

Organizational information asymmetry, media sociability and structural design

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ABSTRACT

In addition to the objectives of uncertainty reduction and equivocality reduction most often studied in research on organizational information processing, I will argue that organizations process information in order to resolve and even to generate asymmetric information environments. These asymmetric objectives can lead to organizational information structures completely opposite those anticipated by information richness theory. This capacity to not only invert the expected relationship between environment and media richness, but also alter the apparent richness of a medium, is the result of the relative sociability of an information environment in use within the organization. The sociability of a medium is defined as the relative ease with which participants might extend, alter, evolve, amalgamate and orient that particular information environment. Managers can design information environments with sociability in mind, enabling organizational actors to collectively contribute to a medium, optimizing a particular mix of social cues, facts, feedback, language and diverse channels for not only effective, but also mutual understanding.

Keywords:

Information processing, media richness, sociability, uncertainty, equivocality

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Why do organizations process information? Two answers to this question commonly surface in the literature on organizations: to reduce uncertainty and to reduce equivocality. Daft & Lengel (Daft & Lengel, 1986) suggested the uncertainty argument began with Galbraith (Galbraith, 1973), who brought together the works of Burns and Stalker (Burns & Stalker, 1961), Hall (Hall, 1962), Woodward (Woodward, 1965), and Lawrence and Lorsch (Lawrence & Lorsch, 1967). Variations in the amount of information needed to reduce task-related uncertainty could explain observed variation in the forms assumed by organizations.

The reduction of equivocality has also been proposed as an alternative, even collaborating reason for organizational information processing. Drawing upon Weick's (Weick, 1979) assertions that not only does organizing require equivocality reduction, but also information is only interpreted once unequivocally defined, it has been argued that organizations must resolve the confusion of multiple, conflicting interpretations of the environment in order to act. Organizations are interpretive systems, in which members collectively construct meaning (Daft & Weick, 1984b). Managers may even stipulate and create answers, extracting support for these answers from collected data, rather than gleaning answers from subsequent data. As McLuhan & Fiore suggested, "we look at the present through a rear-view mirror. We march backwards into the future" (McLuhan & Fiore, 1967).

Why do organizations process information as they do? Perhaps the most notable answer to this question has been information richness theory (Daft & Lengel, 1984a; Daft et al., 1986). To this perspective, a host of theoretical arguments have been both competitively and collaboratively positioned, whether published prior to, or post richness theory: Social influence

theory (Fulk, Schmitz, & Steinfield, 1990); Social presence theory (Short, Williams, & Christie, 1976); Structural symbolic interactionism (Trevino, Lengel, & Daft, 1987); Cuelessness (Kemp & Rutter, 1982; Sproull & Kiesler, 1986); Social construction of media (Fulk, 1993); Adaptive structuration (DeSanctis & Poole, 1994); Critical mass (Markus, 1987; Oliver, Marwell, & Teixeira, 1985); Channel expansion theory (Carlson & Zmud, 1999) . However, these perspectives are more often applied to the explanation of individual behavior, than to the explanation of organization design- around which this article will be centered.

Why do organizations process information? In addition to the objectives of uncertainty reduction and equivocality reduction, I will argue that organizations process information in order to resolve (Coase, 1988), or even to generate asymmetric information environments (Burt, 1992). As organization scholars, we should question whether any organization is truly defined by some singular, unified objective for uncertainty, or equivocality reduction. Instead, multiple, conflicting, temporary and perhaps even coincidental interests describe the organizational landscape. Whether seen as the divergent non-overlapping counterpart to convergent norms (Allport, 1962), the resolution of external or internal dependence (Pfeffer & Salancik, 1978), or simply the powered and political behavior of individuals (Mintzberg, 1983; Pettigrew, 1973; Salancik & Pfeffer, 1977), the asymmetric distribution of objectives and information itself can develop, support, fragment, or punctuate the ordering of organizational environments.

Why do organizations process information as they do? Using information richness theory as a template, both rhetorically for the structure of this article and conceptually for the structure of the arguments, I will suggest asymmetric objectives can lead to organizational information structures completely opposite those anticipated by information richness theory. For these

inverted organizations, rich communication media are employed to resolve uncertainty, and seemingly lean media are employed to resolve equivocality. Furthermore, by adapting the attributes of a particular medium, organizations may also constrain potentially rich environments resulting in lean communications, while seemingly lean media environments are enriched resulting in richer communications.

This capacity to not only invert the expected relationship between environment and media richness, but also alter the apparent richness of a medium, is the result of the relative sociability of an information environment in use within the organization. The sociability of a medium shall be defined as the relative ease with which participants might extend, alter, evolve, amalgamate and orient that particular information environment. Organizational information environments differ in the extent to which they permit individual users to expand, contract, combine and even migrate amongst media. Furthermore, individuals and groups within organizations differ in terms of their rights to adapt, orient, or even make use of certain media. Exercising these rights is key for any individual to fully participate within a medium, and for the outcome to be truly mutually constructed and shared.

Background

Context and assumptions

My approach to the study of organizations is similar to that of Daft & Lengel (Daft et al., 1984a) in that I will conceive of organizations as open systems, even though this level of openness is not constant throughout any single organization, or across organizations. Organizations process and interpret information, from both the internal and external environment, as if both open and closed (Scott, 2003). That is not to say that organizations are ambidextrous (Tushman & O'Reilly, 1996) as much as to say organizations are conflicted in the

interests to which attention is directed. Organizations are bounded in their capacity to process information, but try to find adequate structural designs, rules and information processing terms by which to cope with a complex internal and external environment.

However, I will diverge from the assumptions of Daft & Lengel (Daft et al., 1984a) in two important ways. First, I will treat organizational information processing as that which occurs among individuals. “Organizations do not have mechanisms separate from individuals to set goals, process information, or perceive the environment” (Daft et al., 1984b). However, sociological theory need not abdicate the agency of these individual agents while speaking about social phenomenon by speaking of the aggregate as somehow more than what occurs among individuals (Daft et al., 1984b). Organizational phenomena are nothing more than what happens by, and among individuals. One means by which we can pursue these phenomena has been to observe social interactions as networked patterns with multidimensional attributes (Tichy, Tushman, & Fombrun, 1979; Wasserman & Faust, 1994), just as inter-organizational scholars often focus on the nature of connections among firms.

Finally, organizational information processing is influenced not only by the division of labor within the organization (Burton & Obel, 1980), but also by the differences in individual interpretations of events (Weick, 1995), goals, priorities, resources (Salancik et al., 1977), perceptions of organizational identity (Dutton & Dukerich, 1991), and even information itself (Williamson, 1981). Organizing inevitably engages individual desires for the reduction of equivocality and uncertainty, but any commonality of these dimensions may be unstable, with many differences resolved through negotiation rather than shared understanding. As organizations scholars, we have to accept that organization-level information processing can be

seen as both a means for structuring, and perhaps even dismantling order, as well as a means for bridging, disagreements and diversity.

Three information contingencies

In addition to uncertainty and equivocality, a third force, asymmetry, interacts to influence information processing. The presence of this asymmetry prevents us from speaking of organizations as having a singular goal for reducing uncertainty or equivocality. Instead, organizations are best considered as a complex interaction of competing objectives and conceptions of how uncertainty or equivocality might be reduced, if reduced at all. Uncertainty is reflected in the absence of perfect answers to explicit questions. Equivocality is demonstrated in the presence of multiple interpretations of seemingly ambiguous circumstances. Asymmetry is evidenced by the inconsistent distribution of resources, objectives, interpretations and both the amount and quality of information among members of the organization.

Uncertainty

Information is perhaps best described as the lack of a very specific kind of information – perfect information. This definition brings together the diverse perspectives of organization, economic and information scholars. Uncertainty was defined by Daft & Lengel (Daft et al., 1986), in apparent accordance with previous authors, as the absence of information. Furthermore, Galbraith considered uncertainty to be the difference between the amount of information required to perform some task within the organization and the amount of information actually possessed by the organization (Galbraith, 1977). It is often assumed that organizations require more information than they possess. However, it has also been shown that the information possessed by the organization may far exceed the information required to accomplish the task, or may be the wrong information altogether (Feldman & March, 1981). As

such, we might imagine that Galbraith's uncertainty equation could go positive, or negative in value.

It is important to note that within information theory, uncertainty is often considered contingent upon the nature of information, if not coincident with an increase in the amount of information. "Freedom of choice, greater uncertainty, greater information go hand in hand" (Shannon & Weaver, 1998). Miller and Frick (Miller & Frick, 1949) described uncertainty as a "monotonic increasing function of the number of alternatives" (p. 317). If new information translates into more alternatives, perceived uncertainty increases. On the other hand, if new information results in a reduction in alternatives, perceived uncertainty can decrease.

Therefore, in order to resolve uncertainty, organizations struggle for the acquisition of the right information. Even when information is rather tightly defined as "that which alters a mental representation" (Daft & Macintosh, 1981) (Helvey, 1971; Mac Kay, 1969). It is important to distinguish uncertainty from indeterminacy- the lack of information. Modern organizations seem to be awash with information, or uniquely information intensive (Child & McGrath, 2001), with much information even being redundant or used purely strategically within the organization (Feldman et al., 1981). If the organizational opportunity space were bounded, only the final outcome might have to be known in advance in order to solve for the best alternatives. With this final outcome unknown, and the opportunity space arguably unbounded, the seemingly insatiable organizational demand for information is set in motion.

Equivocality

The existence of unclear, ambiguous circumstances coincident with multiple, conflicting interpretations, has been defined as equivocality (Daft et al., 1986; Daft et al., 1984b). The context for decision-making is considered ill-defined, both in terms of which questions to ask

and how answers might be interpreted. Weick has offered the example of a fire alarm sounding in a neighborhood known for false alarms (Weick, 1979) as an example of an equivocal message. This is a useful example for dissecting the difference between uncertainty and equivocality, as many readers might be tempted to assume the fire alarm, offering only two possible outcomes- fire or no fire- is actually an uncertain signal. How would we assign probabilities to this event, however? Were we to assign probabilities, could we calculate the risk of the event without knowing how many people were presently in the building? Even if we could calculate this risk, are we willing to put a price on human life, such that we leave the fire truck in the station if the cost exceeded the benefit? This extent to which we must define answers and act within complicated, even ambiguous circumstances reflects the equivocality of the moment.

The premise that equivocality is effectively reduced by way of shared understandings of or agreements, a “meeting of the minds” (Daft, Lengel, & Trevino, 1987), about the organizational context seems widely accepted. This distinction between the equivocal and the understood is often made by distinguishing routine from non-routine communications. Non-routine communications are characterized by surprise, ambiguity, diverse expressed frames of reference and subjective beliefs. Routine communications contain few, if any surprise, appear straightforward and do not require such a robust exchange of information. Here, I argue that non-routine communications can be and are resolved by way of brief, limited exchanges wherein all minds do not meet, but instead are constrained, over-ruled or negotiated away. Alternatively, routine situations can be intentionally confounded and even resolved through the inclusion of subjective interpretations, irrational and illogical detours, or an uncommon but legitimated frame of reference.

Asymmetry

The asymmetric distribution of objectives and information itself can develop, support, fragment, or punctuate the ordering of organizational environments. Information is rarely distributed equally, whether incidentally or intentionally, throughout an organization. Within economics, this inconsistent distribution of information is defined as asymmetric (Akerlof, 1970; Arrow, 1963, 1974). This information asymmetry is a core concern of not only agency theory (Jensen & Meckling, 1976), by providing the substance for adverse selection and moral hazard (Eisenhardt, 1989), but also various perspectives wherein information is seen as both a source and a consequent of power (Krackhardt, 1990; Mintzberg, 1983; Pettigrew, 1973). For example, when negotiating raises or salaries, it is uncommon for a subordinate to have open access to salary information within the organization, while an upper manager may be aware of the wide range of compensation.

Furthermore, organizations process information in order to not only resolve (Coase, 1988) asymmetry, but also to generate asymmetric environments (Burt, 1992) at multiple levels. Diverse, conflicting, temporary, persistent and perhaps even coincidental interests describe the organizational condition. Both organizationally-oriented stewards (Donaldson, 1990) and self-interested agents (Eisenhardt, 1989) occupy organizations. The resolution of external or internal dependence (Pfeffer et al., 1978), or simply the remnant divergence of otherwise convergent norms (Allport, 1962), lead to organizational environments that could be described as easily by their disorganizing characteristics, as by their traits more consistent with organizing perspectives. The acceptance and inclusion of these disorganizing dimensions within organization theory is necessary for our adequate understanding of organizations as multi-faceted phenomena.

Interacting framework

By introducing this third dimension of asymmetry, it is possible to significantly distort the expectations for organizational responses to uncertain and equivocal environments that were developed by Daft & Lengel (Daft et al., 1986), presented in *Figure 1*. It is important to note that this divergence from the expectations of richness theory came by way of a single, additional assumption about the organizational condition. Oftentimes, defections from the expectations of richness theory have involved a web of what Markus (Markus, 1994) called “social definition” theories, whereby the appropriateness of various media are defined by structural or structured dimensions of the organization. Here I have tried to capture the spirit of these theories within the assumption of asymmetric interests, while at the same time questioning past expectations regarding just how and if the elements of equivocality and uncertainty must be resolved for organizations to operate. In other words, I am accepting that organizations operate both functionally and dysfunctionally. Our goals as theorists is to better understand and explain organizations as they are, this descriptive capacity providing the means by which we can further supports the more prescriptive arguments for how organizations should be.

Insert Figure 1 about here

Normally, when facing highly equivocal environments, managers would be expected to gather varied opinions and develop common grammar. Asymmetric organizations however, could quite rationally choose the avenue of resolving equivocality by edict, rather than consensus *Figure 2*. Even when facing low levels of equivocality, departments find little reason to share information, and managers would not choose to gather diverse opinions. In nominally

asymmetric organizational contexts however, the behavior of managers would be expected to align with the expectations of Daft & Lengel (Daft et al., 1986).

Insert Figure 2 about here

When facing uncertain circumstances, the actions of organizational actors would be expected to align with those assumptions underlying richness theory. However, under asymmetric conditions, managers might choose to gather additional, and increasingly symbolic, rather than objective, information with intentions of resolving uncertainty by overpowering alternative information sources *Figure 3*. Information exchange would be limited. In contexts best described as low in uncertainty, managers would seek subjective sources of information, rather than the easily available objective source. This camouflaged information would be shared, were information to be shared at all.

Insert Figure 3 about here

Information attributes

While we might speak of some lack of information, it is rare for the organizational experience to be bounded such that we can satisfy Galbraith's equation (Galbraith, 1973) by appropriately, or even objectively measuring both the amount of information we require, and that amount we possess. Furthermore, it would seem unlikely that an organization would obtain perfect information, in advance about the outcome of any decision. Formal information systems can and do provide a rather wide array of information sources and types for use within organization. Given the largely equivocal context in which organizations function, I have chosen

to focus upon richness, the information attribute believed to most likely address the resolution of equivocality. Additionally, I will argue that while authors often speak of richness, the “rightness” of information provides a more direct means for effective, equivocality reduction.

Richness

One of the more influential theories addressing the attributes of information and the media selections of individuals has been information richness theory (Daft et al., 1986). Key to richness theory is the assertion that media generally differ in their ability to convey rich information. Furthermore, richer information environments do not by default lead to more successful communications. Instead, the richness of a medium must match the nature of the communication. Richer media are more effective for the resolution of equivocal circumstances, while leaner media are more effective for reducing uncertainty. The substance for this variation among media is the inherent capacity to convey rich information: the numbers of cues and channels utilized, the nature of feedback, the presence of personalized features and the variety of language (Daft & Wiginton, 1979) *Figure 4*. Structural characteristics of the organization-features like face to face meetings, and internal memos- by their very nature, or symbolically (Trevino et al., 1987) differ in their capacity to facilitate rich or lean communications.

Insert Figure 4 about here

While many theories have been positioned competitively or collaboratively with richness theory, few if any diverge with the general conception of media richness. While there is disagreement of the relative ordering of media according to their richness, there is a seemingly wide agreement over the premise that media do possess, objectively or symbolically, some rich or lean qualities. However, one important aspect of the definition of richness seems to have been

repeatedly overlooked in research. To the extent to which a measure of the effectiveness of a communication, or the effectiveness of a manager as a communicator, is composed of, or constructively contingent upon some change of understanding, our constructs for richness and effectiveness could become nearly one and the same. The richness of information was loosely defined as “the ability of information to change understanding within a time interval” (Daft et al., 1986), or the learning capacity of information. Undeniably, this definition has the capacity to subsume a great many attributes of information into its fold. Curiously however, the stated definition of richness also has the capacity to make the cause that is richness rather synonymous with its consequence- most particularly in the case of resolving equivocal situations.

Changing understanding is conceptually the means by which richness could be determined, while also the means by which effectiveness would be obtained. Rich information is theoretically positioned to most effectively resolve equivocal situations. Many would agree that the resolution of equivocality would seem to require any number of changes in understanding along the way. As such, given the extent to which the consequence and the cause have been aligned, in the case of the resolution of equivocal situations, we should be very surprised when richness does not reliably link with effectiveness. Any lack of correlation suggests that (1) our measures of relative richness and effectiveness may be unreliable (Markus, 1994), or (2) effective communication, in the case of equivocality, relies upon something more, or perhaps even something other than this change in understanding.

Rightness

Richness is a sword with a great many edges. As such, regardless of how researchers have pursued richness, there remains this underlying recognition of the “rightness” of information environments, whether objectively determined or socially constructed. A medium

that is saturated with cues, feedback, various organizational languages and diverse channels of information would seem to be capable of developing consensus as often as confusion, consignment, or even coercion. This relative saturation of a medium with cues and channels has been called bandwidth (Barry & Fulmer, 2004). High bandwidth is not a sufficient condition for effective communication. Participants require a means by which to navigate simultaneous cues, arrange feedback, and select channels. There is not only some particular understanding we are hoping to change, but also collective participation in the medium, whereby the goal would be some particular mix of social cues, facts, feedback, language and diverse channels that are truly ideal for the communication to be both mutual and effective.

Media sociability

The medium is not the message. However the medium does structure the message, resulting in some bounded space within which participants form their communication. In this case, the medium becomes the message (McLuhan et al., 1967). The sociability of a medium captures the relative ease with which participants can pursue the full range of information types they might require, by extending, altering, evolving, amalgamating and orienting a particular information environment. Simmel & Hughes (Simmel & Hughes, 1949) spoke of sociability as the good form of social interaction. Ultimately, any communication medium is a shared space, involving two or more parties. Sociability engages a study of the terms by which the medium becomes an environment for both information and participation in the communication. We might separate this sociability of a medium into the dimensions of extensibility and orientation.

Extensibility

We can consider the *extensibility* of medium to be the ease with which participants can not only infuse the full range of cues possible within the information environment, but also

collectively calibrate the most ideal mixture of information within that environment. Any particular medium does not exhibit a fixed level of richness once in use, nor function at its assumed capacity for richness at all times. The steady evolution of information technologies makes this non-constant nature of media richness most clear. The agency of participants to not only switch among media, but also manipulate the characteristics of a medium in use, has been called adaptation (Barry et al., 2004). Participants expand, or enrich the properties of a medium by including and even inferring more social cues, channels, or other rich qualities. Contraction, or thinning of the medium occurs as contributors strip away cues, channels or other qualities, making the medium in use more lean. Participants might also migrate, or shift the communication episode from one medium to another. Finally, those engaged within a communication can amalgamate, or mix media within an information environment. A phone conference might be connecting two separate groups of participants, the members of each group sitting face to face, some instant messaging additional members of the organization. As such, each single medium has become only one amongst a set that is in use within a particular information environment.

Orientation

All individuals within the organization do not hold identical rights in terms of accessing a particular medium, selecting the medium to be used, or shifting and refining the nature of information within a medium once in use. The *orientation* of a medium refers to the more finely grained distribution of rights and schemas, the exercise of which permit participants to guide both the relative richness and the specific mix of information once within a particular information environment. This distribution of rights can be fixed or fluid, with individual rights

retained, restrained or relinquished during a communication. The more equally distributed these rights are throughout the medium, the more sociable the medium is considered to be.

Electronic mail usage provides a useful example for media orientation. While email is often a very open medium, with everyone in an organization technically capable of receiving or sending communications to anyone else, it is not common for organizations to find it socially acceptable to for individuals to direct email communications to anyone. Were certain employees to address a communication to everyone in the organization this choice could be seen as an abuse of corporate email policies. However, few would doubt that the CEO holds the right to email particular employees almost at will, or all employees on occasion.

Structural characteristics

Daft & Lengel suggested “effective communication depends on the selection of a medium that has the capacity to engage both the sender and receiver in mutual understanding of the message at hand” (1987). I am suggesting a subtle shift in our attention. The organizational structure has the capacity to define the terms for mutual participation in the communication at hand according to whatever objective might be most salient, regardless of the unfettered potential of the medium. Contrary to social definition theories, organization structures do not redefine the nature of richness itself. Instead, these structures successfully enable a reality in which richness can be employed counter-intuitively, yet successfully, by shifting the sociable orientation or extensibility of an information environment. Mutual participation may more likely lead to mutual understanding, but mutual understandings are not always the goal of interactions within the organization. As the predominant goal of a social exchange shifts asymmetrically, the matching of media richness with requirements shifts as well.

Insert Figure 5 about here

Asymmetric objectives can lead to organizational information structures completely opposite those anticipated by information richness theory *Figure 5*. These inverted organizational structures support the use of rich communication media to shift uncertainty by camouflaging information, while seemingly lean media are employed to resolve equivocality by edict rather than consensus. These inverted organizations may also constrain potentially rich environments, preventing shared solutions for the resolution of equivocality. Furthermore, seemingly lean media are enriched, avoiding objective solutions for uncertainty reduction by way of subjective and symbolic information use.

Organization design

What organizational structures exist to enable, encourage and even enforce the asymmetric matching of media with context? How might we see these structures as they are embedded within the interactions among individuals within organizations? I will divide these structures into the dimensions of networked layers and media orientations. Networked layers are widely based norms, rules, languages or architectures that extend throughout and even beyond the entire organization, each with the potential to overlap the others. This overlap is the source of asymmetry, as individuals, groups, divisions, professions and architectures may collaborate or conflict within a particular information environment. Networked moments engage the distribution of rights for participation within a medium, once in use. These distributions result from the intersection of networked layers, as well as the ad hoc distribution of rights that can evolve throughout a communication.

Networked layers

I will suggest that these networked layers fall into four ideal-typical categories: sociocratic, technocratic, infocratic and idiosyncratic. These layers can be imagined as the interlocking networks of individuals with shared attributes and interpretations, overlapping throughout organizations, setting the terms for symmetric and asymmetric environments. *Sociocratic* layers connect individuals according to shared, informal social norms for behavior within a medium. The network of attributes put in place by physical information architecture, legal contracts and fixed assignment of behaviors would be considered *technocratic* layers. For example, members of the organization who share login access to discrete information archives of the organization would connote a technocratic layer. *Infocratic* layers engage the networks of similar interpretations by way of professional relations, language and ability. Not all employees may be able to interpret bioinformatic data when it is presented within a medium. Those participants that share the capacity for understanding computational aspects of biology would compose a type of infocratic layer. Finally, and of particular interest would be *idiosyncratic* layers. These are layers of individuals interconnected by some shared attribute, and yet whose behavior, interpretive schemas or usable architecture are counter to that of others within a similarly categorized layer. Sociocratic layers provide perhaps the more readily available examples of idiosyncrasies. A common and awkward example would be the sharing of sexual jokes within meetings. Individuals reside within different sociocratic layers depending upon whether they view these jokes as rich and acceptable, or lean and unacceptable, regardless of the official organizational policy that resides in the alternative, technocratic layer.

Networked moments

The intersection of networked organizational layers sets in motion the sophisticated interaction, negotiation and adoption of orientations for association and participation within a particular medium once in use. While Simmel & Hughes spoke of the “good form” of associations, I will propose these moments within a medium fall into six, ideal-typical configurations. These networked moments are meant to describe the general, directional flow of information throughout a communication, resulting in the distribution of rights for participation within an environment. The objective is to capture and categorize the set of links among a set of persons, “with the additional property that the characteristics of these linkages as a whole may be used to interpret the social behavior of the persons involved” (Mitchell, 1969). I will present these orientations in their hypothesized order for asymmetry, the most asymmetric being described first, ending with the form expected to be the least asymmetric in nature *Figure 6*.

Crowds involve one-to-many information flows, whereby a single party uni-directionally transfers information to a set of individuals or groups. This form is most similar to the broadcast style of communication. We might imagine that the crowd form takes shape during moments of “sense giving”, or even senseless giving- through which directives might be issued regardless of the response of others involved. Rules and regulations, once posted, could be seen as crowd communications. While not a traditional form of organization, the *mob* describes a uncontrolled form of information experience. The majority of agents within the medium are uni-directionally communicating with a single party in the system.

Insert Figure 6 about here

The *herd* is a very simple, and at times successful structure for passing simple information amongst a set of agents. Limited information travels in one direction from an initial actor, through a hierarchy, towards those embedded more deeply within the system. The herd is the form of information transfer we most often associate with bureaucracy.

Hubs are the form most similar in appearance to the position of centrality within social network maps. However, within these moments of hubbed information flows, the distinguishing feature is the bi-directional stream of information amongst many sources, through a single, centralized source. Here we might see a relatively controlled condition for processing, whereby those bits being shared by individuals are edited, or even altered, by a governing source.

Mesh networks are the form often used to describe the backbone of the internet infrastructure. Information flows through various nodes, on its way from one party to another. Within social systems, the mesh form entails bi-directional information flows from many-to-many, through each. Interestingly, the mesh creates a certain ad hoc hierarchy, as information processing between two distant sources is mediated by those sources in between.

The *sheer* form of information processing describes, direct, bidirectional information flows existing between all parties in the information environment. This configuration is modelled after the ideal form of association outlined by Simmel & Hughes (Simmel et al., 1949), whereby “everyone should have as much satisfaction of this impulse as is consonant of the satisfaction of the impulse for all others” (p. 257).

Theoretical impact

I suggest that the consideration of which medium an individual selects for a communication may be of less importance than the means by which that medium is ultimately

put to use, or prevented from being put to use by all those participating within the medium itself. The sociability of a medium not only formats the means by which richness is accomplished, but also alters the context towards in which richness might be most effective. Contributing to the effectiveness of various media would be the potential richness of the medium, by way of the sociability of that medium.

If the medium is potentially rich, but organized unsociably, effectiveness of the communication comes by way of asymmetric forces. Equivocality is resolved by way of coercion or consignment, rather than consensus. On the other hand, a rich medium that is organized sociably would resolve equivocality by way of consensus and mutual understanding. Even if the medium in use were lean, if organized sociably, it can still be an effective environment for resolving equivocality.

Furthermore, uncertainty can be reduced by way of rich media, this contradiction made possible by the sociable use of that rich medium. Sheer participation in the medium enables contributors to search the widest possible set of sources for new information while adopting a common language for the search. When used unsociably, a lean medium might be adapted and made richer, reducing uncertainty by way of a symbolic and subjective use of information.

Conclusion

In this article, I have argued that in addition to the objectives of uncertainty reduction and equivocality reduction most often studied in research on organizational information processing, organizations process information in order to resolve and even to generate asymmetric information environments. These asymmetric objectives can lead to organizational information structures completely opposite those anticipated by information richness theory. This capacity to not only invert the expected relationship between environment and media richness, but also alter

the apparent richness of a medium, is the result of the relative sociability of an information environment in use within the organization. The sociability of a medium has been defined as the relative ease with which participants might extend, alter, evolve, amalgamate and orient that particular information environment.

Additionally, I outlined a set of structures that interact to organize, or disorganize, an information environment. Networked layers describe widely based norms, rules, languages or architectures that extend and overlap, throughout and beyond the boundaries of organizations. This overlap is the source of asymmetry, as individuals, groups, divisions, professions and architectures both collaborate or conflict within information environments. Networked moments engage the distribution of rights and schemas for participation within a medium, once in use. These moments and layers of association structure the sociability of an information environment, enabling functional outcomes contradictory to those expected by richness theory.

As a result, we are able to explain the resolution of uncertainty and equivocality through seemingly dysfunctional means. This counter-intuitive theoretical capacity enabling the explanation and understanding of organizational information processing as this phenomenon occurs. We can see richness is a sword with a great many edges, capable of developing consensus as often as confusion, consignment, or even coercion. Furthermore, managers can design information environments with sociability in mind, enabling organizational actors to collectively contribute to a medium, optimizing a particular mix of social cues, facts, feedback, language and diverse channels for not only effective, but also mutual understanding.

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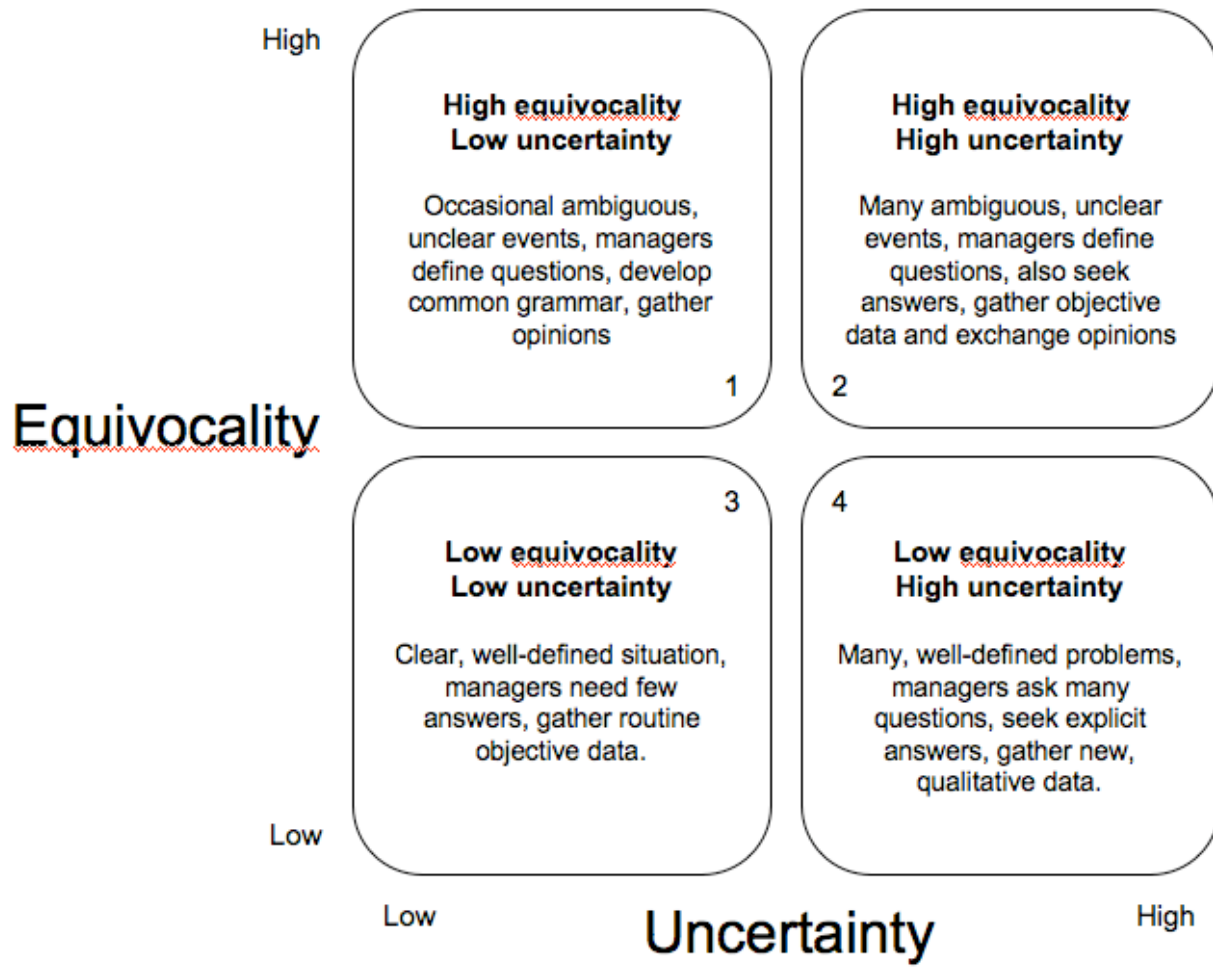
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Figure 1

Hypothesized framework of equivocality and uncertainty on information requirements



Adapted from (Daft et al., 1986)

Figure 2

Hypothesized framework of equivocality and asymmetry on information requirements

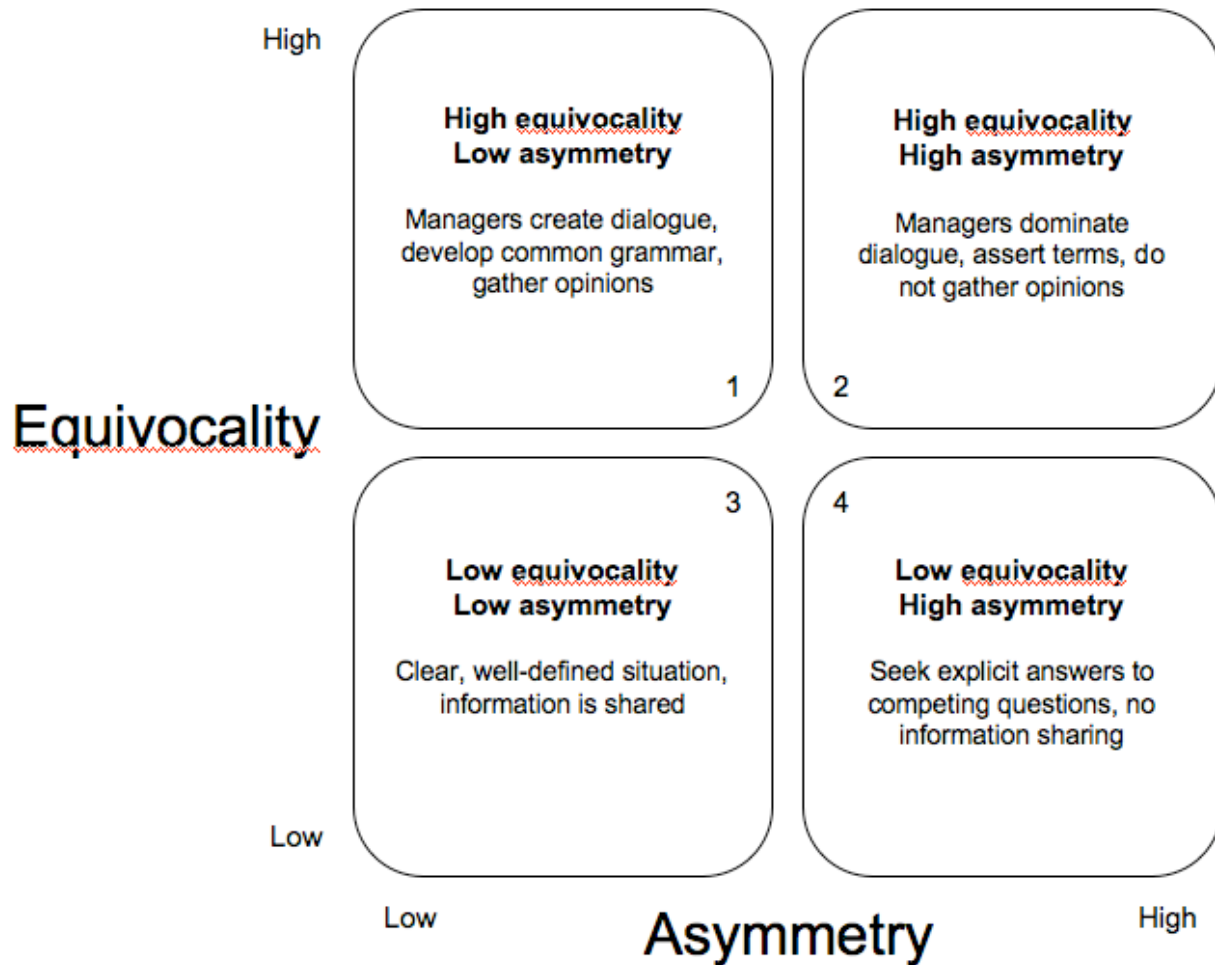


Figure 3

Hypothesized framework of uncertainty and asymmetry on information requirements

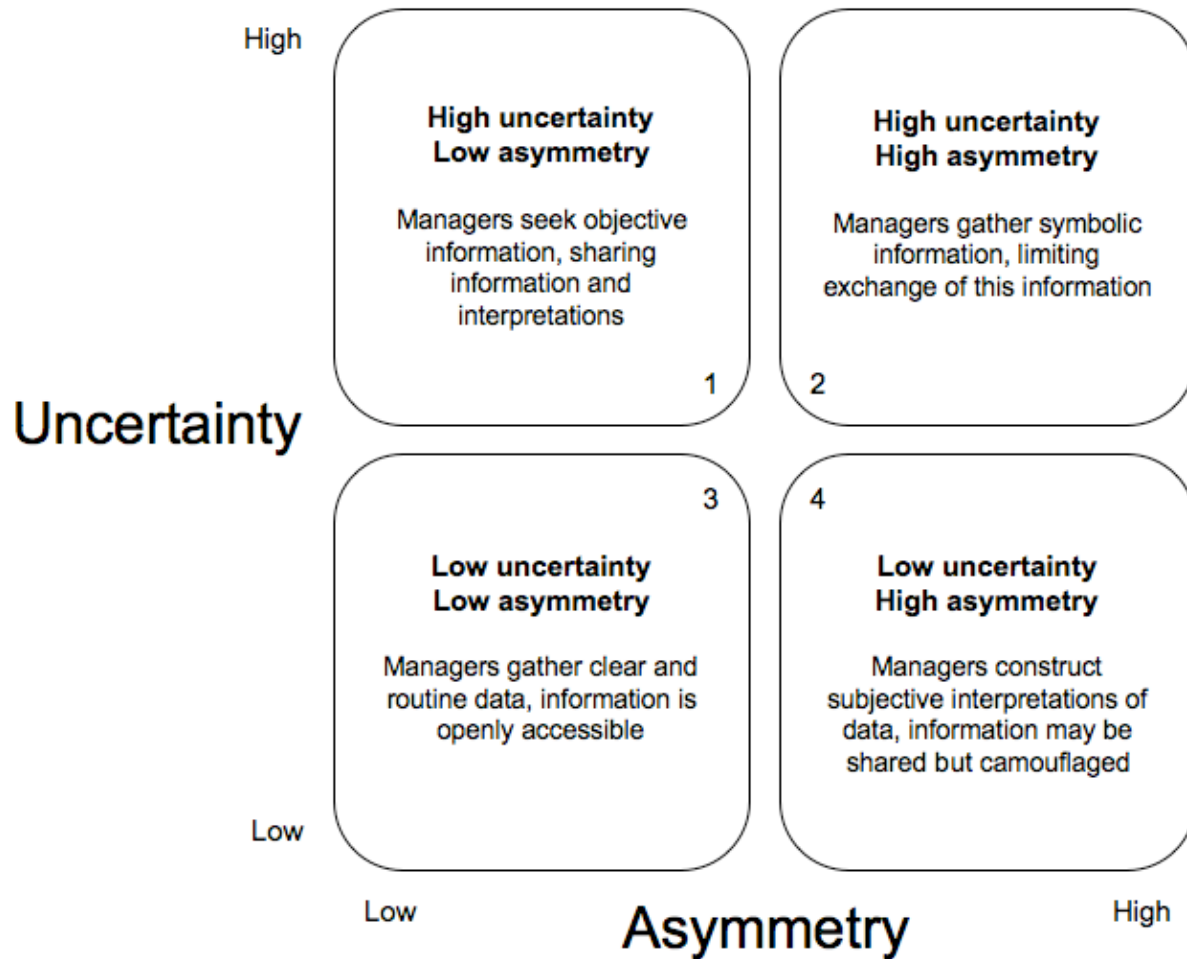
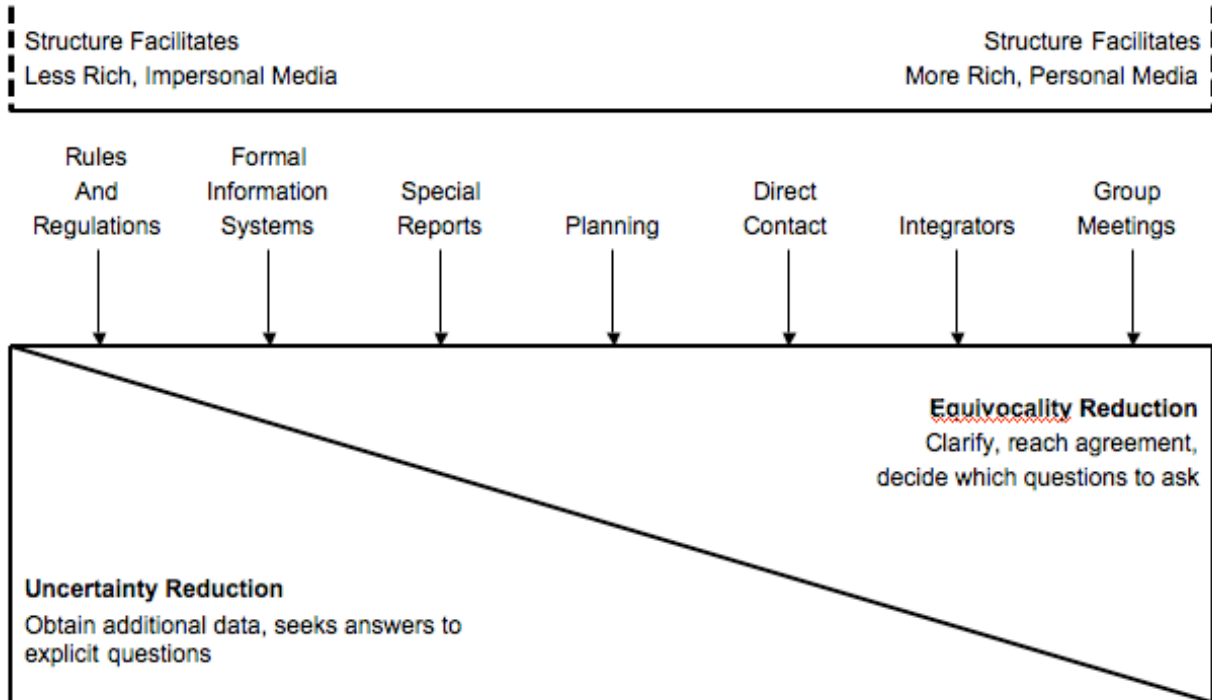


Figure 4

Information role of structural characteristics for reducing equivocality or uncertainty



Adapted from (Daft et al., 1986)

Figure 5

Hypothesized structural characteristics for asymmetric organizations

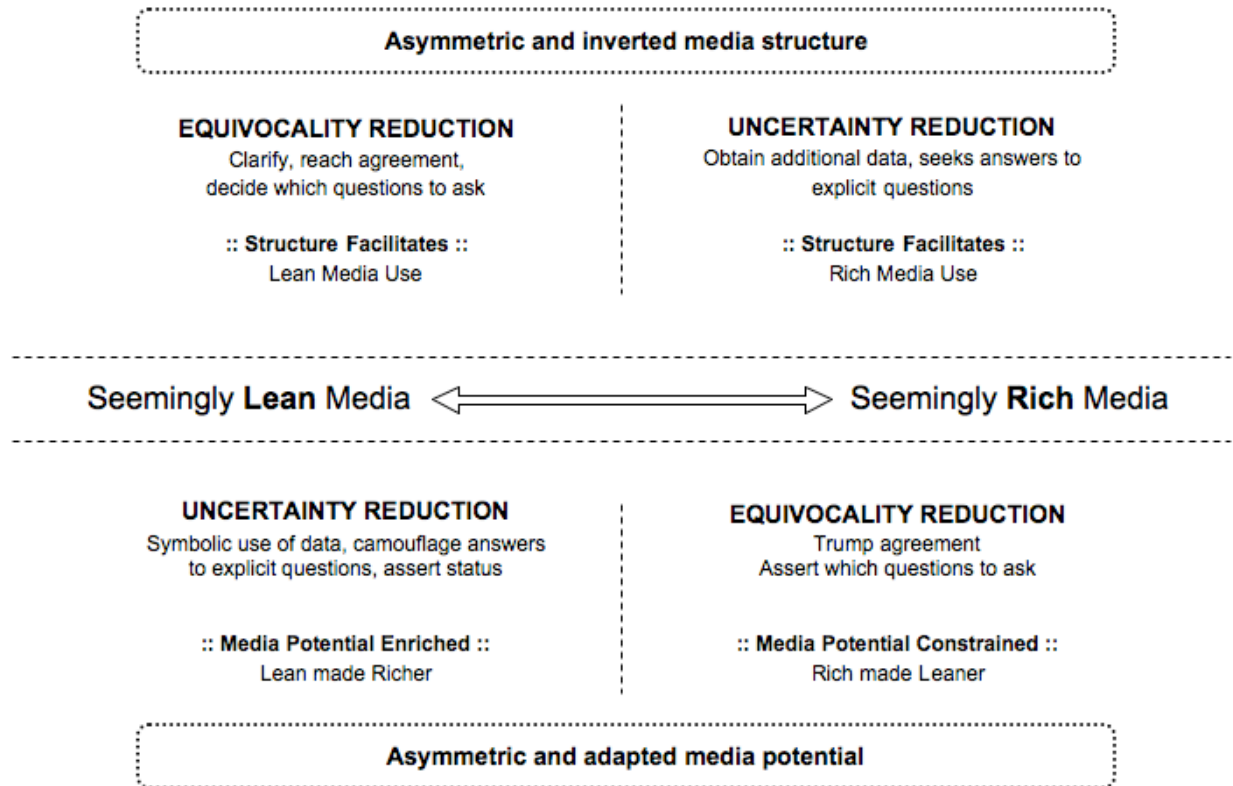


Figure 6

Hypothesized relationship between media orientations, asymmetry and richness

