ordinary face-to-face interaction. In speech and even in writing systems lacking a sophisticated system for copying -- unlike the monastic scribes who had such systems -- a single message presupposes the travel of at least

one human messenger. Either the listener must travel to the speaker or the speaker, to the listener; either the reader must travel (or find a courier to travel) to the site of the writer's text or the writer must work out the same logistics to reach the site of the reader. Because of the mechanical reproducibility of the printed word a single messenger, distributing copies, could be responsible for multiple sites of reading. The ratio of messages to messengers dramatically increased with the introduction of the steam press in the early 19th century. After the telegraph, print transactions attained the speed of electronics, no longer requiring a human messenger to travel at all. Though its reproducibility and speed, print conferred to communication at a distance an unprecedented socio-cultural presence, one that made it possible to maintain, through fast-circulating texts, various macro-institutions of the society -- government, corporate, professional and academic -- beyond the bounds of spatial-temporal proximity.

Thus far, we have devoted some space recounting certain "facts" about print with deliberate scare quotes around *facts*. What is the hesitation in the story we have told so far? Our story has sneakily proceeded as if oral, written, and print transactions were simply evolutionary replacements of the other. The story disguises that new media co-exist with, rather than replace, new media. As Ong (1971:25) puts it:

When men learned to write, they continued to talk. When they learned letterpress printing, they continued to both to talk and write. Since they have invented radio and television, they have continued to talk and write and print.

Yet it is one thing to acknowledge the complication of co-existing media. It is quite another to include it as part of one's theory. Even among the eminent theorists who recognize the complication of co-existing media, such as Ong (1971) and Eisenstein (1979), the tendency has been to tell a rather unbroken story of how newer media come to dominate older ones. Writing dominates speaking; print, orality and writing; electronic communication, print. The dominance story is simple and elegant but it often leaves embarrassing holes, chief among them that newer media often *increase* the contexts of use for the older. Writing did not not squelch speaking but created new contexts for speech; print created new contexts for writing; electronic communication has proliferated the contexts for paper and printing.

In light of the difficulties of the dominance story, one has to be careful not to set up contrasts across media that assume their independence. The terms of the contrast between any two media must instead be set up between (1) the older media and (2) the older media *in interaction* with the newer. We need, in other words, not to set up oral communication in direct conflict with writing but rather ask what new possibilities were opened up to speakers when they could take advantage of writing as well? We need to avoid pitting orality and writing directly against print but instead ask what additional possibilities became available to speakers and writers when they could also rely on print? This last question is the central question we ask in this book. And to answer it, we need to formalize a notion of the face-to-face communicative transaction; of the written transaction; of the print transaction; and then compare the aggregate and over-time implications of

(1) societies with only face-to-face and written transactions against (2) societies where speakers and writers can also rely on print.

Part I is designed to provide historical background for and present our formalization of different transaction types, mainly face-to-face interaction and print. In chapter 1, we stress the interdependence of writing and print by discussing the myriad of new writing contexts that opened up during the industrialization printing. In chapter 2, we discuss the web of social-interactive roles that have developed with the print industry and we use this discussion to tease out a host of features needed for modelling oral, written and print transactions. In chapter 3, we lay out these features as a set of definitions and axioms about these transactions (written mainly from the perspective of print transactions but that oral and written transactions as well). In chapter 4, we discuss the role that language plays in a model of communicative transactions since it is, after all, language that diffuses across transactions and that changes as the individuals who use it change. In chapter 5 we introduce the theoretical framework, constructivism (Carley, 1991), that we use to model the crucial differences between (especially) face-to-face and print transactions.

Part II is designed to apply the model to four print-based settings or (as we sometimes call them) "societies." These consist of (1) societies with only scattered printing presses, roughly resembling the pre-industrialized print societies of Europe and America -- though we extend inferences from these societies to aspects of the modern print market as well (chapter 6); (2) societies that include professional groups, roughly resembling the specialization of the print market that took place at the end of the 19th

century (chapter 7); (3) societies that include academic groups, roughly resembling the growth of the knowledge industry since World War II (chapter 8); (4) societies with intellectual migrants, academics who circulate texts across diverse academic communities (chapter 9). This chapter is not based in an approximate historical period but reflects a long held belief -- perhaps myth -- that associates innovation and migration. In the course of these investigations, we raise and try to offer preliminary answers to such questions as, to what extent does print alone affect the internal organization of a community? To what extent is professional or academic organization dependent on print? How does intellectual migrancy work and what, if any, role does print play in its functioning? We show in each of these domains that print "dominated" in its competition with oral interaction in some respects and failed, at least in relative terms, to dominate in others. These results suggest the serious limitations of any treatment that makes print's (or any newer technology's) dominance over oral interaction (or any older modality) monolithic and total. On the other hand, we further show that by expanding the individual's reach, print proved itself an important factor in determining the patterns of interaction that could be most effective in promoting rapid socio-cultural change. While the results we offer are far from definitive and undoubtedly require further investigation, we think we have been able to dig fairly deeply into some as yet unplowed intellectual territory and to prepare that ground for further work.

It is important to understand that the communities and contexts we explore in Part II are abstracted societies, motivated from a good deal of historical data, but based on models far simpler in their structure than the historical

record suggests. Throughout Part II, we intermingle computer-simulated models of such "societies" and historical data. This style of presentation and argument is likely to be unfamiliar to most readers and it deserves some explanation. We share Giere's (1988) understanding of theory development as the framing of high-level historical accounts and the operationalizing of these accounts into a set of models that furnish insight into how the accounts need to be elaborated and revised. The models capture minute detail that the historical account is incapable of capturing on its own. The historical account, in turn, confers to the models unity, coherence, historical texture and depth and, one hopes, a consistent background commentary. The historical account is always more rich, detailed and, in the end, more interesting than the abstracted models can ever be, but the abstracted models function as "reality checks" for the historical account, insuring that our generalizations have at least some logical rigor that follow upon a set of clearly explicit assumptions.

Precursors

This book takes a different perspective on communication from most accounts but it is not without intellectual precursors. What our precursors typically have in common is a starting point that reveals a deeper interest in the communicative transaction and in the aggregations of transactions across a community than in the nature of the individuals, audiences and local effects that constitute a *single* transaction. Work that indicates this interest sees deeper continuities than divisions between the nature of transactions in a community and its evolving socio-cultural organization, between issues of meaning and diffusion, between language as an

embodiment of an inherited self or culture and language as a plastic resource for changing either or both.

On these criteria, we see ourselves continuing a set of inquiries into print begun by cultural historians such as Ong (1958, 1971), McLuhan (1962), Yates (1966) and Eisenstein (1979). These authors affirm that print changed the basic organization of how information was understood, from units organized by the oral/aural senses to units organized by the visual senses. The effect of this reorganization was to codify in visual format many of the conventions that in an oral culture had only heretofore been preserved through mnemonic formulas. The codifications of print required their own conventions, including paragraphs, headings, tables, diagrams, outlines and so on. And these conventions, these authors affirm, not only preserved information from oral culture but, in the process, changed it:

[T]he use of printing moved the word away from its original association with sound and treated it more and more as a "thing" in space....[T]he emphasis on visual layout ushered in by the Gutenberg era made older texts seem less well organized (Ong, 1971:184-185).

A common assumption of authors in this tradition is one we have already mentioned and criticized. The assumption is that newer media come to dominate the meaning, relevance and terms in which the older media is thought. Ong (1971:167), for example, contends that the very idea of the enormous dissemination potential of information did not crystallize until written typography:

Typography did more than merely "spread" ideas. It gave urgency to the very metaphor that ideas were items which could be "spread."

Both Ong and Yates focus on how literacy came steadily to erode the essentially oral/aural culture of the ancient rhetorical tradition. McLuhan and Eisenstein are somewhat less nostalgic about the changes wrought both by literacy and print but their focus also targets the dominance of the printed word on earlier information media (and in McLuhan's case, the rising dominance of the newer electronic media over print). Despite the differences in emphasis, the thrust of this intellectual tradition has been to show how newer media dominate the terms in which the older is understood and received. While there is value in this emphasis, it also fails to explain why new media often raise the demand for the old. Furthermore, the emphasis on media dominance in this tradition seems to have eclipsed looking into the legitimate *competition* that can exist across coterminous media. After all, when you live in a society with a choice between media, you need to become more circumspect about which you will use. Office managers who want everyone in the suite to know a hot piece of news can write a memo or leave it to word of mouth to make its way around. The memo won't compete with word of mouth but will fuel it. So if the office manager decides only on word of mouth without the memo, he or she is really only deciding not to give word of mouth an additional boost. What are the consequences of granting or refusing to give word of mouth this boost? The answer depends on many factors, among them how fast word of mouth is travelling, who would read the memo (were one composed) and whether readers of the memo would be inclined to pass on their information to non-readers. These factors point out the real complexities involved when asking questions about the contrastive role of

media in structuring socio-cultural organization and change. Yet the same factors get lost or shunted aside when a theorist stands on high and simply proclaims "print dominates."

We further see ourselves building on the work of some composition, educational and rhetorical theorists who have investigated the nature of author-reader separations over space, time or culture. We have found the work of Brandt (1989; 1990), Nystrand (1986, 1989), White (1984) and Mailloux (1989) all helpful in this regard. These theorists, some more directly than others, provide a corrective to the seeds of technological determinism in many of the "media" theorists cited above. This determinism conflates principles of external storage and retrieval with principles of human cognition and assumes that the technologizing of society inevitably leads to a "technologizing" of mind (Bolter's [1991] fine book has many hints of this determinism as well]. Because of its reproducibility and archivability, for example, print undoubtedly established new standards for the precision of information that could be stored and retrieved. Yet the media historians cited above are sometimes guilty of assuming (or appearing to assume) that with the growth of methods to store and retrieve information precisely came the growth of (literate) mentalities that could deal with precise information better than the pre-literate mind. Proponents of this determinism also claim (or appear to claim) that print technology taught literate readers how to fashion the mind into a computer that could decontextualize meaning into a set of abstracted symbols, that could engage texts *apart* from the involvements of ordinary social interaction.

The work of Brandt, Nystrand, White, and Mailloux is poised against a technological determinism that presupposes the complete dominance of new media over old and that newer, dominant media that come upon the scene inevitably become internalized as principles of mind. These four writers rather assume that print transactions are deeply contextualized transactions, continuous with and not disengaged from the passions and involvements of an ongoing social world. They all assume that the reader's challenge is not to abstract context from the text but rather to find and fill in the context that confers meaning to its signs. Brandt specifically shows how print communication requires interpersonal involvements no less -- and often more -- intense than face-to-face communication. Nystrand's approach -- what he calls a social-interaction theory of writing -- has been to study how writers and readers learn their roles by learning to adjust (each in their own time and place) to one another. Nystrand's basic principle of literate interaction is *reciprocity*, the notion that writing-reading is an ongoing fiduciary act in which writer and reader seek to coordinate perspectives and to be willing to make adjustments, when necessary, to maintain coordination. Brandt and Nystrand often analyze the micro-details of individual texts written by contemporary authors to contemporary (often student) readers. They have thus studied communication at a distance between authors and readers separated in space but not separated, in any problematic way, in time or culture.

White (1984) and Mailloux (1989) have been more specifically interested in author-reader separations that involve time and culture as well as space. Both are interested in the problem of interpreting texts that endure across generations but for different reasons. White's main interest is to show how

his reading of enduring texts separated in time and culture -- Homer, Thucydides, Plato, Johnson, Swift, Burke -- yields insight into the "boundedness" of language within any cultural epoch. White maintains that these great authors, authors who addressed the foundational issues of their culture, also addressed this boundedness and, in the process, escaped those bounds by investing their culture and language with new meanings. White's primary purpose is not the exegesis of great authors but to show that the reciprocally detached and invested relations that these authors achieved with their culture and language are case studies of the kind of reciprocity required of any literate writer or reader. White, it should be clear, also has a notion of reciprocity but it differs from Nystrand's. For Nystrand, reciprocity explains how writers and readers learn to coordinate meanings across space. For White, reciprocity is not a coordination principle but a reflective principle underlying literacy which, White believes, one can learn, in part, by learning to read authors and texts removed in time and culture. White's reflective principle of reciprocity states that individuals can't be truly literate in the language of their inherited culture without learning how to see meanings beyond those that their language and culture make immediately visible. This is why, for White, the reading of "long-distance" texts is so important to the development of literacy.

The ability that White believes so crucial -- to reflect on language and its invested meanings beyond the immediate possibilities of the culture -- presupposes a certain elasticity in the nature of language itself. This elasticity is made possible by the fact that language users are continually learning about the world and they are bringing this learning both to their

new communicative transactions and to the language invested within them. It is made necessary by the fact that the world being learned is also changing and language users must continue to address these changes in ever new transactions. Mailloux has focused on both the possibility and necessity of this elasticity in author-reader relationships separated by time and culture. He shows in a number of case studies how authors and readers interpret cross-generational texts as rhetorical resources adapted to their own time and place. He has investigated, for example, how advocates on many sides of the racial argument in late 19th century America used *Huckleberry Finn* to advance their specific interests; how Twain's book also figured in many cultural definitions, debates and reworkings of the meaning of juvenile delinquency in the late 19th century; how the language in the ABM treaty of the Carter years was "stretched" in the 1980s to meet the local (and opposing) goals of the Reagan defense policy.

Taken together, this tradition of theory has said a great many interesting things about the reading, writing and interpretation of texts removed in space, time and culture. But in each case writers in this tradition have made the supposition that individuals are engaged in a transaction with such texts, either as writers or readers. That is to say, theorists in this tradition drop in on individuals when they have already taken on the pose of a reader with a text -- and the issue left to ponder is what they will get out of that text (as readers) or put into it (as writers). For us, it is important to start earlier in the process, at the point when individuals are in a suspended state and have made no firm decisions about interacting with anyone, much less a text. For us, it is important that a theory of the communicative transaction try to explain how individuals ever decide to

engage a partner (a person or a text) in the first place. You enter a large room and you see a dozen people and 100 books on the shelf. Who or what will be your first encounter and what, if any effects of that encounter (and the effects of all the other ongoing encounters) will lead you to your second? An understanding of the communicative transaction and the aggregate and over-time effects of such transactions must include *some* account of the decision-making that goes into the selection of a partner (person or text) at any point in time. Because this decision-making is so important to the dynamics of communicative transactions over time, our emphasis is on principles that underlie it. Instead then of "involvement" or "reflexivity," principles that emphasize either author-reader coordination (Nystrand) or reflections on that very process (White), our focus is on principles that help communicators decide with whom (or what) to enter transactions. The chief principle used to explain this is called relative similarity-based interaction (chapter 3, 5). The observation of language's "elasticity," so crucial to Mailloux's work, is also crucial to ours. For, within any theory of a communicative transaction, one must explain how language can both endure across transactions and yet be changed in the process. We discuss the elasticity of language in terms of "cross-pollinating" symbols that can come into play during communicative transactions (chapter 4).

Our methods differ from this tradition of theorists as well. We rely less on textual analysis than Nystrand and Brandt; less on historical exegesis than White and Mailloux. Our method is drawn in part from history, in part from the social sciences. For us, history and the analysis of specific texts provides an indispensable backdrop for a theory of the communicative transaction; but alone does not tell the whole story. We try to explore

regularities of communicative transactions (both oral and print-based) that do not let the phenomenon of the single classic or blockbuster tell the story for us. Or rob us of the story we want to tell. For the story we want to tell is not about specific communicators in specific circumstances but about specific types of transactions (speech, print) and their aggregative effects within institutions that, for the most part, emerged with print. In the postmodern tradition of Derrida (1976) Foucault (1977), and Barthes (1981; 1982), we take a systemic view of writers and readers as roles with important and measurable consequences on the social world, whether their impact, or even their identity, is perceptible or imperceptible. Clearly, there is no strict incompatibility between a systemic interest in communicators and the traditional literary focus on authors of renown. Were our interests in a specific world-historical author -- a Rushdie, Eco, or Stowe -- we could easily devote an entire book to a reconstruction of the systemic factors that defined the roles of single print authors [see, for example, Rodden (1989) on Orwell] and those of their readers, both in their contemporary setting and over time. Our focus in this book, however, is not on individual cases, but on the morphologies of certain writing and reading roles -- the *print*, *professional*, *academic* and the *migrant intellectual* author/reader -- and the consequence that print played in their evolution.

This focus moves us a bit off the beaten path of composition, rhetorical, educational and historical inquiry and into the social science literature on social systems, how they are organized and how they change. Our precursors here fall within the specialties of social theory and information diffusion. In social theory, we rely on the work of Collins (1981), Giddens (1984), Archer (1988) and Turner (1990), all of whom seek out a middle-

ground or "meso-structure" between the micro-interactions of individuals and the macro-structures of society. Turner's synthesis of social interaction theory shows how researchers in social interaction have tended to focus on one or another of the components that we identify with the communicative transaction -- either how social actors find their communication partner; how information is exchanged once a partner is found; the short and long-term consequences of this exchange on socio-cultural organization and change. Turner's account implies (at least for us) that what is missing in social interaction theory are operational accounts and methods by which to "combine" each of these phases of social interaction into a single unified theory. Theorists seeking a "meso-theory" to unite micro-interaction and macro-structure are now working on providing them.

But none of these theorists has seen such a unified theory needing to take the form of a *communication* theory -- and, specifically, a theory of the communicative transaction -- as directly or explicitly as Carley (1991). We rely on Carley's social science framework, what she calls *constructuralism*, in order to model communicative transactions and to trace the aggregate effect of such transactions on socio-cultural organization and change. Carley's work involves a theory and a set of computer simulation models that attempts to describe how social life is constituted out of the varieties of communicative transactions that take place at the micro-level of interaction. In its original conception, *constructuralism* was limited to theorizing and modelling transactions that took place face-to-face or one-to-one. In this book, we have extended the *constructuralist* framework to accomodate print and other mass media

(viz., one-to-many) transactions as well. It is non-trivial to make this extension and much of Part I is designed to help motivate the theoretical and methodological assumptions needed to understand how we represent the competition between speech and print transactions.

Researchers in the diffusion of information (Katz, 1966; Rogers, 1982) are concerned with the movement of information over time, not the "one-shot" exchange. Consequently, such researchers tend to take the communicative transaction as a basic unit of analysis, one that aggregates and unfolds over time. At the same time, standard diffusion models make a number of assumptions that are inappropriate for our purposes. First, the majority of models do not represent messages as changing as they move from one transaction to another. Such models are very good at depicting the movement of information about a new technology (e.g., computers in stock price prediction), a dangerous disease (AIDS) or a preventative (condoms). In these cases, what gets diffused is a static and binary bit of information (i.e., knows about it/does not know about it) that does not change across individual transactions. There is no *formal* attempt to represent a message as decomposable into many components, any of which can be lost or newly elaborated from one transaction to another. Carley's approach to diffusion includes a representation system for information, one that accomodates the capacity of information to change in content as it moves across transactions. Second, most diffusion models follow a single trail of diffusion where only one message is being diffused at a time. This approach makes it impossible to study the competition between messages for a person's attention. Carley's model, on the other hand, does make it possible for the investigator to study multiple messages being diffused

simultaneously and competing for the attention of listeners or readers. Third, the majority of diffusion models do not try to draw out the relationships between the information that moves across transactions and the evolving states of knowledge and beliefs of the individuals who interact or their movements in and out of these transactions themselves. In most diffusion models, in other words, the tracing of the message ignores the underlying network of people and knowledge that constitute the integrated "socio-cultural" system through which the message diffuses. Carley's theory makes specific assumptions about these relationships. As a result, one can apply Carley's diffusion theory, as we do in Part II, to study not simply the movement of information but the nature of the social system in which the information moves. Fourth but not least, most diffusion models consider communication only as it occurs in one-to-one transactions. Formalized diffusion models, with the exception of some contagion models, do not handle assumptions of mass communication within their formal frameworks. A feature new to this book is to extend the formalization of Carley's diffusion model to one-to-many as well as one-to-one interaction. This extension is behind our ability to study, at a fairly abstracted level of theory, the competition between speech and print in print-based institutions.

A final note on the scope of this book -- and so a note on would-be presursors who weren't. Recently, there has been an growing concentration of attention on the effect of the new communication technologies, such as electronic mail, bulletin boards and networks, on socio-cultural organization and change. While we make passing reference to this work throughout the course of this book, our primary focus is historical, on the

effects of print. Our reasons for this limited focus are straightforward. First, we have found there is ample material to cover for print and applying our methods to newer technologies would require a book in its own right. Second, we believe that lessons learned from our analysis of print can, should be, and are often not applied to the newer technologies. For example, the historical literature is sometimes guilty of making print the simple causal agent of much socio-cultural change without taking into account other socio-cultural factors that were, at the very least, accessories to the effects of the technology itself. Analogously, investigators of the newer technologies may sometimes be guilty of pronouncing on their effects without paying sufficient attention to other socio-cultural variables that may play a vital accessory role. To be fair, it is much harder to give the kind of analysis for the newer technologies we can give for print because we are still living at the beginning of the computer revolution and do not have the hindsight of history on our side. At the same time, looking backward into the hindsight of history can often help us get our bearings on the present. This is a key strategy of Bolter's (1991) excellent study and it is, to a certain extent, a strategy of ours. While we do not specifically address the post-print electronic technologies of communication in this book, we believe that researchers interested in these technologies might learn something from this book in analogy with our treatment of print.

Autobiographies

Like all projects, this one has a history and its history is important in understanding the project's scope. Kaufer is a rhetorical theorist with an interest in written information and the relationship of writing conventions

to social conventions. Carley is a sociologist with an interest in modelling socio-cultural systems over time. In Carley's original work, social systems change as a consequence of the actions (or interactions) of individuals within it. After a few brief discussions, it became clear to us that texts, no less than persons, function as interaction partners and so, no less than persons, can change the course of societies and cultures. The challenge was to enumerate the properties that relate and distinguish texts from people as interaction partners and then to formalize these properties into an expanded model. The promise of meeting this challenge was significant for both of us. For Kaufer, it meant providing mechanistic foundations for the effects of written information on social systems. For Carley, it meant expanding her theory and models of social systems to include a world of written texts in tandem with live or face-to-face interaction.

