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COMMUNICATION IN CRISIS: AN ANALYSIS OF THE ROLE ORGANIZATIONAL STRUCTURES PLAY IN THE EFFECTIVENESS OF CRISIS COMMUNICATION

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Managing an organizational crisis is fraught with challenges. Uncertainties and quick calls for action create circumstances in which effective decision making is difficult. Furthermore, as the impact of a crisis grows, so does the recognition of the necessity of effective crisis communication. Examining how public organizations have responded to the challenges of crisis communication reveals the pivotal role played by organizational factors in the effectiveness of communication and information processing. This paper, informed specifically by an E. coli outbreak at Michigan State University and its related communication mishaps, analyzes how an organization's structure affects crisis communication. A review of the literature, along with additional examples of real-world public health crises, illustrates that organizational structures, primarily those linked to bureaucracy and hierarchy, often create barriers that impede communication. As a result, strategies to improve organizational design and function through structural empowerment, the creation of lateral relationships, and organizational learning are discussed. This analysis concludes that recognizing the structural origins of communication breakdowns allows crisis managers and public administrators to (1) better identify and minimize the negative aspects of problematic structures and (2) utilize organizational design strategies and information processing techniques that will improve communication during future crises. Recommendations for further research and analysis are also presented in the final section.

MSU E. COLI CASE STUDY

On September 15, 2008, Sparrow Hospital health officials notified the Office of the University Physician (UPhys) at Michigan State University (MSU) that six students living in on-campus residence halls had been admitted with classic symptoms of Escherichia coli or E. coli, a serious and potentially fatal bacterial infection spread primarily by contaminated food and water. In response, UPhys staff immediately notified the Ingham County Health Department (ICHD) regarding the ill students and an investigation into the possible source of the infections commenced. In the following days, more students were admitted to area hospitals or treated at the on-campus Olin Student Health Center with similar symptoms. With each new case, anxiety about the possibility of a large scale outbreak increased among University administrators (Wernette-Babian, personal communication, April 3, 2009). On September 19, 2008, ICHD officials confirmed, through DNA analysis, the suspected diagnosis that all of the initial six students had been infected with the same 0157:H7 strain of E. coli. At that time an additional 17 student cases were suspected and awaiting confirmation (Rook, 2008, p. B1).

On campus an extensive investigation into the source of the contamination continued with a focus on the east complex residence hall cafeterias, but the source remained unknown. MSU officials, in response to mounting student, parent, and media demands for action, became increasingly anxious that the source of the infections had yet to be determined. The feeling that 'something' had to be done was widespread. The University Physician, in conversations with the ICHD director and Michigan Department of Community Health (MDCH) officials discovered that a turkey bologna product had recently been the source of an E. coli outbreak in a

southwestern Michigan jail. The University Physician shared this information with the Vice President for Finance and Operations and the Assistant Vice President for Housing and Food Services. As a result of this conversation, and without consultation with the MSU Food and Water Sanitarian or the individual residence hall housing and food service managers, the University Physician and Vice President for Finance and Operations decided, on September 23, 2008, to remove all turkey from resident hall cafeterias (Wernette-Babian, personal communication, April 3, 2009). Concurrently, University Relations released an official statement that MSU had voluntarily removed turkey from all the residence halls (Cassella & Oswald, 2008).

Following this decision, there was widespread anxiety on campus among persons who had recently consumed turkey and unease concerning the decision's merits among housing and food service staff, as well as the Food and Water Sanitarian. Shortly thereafter, the trade association, Michigan Turkey Producers, contacted the University, irate that their products were being associated with an E. coli outbreak without scientific confirmation. It was also revealed, after top level MSU officials held a meeting with housing and food service managers and the Food and Water Sanitarian, that MSU did not and never had stocked the turkey product that had caused the E. coli outbreak in the jail. Faced with the lack of merit behind their decision, but with few other viable options for mitigating the outbreak, University administrators decided to maintain the ban on turkey and wait for further information from MDCH. Four days later, after further testing was conducted by MDCH, it was discovered that contaminated iceberg lettuce, supplied by Aunt Mid's Produce Corporation, had actually been the source of the infections. New correct information had to be immediately released to the public and Aunt Mid's lettuce was quickly removed from all residence hall cafeterias (Wernette-Babian, personal communication, April 3, 2009). In the end, the investigation into the MSU related illnesses uncovered that they were part of a larger multi-state outbreak involving 50 individuals, a point that MSU officials strongly emphasized in public statements in order to weaken the connection between the University and the tainted food (Olszewski & Koivisto, 2008).

THE CASE STUDY: KEY QUESTIONS

The MSU E. coli outbreak serves as a valuable case study demonstrating a critical breakdown in crisis communication within a complex organization. In this context, crisis communication refers to "the sending and receiving of messages 'to prevent or lessen the negative outcomes of a crisis and thereby protect the organization, stakeholders, and/or industry from damage' " (as cited in Seeger & Reynolds, 2008, p. 10). As a result, the case study raises important questions regarding the relationship between organizational factors and the effectiveness of crisis communication. The most compelling of these questions include: Is the situation presented in the MSU case study unique or does it exemplify common instances of communication breakdowns that occur in organizations? Is a breakdown in crisis communication simply an example of poor crisis management or is it a symptom of a deficiency in organizational design? Are there specific organizational structures or characteristics that significantly contribute to a lack of effective information gathering, processing, and sharing? Lastly, are there techniques/strategies available that can be utilized to improve organizational design and function in order to enhance communication in general and also during crises? To begin answering these questions, it is essential to look at the role organizational structures, particularly those related to bureaucracy and hierarchy, play in determining the effectiveness of communication and information processing.

Theoretical Overview of Bureaucratic and Hierarchical Structures

The details of the MSU case study reveal a breakdown in communication that appears to have more to do with organizational structuring and less to do with communication alone. In this analysis, organizational structuring “focuses on the division of labor of an organizational mission into a number of distinct tasks, and then the coordination of all these tasks to accomplish that mission in a unified way” (Mitzberg, 1980, p. 324). The manner in which organizations structure themselves is often at the root of deficiencies in achieving effective methods of communication. Furthermore, it has been proposed that organizational power resides primarily in organizational structures and that hierarchical structures remain central to the majority of contemporary organizations (Harley, 1999, p. 61). Organizations where large scale hierarchical and bureaucratized structures are employed result in organic divisions and fragmentations that stifle communication (Morgan, 2006, p. 86). The theory of bureaucracy, as defined by Max Weber (2005, orig. 1922), states that administrative rationality is achieved by dividing work into fixed official duties, having a hierarchy of authority, and developing systems of rules on how work is to be performed and decisions are to be made (pp. 73-74). However, the increased rationality achieved from structuring an organization using the principles of bureaucracy can be paired with increasing compartmentalization within the organization that reduces the likelihood that critical information will flow freely. For instance:

Bureaucratization tends to create fragmented patterns of thought and action. Where hierarchical and horizontal divisions are particularly strong, information and knowledge rarely flow in a free manner. Different sectors of the organization thus often operate on the basis of different pictures of the total situation, pursuing subunit goals almost as ends in themselves. The existence of such divisions tends to emphasize the distinctions between different elements of the organization and fosters the development of political systems that place yet further barriers in the way of learning. (Morgan, 2006, p. 86)

The presence of these divisions impedes the ability of members within the organization to transfer, share, and learn new information easily. In addition, “investigations linking communication, information, and performance suggest that the ability to obtain information is directly related to individual and group performance” (Roberts & O’Reilly, 1979, p. 46). In a bureaucracy, the result is often that those with the specific expertise and critical knowledge are at lower levels in the hierarchical structure with limited access to those in positions where decisions are made. Consequently, decision makers often do not have access to essential information and organizational performance suffers.

Bureaucratic accountability and organizational structures that relate to rewarding and punishing employees also play a role in the effectiveness of communication during crises. Peter Senge (2003) explains that when people feel threatened or vulnerable they often engage in defensive behaviors designed to protect themselves and their colleagues (p. 47). Under situations of stress, employees will conceal or minimize issues or information that could or will reflect on them negatively. Bureaucratic accountability also pushes administrators to find quick and easy answers, often with superficial information (Morgan, 2006, pp. 86-87). “In organizational contexts, formal structures, rules, job descriptions, and various conventions and beliefs offer themselves as convenient allies in the process of self-protection” (Morgan, 2006, p. 87). During a crisis, this type of behavior can be highly detrimental to the organization’s ability

to cope, share vital information, and develop sound decisions. For these reasons, accountability structures, while serving a necessary role in the assessment of responsibility, can also serve as an impediment to necessary communication.

Furthermore, a review of the information processing literature reveals that hierarchies have a profound effect on the acquisition and dissemination of information in an organization. Liberti and Mian (2009), in their work on the role of hierarchy in information collection and use, found that often in “large hierarchical systems...employees in charge of collecting information cannot act on it, and instead have to send information upwards for final decision” (p. 4062). Moreover, they also explain that “while hierarchies provide advantages such as specialization and parallel processing, they also bring trade-offs in the form of costly communication across hierarchical levels” (Liberti and Main, 2009, p. 4062). In addition, Hinds and Kiesler (1995), in their work on communicating across organizational boundaries, found that administrative work is most often associated with hierarchical communication. They explain that:

Authority offers an efficient alternative to direct communication under conditions of complexity and interdependence. Rather than everybody repeatedly discussing what each person should do, management distributes and exercises control of work through layers of supervision, which in turn buffer managers from unnecessary communication... Strictly held, the division of labor into functionally specialized units and unity of command constrain communication linkages to specified verbal connections within the chain of command. (Hinds & Kiesler, 1995, p. 375)

Bureaucratic and hierarchical structures within organizations have a limiting role on the ability of employees to freely convey information to administrators outside their chain of command, and even at times to their own supervisors. This negative aspect of the organizational structure is heightened during times of crisis, when critical information is often time-sensitive and when easy access to information is often essential.

In addition, examination of the crucial role organizational structures play in limiting information access during an organizational crisis also reveals a tie to bounded rationality. The theory of bounded rationality, best described in the work of Herbert Simon, asserts that it is impossible for human beings to comprehend and analyze all of the potentially relevant information needed when making choices and as a result they “‘satisfice’ because they do not have the intellectual capacity to maximize” (as cited in Shafritz, Ott, & Jang, 2005, p. 90). That is, they “settle for a ‘bounded rationality’ of ‘good enough’ decisions based on simple rules of thumb and limited search and information” (Morgan, 2006, p. 76). Administrators are bombarded by information on a daily basis. In times of crisis, the level of uncertainty combined with the overwhelming abundance of information, makes sifting through information in search of the correct solution a daunting task. Uncertainty is always a factor in the earliest stages of a crisis. As Ian Mitroff (2004) explains, in a crisis “there is tremendous technical and ethical uncertainty...regarding the proper assumptions that one has to make with regard to all the ‘unknowns’”. Thus, the actions one should take are also highly uncertain” (p. 25). In light of the high levels of uncertainty, administrators and staff members may fall back on their bureaucratic systems of rules and enact routine responses. However, routine responses are predominately of little or no value in coping with crisis uncertainty (Seeger, Sellnow, & Ulmer, 2003, p. 71).

Likewise, in organizations that are highly compartmentalized the ability to have access to all the information needed to make the proper decision is often limited. As Herbert Simon (1991)

states, “depending on its actual locus, knowledge may or may not be available at the decision points where it would be relevant” (p. 126). This bounded rationality, inherent in the organizational design and structure of a bureaucracy, creates boundaries to information access. Employees, who are usually encouraged to occupy certain roles and take part in specified actions, are inhibited to openly share information without direct solicitation. Administrators, faced with mounting uncertainty and demands for action, turn toward the information sources they are most familiar with and therefore, often miss opportunities to stretch outside their usual boundaries and acquire the information that would result in more effective decision making (Morgan, 2006, p. 86).

The literature also links the role organizational structures play in communication to disadvantageous decisions made by small insular groups, usually at the top of organizational hierarchies. First among this body of work is the discussion of the behaviors known as groupthink. Groupthink refers to “a mode of thinking that people engage in when they are deeply involved in a cohesive in-group, when the members’ striving for unanimity overrides their motivation to realistically appraise alternative courses of action” (Janis, 1982, p. 9). In these situations, the decision making group isolates itself from other organization members, who often have direct knowledge of the crisis, and relies almost exclusively on group members for information and counsel. Other theorists have expanded upon these ideas by explaining that “by facilitating the development of shared illusions and related norms, these symptoms are used by groups to maintain an esprit de corps during difficult times (Whyte, 1989, p. 41).

Furthermore, Schafer and Crichlow (1996), in their work on uncovering the factors that most strongly contribute to the problematic group decision making inherent in groupthink, found that “the data suggest that the real problem lies in structural arrangements” (p. 427). Specifically, they state that among the most problematic factors is the existence of traditional group procedures and that this factor is a strong predictor of information processing errors and unfavorable outcomes. They conclude that policy makers should be aware of the role structure plays in a group’s ability to acquire and process information and for the development of procedures regarding information searches and evaluating the positive and negative aspects of a situation (Schafer & Crichlow, 1996, p. 429). Moreover, researchers have found that the level of access to top-level decision makers can greatly affect communication during crises. Specifically, in hierarchical organizations “access is tightly controlled by gatekeepers who determine what kinds of information will be presented. If information is not available it cannot be taken into account” (Seeger, Sellnow, & Ulmer, 2003, p. 23). Under these conditions, failures to allow for open exchanges of information during times of crisis will invariably result in inadequate organizational responses.

Analysis of Organizational Structures and Crisis Communication

In relation to the MSU case study, the role bureaucratized and hierarchical structures played in the breakdown of effective communication during the crisis is clearly evident. MSU is a large bureaucratic organization that employs approximately 11,320 faculty and staff. These faculty and staff members are organized in a multitude of academic and administrative units, with varied systems of rules, and are lead by vice-presidents, deans, directors, and chairs. The three top administrators, overseeing all university activities, are the President, the Provost, and the Vice President for Finance and Operations. At the pinnacle of the hierarchy is the publicly elected Board of Trustees (“MSU Facts”, 2010). The size of the University and its subsequent plethora of divisions result in organizational structures that foster insular operating practices and obstruct clear and consistent communication among units on campus. In addition, because of the size of

the organization, top-level administrators are often removed from day-to-day operations and from the employees who have the most expertise and accurate hands-on information. This was a contributing factor in the University Physician and Vice President for Finance and Operations' decision to prematurely remove turkey from resident hall cafeterias. MSU's bureaucracy and hierarchy created fragmented structures that fostered the exclusion of the Food and Water Sanitarian and the food service managers from high-level discussions. By initially excluding these staff members, administrators did not have access to critical information and expertise that would have resulted in more informed decision making. Instead, administrators kept discussions and deliberations within their small in-group. Consequently, MSU's top-level administrators, because of their removal from daily operations within the University and the insular nature of the institutionalized decision making norms in which they are a part, failed to recognize and seek out information that would have drastically altered their initial decisions.

Lessons from Britain's 'Mad Cow' Outbreak

Further insight into the factors that contributed to the communication breakdowns at MSU can be gained by examining other public health crises and their subsequent organizational responses. As discussed above, the fragmented structures embedded within the organizational design at MSU clearly contributed to the inability of key administrators to obtain, analyze, and utilize relevant information in their decision making during the E. coli crisis. Another important example of organizational structures impeding communication and fostering groupthink can be observed in the case of the 'Mad Cow' outbreak in Great Britain.

Bovine Spongiform Encephalopathy (BSE), often referred to as 'Mad Cow' disease, was first identified in November 1986 by the United Kingdom's Ministry of Agriculture, Fisheries and Food. The disease, which affects the brain, has no effective treatment and no cure. However, in spite of the seriousness of the disease, there was a delay of more than six months between its identification and the Minister of Agriculture being informed of the discovery. In addition, not until a subsequent nine months had passed, was the Department of Health informed of the disease's existence. While the seriousness of the disease was widely recognized in terms of animal health, most experts maintained that the risk to humans was minimal (Maxwell, 1999, p. 99). British scientists were so convinced of this finding, that in 1990, Dr. David Tyrrell, the chairman of the Spongiform Encephalopathy Committee reported to the Chief Medical Officer, that "we believe that there is no scientific reason for not eating British beef and that it can be eaten by everyone" (Maxwell, 1999, p. 99). In March of 1996, the British government was alerted about a study that had linked a new variant of Creutzfeldt-Jakob Disease (CJD), the main spongiform encephalopathy in humans, to BSE. CJD, like BSE, has no effective treatment or cure and at that time had resulted in ten deaths in Britain. As a result, the Secretary of State for Health announced that BSE might, after all, pose a threat to human health. The announcement fueled growing public panic and anger at the government's inability to discover the link between the two diseases earlier. Beef sales plummeted and countries quickly banned the import of British cattle and beef. In response to public demands, and faced with few other viable options, the government agreed to slaughter 4.7 million cattle (Maxwell, 1999, pp. 99-106).

The 'Mad Cow' outbreak is an informative case in terms of the effect organizational structure has on crisis communication. First, the lag time between when BSE was initially discovered and when animal and human health officials were informed is reminiscent of the impediments to communication found in most bureaucracies. It can often take considerable time for crucial information to flow from employees with specific expertise regarding a topic or situation, in this case BSE, and the top-level decision makers. In addition, the literature revealed that

bureaucratic structural impediments to communication often contribute to groupthink among top-level decision makers. In the ‘Mad Cow’ case, the insular ‘in-group’ consisted of the veterinary and human medicine experts who deemed all British beef to be safe for consumption. For nearly ten years, most experts thought the risk of BSE for humans was negligible and few medical experts, politicians, civil servants, or the public questioned these ascertains (Maxwell, 1999, p. 106). The specialization and differentiation of functions inherent in large scale bureaucracies foster areas where specialized knowledge is common among all of the unit’s members and is unlikely to be questioned by those inside or outside. In the relation to the dangers of BSE, scientists failed to fully explain or acknowledge any uncertainties they may have had and were drawn into making statements that ultimately offered false reassurances. In hindsight, it is easy to see that greater levels of dissent, voiced earlier within the medical community, and greater transparency regarding the scientific research being conducted on the diseases could have increased the likelihood of reducing the number of animal and human deaths.

Best Practices from Arkansas’s West Nile Outbreak

Although the MSU E. coli case and the British ‘Mad Cow’ crisis exemplify that breakdowns in crisis communication are not unique in large public organizations, there are also examples of similar organizations that have been able to overcome the constraints of bureaucratic and hierarchical structures. Specifically, in direct contrast to the ‘Mad Cow’ outbreak and its ensuing communication related shortcomings, the Arkansas Department of Health’s response to the 2002-2003 West Nile Virus (WNV) outbreak represents a best practices model in risk and crisis communication.

When Arkansas public health officials were first notified of potential infections of WNV, a mosquito-borne disease, being reported within the state, the Department of Health immediately assembled a team to monitor the cases. The group consisted of a “wide-ranging group of individuals, including public health information communicators, the divisions of communicable disease and epidemiology, the state laboratory, the press office, the information technology office, the administration office, and a field assistance team from the United States Centers for Disease Control and Prevention” (Ulmer, Alvey, & Kordsmeier, 2008, p. 100). The group went into action collecting information about WNV in Arkansas and communicating to the public about how the disease was spread and how to take precautions to avoid contracting the virus. After public health officials determined the cases of WNV were increasing in animals and humans, Arkansas’s Governor Mike Huckabee declared a statewide emergency and allocated \$1 million in state aid to assist counties in their efforts to stop the spread of the disease. A large share of these monies went to the Arkansas Department of Health offices to assist in efforts to abate the state’s mosquito population. Throughout the outbreak, the Arkansas Department of Health provided information to internal and external stakeholders and collaborated with other organizations to maximize their effectiveness. Health officials were part of the National Public Health Information Coalition which allowed them to stay in touch with health officials in other states to share information about the virus. They also coordinated with physicians across the state to keep a close watch on the number of cases. In addition, their communications to the public were frequent, detailed and were presented truthfully and openly with an emphasis on education. While five deaths resulted from the outbreak, its handling and containment were deemed by most stakeholders to be a success (Ulmer, Alvey, & Kordsmeier, 2008, pp. 100-106).

The WNV outbreak is informative in terms of the success that can be achieved in effective crisis communication when barriers imposed by organizational structures are overcome. The Arkansas Department of Health avoided the slow flow of information regarding the crisis that

was a critical part of the ‘Mad Cow’ outbreak. This was achieved by public health officials’ efforts to immediately organize the working group to gather information and communicate with stakeholders. This step allowed public health officials and political leaders to have access to the most current information on the outbreak. Prompt and accurate information supplied by scientists and health care professionals, inside and outside the state’s bureaucracy, allowed critical decisions to be made that lead to positive outcomes. In addition, the variety of state offices and departments that were included in the emergency group shattered the compartmentalization that often accompanies large public sector bureaucracies. Using each department’s specialized knowledge, instead of allowing that specialization to divide organization members, had clear positive results during the outbreak. Furthermore, administrators were able to reduce the impediments to communication that result from hierarchical structures by seeking contributions from staff members at all levels within the organization. The Arkansas Department of Health also succeeded in overcoming the barriers of its own structure by accepting stakeholders and organizations outside state government as legitimate partners. “Organizations that involve other stakeholders in decision making about risk and preparation for crisis are likely to benefit from support of those groups during a crisis”(Ulmer, Alvey, & Kordsmeier, 2008, p.106). Stepping outside their own organization to communicate and incorporate the viewpoints of others allowed the Arkansas Department of Health to avoid insular and disadvantageous decision making.

STRATEGIES FOR IMPROVEMENT: STRUCTURAL EMPOWERMENT, LATERAL RELATIONSHIPS & ORGANIZATIONAL LEARNING

In light of the review and analysis of the relevant literature, as well as the case studies discussed above, the following question must be answered: Are there techniques/strategies available that can be utilized to improve organizational design and function in order to enhance communication in general, and also during crises? Given the exposed deficiencies of bureaucratic and hierarchical structures in fostering effective communication during a crisis, determining how an organization can overcome these factors is challenging. While its negatives have been discussed at length, bureaucracy also offers an organization an efficient way to maintain control and fulfill its mission. For this reason, bureaucracies and organizational hierarchies remain popular and abolishing them entirely as a method of organizational design is not realistic. However, researchers have found that “under conditions of uncertainty and information asymmetry...contingencies will arise that cannot be fully anticipated and effectively controlled by traditional methods of hierarchical supervision and surveillance” (Mills & Ungson, 2003, p. 143). As a result, practices promoting greater decentralized structures, efficient information processing, and organizational learning can be used to improve an organization’s ability to facilitate effective methods of communication overall and during times of crisis.

Structural Empowerment

One such strategy involves concepts incorporated in the theories of empowerment. The term empowerment has a variety of meanings throughout the organizational theory literature. However, the definition most commonly associated with structural empowerment offers the greatest potential as a method for improving communication within organizations. Specifically,

structural empowerment advocates for a decentralized organizational structure that allows for the “delegation of decision making prerogatives to employees, along with the discretion to act on one’s own. In the process, opportunities for employee responsibility and initiatives are created” (Mills & Ungson, 2003, p. 144). The idea of structural empowerment is closely related to the principles of human resources theory. Broadly, human resources theory calls for establishing supportive workplace relationships, allowing workers to be self-directing, and providing opportunities for them to fully develop and utilize their own skills. The theory maintains that increased employee involvement and autonomy enhances organizational performance (Tompkins, 2005, p. 271).

Granting employees greater levels of responsibility creates an environment where their skills and expertise can be optimally utilized. Where bureaucratic structures stifle the exchange of information, an empowered, more decentralized structure would allow organization members to exchange information in ways that will help ensure the accomplishment of the organization’s goals and the development of more informed decisions during a crisis. Structural empowerment encourages employees to utilize their expertise and creativity and to exchange their ideas with their co-workers. Organization members that continuously interact and share information will likely build better, more trusting relationships. As a result, “structural empowerment is the enabling condition under which stable and continuous exchanges of information and resources among organizational participants is facilitated and sustained” (Mills & Ungson, 2003, p. 144). Admittedly, there is a level of control lost by administrators within an organization that embraces structural empowerment and implementation of these changes may need to be incremental in order to ensure organizational objectives remain central and unified. However, the benefits that could be achieved by freeing the innovative, creative, and critical thinking skills of the organization’s members are significant and worthwhile.

Lateral Relationships

The information processing literature also provides design strategies for increasing the effectiveness of crisis communication within organizations. For instance, Jay R. Galbraith (1974) explains how deficiencies in information processing relate to organizational design. Specifically, Galbraith highlights the link between increasing uncertainty and the resultant breakdowns in effective information processing within hierarchical structures. As he explains:

As the organization faces greater uncertainties its participants face situations for which they have no rules. At this point the hierarchy is employed on an exception basis. The recurring job situations are programmed with rules while infrequent situations are referred to that level in the hierarchy where a global perspective exists for all affected subunits. However, the hierarchy also has a limited range. As uncertainty increases the number of exceptions increases until the hierarchy becomes overloaded. (Galbraith, 1974, p. 29)

Therefore, for Galbraith (1974), “the critical limiting factor” of an organizational structure must be seen as its ability to handle non-routine, highly uncertain events (p. 30). An organizational design that is overly dependent on crisis decision making and information processing by members at the top of its hierarchical structure is doomed to experience incomplete information transfers resulting in greater instances of erroneous decision making.

As a result, Galbraith proposes a concept of organizational design that responds to uncertainty by increasing interactions between varying levels of an organization. This organizational design

focuses on what Galbraith (1974) terms “lateral relationships” (p. 32). As he explains, this strategy “employ[s] selectively joint decision processes which cut across lines of authority...[and] moves the level of decision making down in the organization to where the information exists...” (Galbraith, 1974, p. 32). Creating lateral relationships can take a variety of forms but focuses on designing organizations that can more quickly adapt to uncertainty by fostering effective and frequent communication between critical actors with varied functions and positions within the organization’s structure. For instance, Galbraith highlights the effective role of taskforces in bringing various departments together to work collaboratively on a specific issue or crisis. He also identifies the utilization of specialized roles, such as “liaison roles” and “integrating roles”, to bridge gaps between interdependent departments, as well as between administrators and those employees lower in the hierarchy who are often closest to critical information (Galbraith, 1974, p. 33). For example, liaison roles are developed when it is recognized that two departments have a need to share a large volume of information. Specifically, liaisons “are typical examples of specialized roles designed to facilitate communication between two interdependent departments and to bypass the long lines of communication involved in upward referral” (Galbraith, 1974, p. 33).

In addition, integrating roles are created to help facilitate group decision processes for issues that are viewed as more permanent than those that can be handled by a temporary taskforce. Persons in integrating roles “are selected so as to be unbiased with respect to the groups they integrate and to have technical competence...They collect information and equalize power differences due to preferential access to knowledge and information” (Galbraith, 1974, p. 34). As a result, creating lateral relationships within an organization allows for more efficient and effective information processing than can be achieved through traditional hierarchical structures alone. Similar to the ideas encompassed in structural empowerment, lateral relationships seek to design organizations that recognize information processing and decision making must take into account the plethora of expert knowledge available in all of the organization’s departments and at all levels within the organizational structure.

Organizational Learning

Another technique that could be employed in organizations in order to reduce the negative effects of bureaucratic and hierarchical structures is organizational learning. The theories of organizational learning are largely based on the ideas of cybernetics. Cybernetics suggests that in order for organizations to learn they must be able to:

- Scan and anticipate change in the wider environment to detect significant variations.
- Develop an ability to question, challenge, and change operating norms and assumptions.
- Allow an appropriate direction and pattern of organization to emerge. (Morgan, 2006, p. 87)

This process also involves avoiding traditional management control systems and the defensive behaviors of organizational members (Morgan, 2006, p. 87). In addition, cybernetics emphasizes that feedback from the external and internal organizational environments plays a critical role in changing the structure of the organization (Buckley, 1967, p. 56).

Organizational learning offers organizations a method to overcome the obstacles of bureaucratic management through skills and practices that allow organization members the ability to extend beyond traditional methods of acquiring information and take part in actions that question whether operating norms are appropriate. Chris Argyris (1983) proposes one

method of achieving this objective through the dichotomy of single-loop and double-loop learning. Single-loop and double-loop learning are defined as:

One type (of organizational learning) involves the production of matches, or the detection and correction of mismatches, without change to the underlying governing policies or values. This is called *single-loop learning*. A second type, *double-loop learning*, does require re-examination and change of the governing values. Single-loop learning is usually related to the routine, immediate task. Double-loop learning is related to the non-routine, the long range outcome [italics in original]. (Argyris, 1983, p. 116)

Single-loop learning involves an organization scanning and monitoring its environment, comparing the information that is gathered against its operating norms, and selecting the appropriate response from those norms. Single-loop learning practices have been mastered by most organizations and they serve the purpose of keeping the organization in line with traditional operating norms (Morgan, 2006, p. 85). Stated another way, these practices contribute to an organization maintaining its organizational structuring. While this type of organizational learning can have a stabilizing effect, it can also produce negative outcomes when faced with the uncertainties that often accompany crises.

In comparison, double-loop learning promotes organizational behaviors that review and challenge operating norms (Argyris, 1983, p. 116). Double-loop learning requires an organization's members, and often key decision makers, to question the relevance of operating norms. In many cases this involves the ability to step outside the standard operating procedures instituted by bureaucracy and seek new information that is critical in times of crisis. As has been previously discussed, "a top-down approach to management, especially one focusing on control...encourages single-loop learning but discourages the double-loop thinking that is so important for an organization to evolve" (Morgan, 2006, p. 92). If an organization embraces a double-loop style of learning, administrators will have greater ability to question the relevance of operating norms. As is in the case of structural empowerment, the implementation of organizational learning will take a dedicated effort from upper-level administrators to foster an organizational culture that embraces its principles, along with mechanisms by which staff members can utilize double-loop learning techniques. If implemented correctly, this practice could result in the correction of errors, in the short-term, such as during a crisis, and in the long-term improve the standards that guide the organization.

Strategies Applied: Reexamining the Case Studies

The benefits of structural empowerment, lateral relationships, and organizational learning are clearly evident when applied to the case studies previously described. In relation to the 'Mad Cow' outbreak, health officials were constrained by structures within their organization that kept them on the path of predetermined norms. The crisis escalated because critical information was delayed and nothing in the organization's structure pushed officials to question the results previously reported or allowed for the free exchange of information. If the Ministry of Health officials and policy makers would have had a more double-loop learning orientation they would have likely been more skeptical of the ability of standard practices to handle the non-standard situation. This questioning would have in turn initiated greater communication and information sharing among key stakeholders. In addition, if the Ministry of Health had utilized greater structural empowerment and lateral relationship practices, information could have been

disseminated more quickly because it would have bypassed bureaucratic and hierarchical reporting lines.

Similarly, the MSU E. coli outbreak's communication mishaps were the result of an adherence to organizational structures that fostered behavior among top-level administrators to primarily seek information and counsel from other members of the University's upper administration. Lower-level employees, who possessed the knowledge that would have led to more sound decisions, were not empowered by the organization's structure to share their knowledge and were not included in discussions in which initial key decisions were made. It was not until previous decisions were questioned and more lower-level staff members were included in discussions, that a more complete picture of the situation was determined. Following the operating norms imposed by an organization's structure can be highly detrimental to efficient and effective crisis communication and can cause missteps that could have been avoided if a more open perspective had been employed.

In comparison, the Arkansas Department of Health was able to reduce the negative effects of structure by being innovative and fostering the unrestricted flow of information. Although it is not fully apparent whether or not they knowingly utilized the tools of structural empowerment, lateral relationships, or organizational learning, there are clearly some connections that can be made between their actions and the theories. First, the Arkansas Department of Health avoided the slow flow of information regarding the crisis, which was a crucial part of the 'Mad Cow' outbreak, by immediately organizing a working group to gather information and communicate with stakeholders. The group consisted of staff members from a variety of state offices and departments. The Arkansas Department of Health in effect decentralized its organizational structure within this group. Like the ideas presented in structural empowerment and lateral relationships, the de-fragmentation of the state's bureaucracy within this group eliminated barriers and allowed staff members to communicate and utilize their expertise. The Arkansas Department of Health also succeeded in overcoming the barriers of its own structure by accepting stakeholders and organizations outside state government as legitimate partners.

In addition, double-loop learning also appears to have had a place in the Arkansas public health officials' actions. Instead of merely relying on operating norms, officials relied on prompt and accurate information supplied by scientists and health care professionals, inside and outside the state's bureaucracy, to make critical decisions regarding the outbreak. Health officials assessed their environment and realized the spread of the West Nile Virus called for non-routine action by the organization and its members. Recognizing the unique nature of the outbreak and taking immediate steps to foster communication and gather information allowed the organization to learn. These actions ultimately lead to positive outcomes. While not offering a way to completely negate the effects of bureaucracy and hierarchy on the flow of information during a crisis, the strategies related to structural empowerment, lateral relationships, and organizational learning have the ability to promote an organizational structure that empowers employees to utilize their own skills, improve access to critical information, and question procedural norms, which can in turn foster more productive communication.

CONCLUSION

Effective crisis management and effective crisis communication are inherently connected. An examination of recent public health crises, specifically the MSU E. coli, British 'Mad Cow'

virus, and Arkansas West Nile virus outbreaks, reveals that crisis communication plays a vital role in the realization of positive or negative outcomes. Therefore, in reference to the key questions that have focused this analysis, one must ask what has been learned about the organizational factors that contribute to effective and ineffective crisis communication. A review and analysis of the literature, as well as the related case studies, has provided some clear answers to those questions. Specifically, this analysis reveals that impediments to effective crisis communication in organizations are directly related to organizational structure and that the situation presented in the MSU case study is not unique. Organizations where large scale bureaucratic and hierarchical structures are employed result in organic divisions and fragmentations that stifle communication. While bureaucracy offers an efficient way to maintain control in a large complex organization it is often paired with increasing compartmentalization that reduces the likelihood that critical information will flow freely. Bureaucratic accountability and organizational structures that relate to rewarding and punishing employees also play a role in the effectiveness of communication during crises by increasing the likelihood of information suppression. In addition, researchers have found connections between organizational structures and bounded rationality and the occurrence of groupthink. Furthermore, while it is understood that crises do heighten uncertainty, an analysis of the case studies has shown a crisis does not automatically correlate to large scale breakdowns in communication. Overall, whether in the literature or in the real-life examples discussed, the conclusion that bureaucratic and hierarchical structures impede communication and information gathering is clearly evident.

However, having the knowledge that organizational structures affect crisis communication is not enough in light of the dire consequences of negative outcomes in crisis situations. Maintaining effective communication during a crisis, and for that matter during normal operations, is essential in order for an organization to successfully fulfill its mission. Therefore, in organizations that are highly bureaucratic and hierarchical some reforms are necessary. Although by no means exhaustive, the concepts related to structural empowerment, lateral relationships, and organizational learning offer methods by which organizations can attempt to overcome the negative aspects of their structures. In efforts to better handle these situations, structural empowerment advocates for an organizational structure that allows for the delegation of greater levels of decision making to employees along with granting them some level of discretion to act on their own. During this process, opportunities for employees to take on responsibility and be innovative are created. Granting employees greater levels of responsibility creates an environment where their skills and expertise can be optimally utilized. Where bureaucratic structures often stifle the exchange of information, an empowered, more decentralized structure allows organization members to exchange information in ways that will better ensure the development of more informed decisions during a crisis.

In addition, the information processing literature provides strategies related to organizational design that increase the interaction between various levels of an organization. For instance, by developing an organization that encompasses lateral relationships, the negative aspects of organizational structures related to bureaucracy and hierarchy can be weakened by creating functions and roles that facilitate effective information processing. Specifically, by creating the ability for varied departments to interact on specific problems through taskforces, or for more permanent issues, through specialized actors in liaison and integrating roles, organizations can achieve more effective and efficient communication within all parts of the organization. Similar to the ideas of structural empowerment, the creation of lateral relationships highlights the fact that critical information is often found at lower levels within the organization. As a result,

organizations must be designed in such a way as to facilitate the efficient transfer of this information or to allow for more decision making authority at lower levels within the hierarchy.

Furthermore, organizational learning offers tools to overcome the obstacles of bureaucratic structures through skills and practices that allow organization members the ability to extend beyond traditional methods of acquiring information by taking part in actions that question whether operating norms are appropriate. Specifically, the concept described as double-loop learning promotes organizational behaviors that review and challenge standard operating procedures. Double-loop learning requires organization members, and often key decision makers, to question the relevance of operating norms to adequately respond to situations confronting the organization. In many cases this involves the ability to step outside the standard operating procedures instituted by bureaucracy and seek new information that is critical in times of crisis. While these theories are far from a panacea for the negative effects organizational structures can have on crisis communication, they do offer ways in which organizations can identify and reform the structures that are most problematic.

Suggestions for Further Research

Although a great deal of insight has been gained into the factors that contribute to breakdowns in crisis communication, there is more that could and should be known in order to improve the effectiveness of public organizations. To expand on these concepts, further research should be conducted that focuses on public organizations during and after a crisis. Through staff member interviews and a review of communication methods during a crisis, researchers could attempt to gauge the level of access to information key decision makers had and sought during the crisis. It would be of specific interest to analyze if and how information was exchanged between staff members at different levels within the organizational hierarchy, specifically to determine if communication and information was distributed along pre-defined organizational structures or by alternative methods. In addition, evaluating the utilization of double-loop style learning during a crisis would expand on the current body of work to assess its validity during crises. Another potential approach for further research would involve analysis to determine if evaluating an organization's structure following a crisis changes that structure. In particular, studying whether or not post-crisis structures and selected adaptations seek to reinforce, diminish, or maintain bureaucracy and hierarchy would be highly informative. Furthermore, research focused on public organizations that have instituted strategies related to structural empowerment, lateral relationships, or organizational learning would be beneficial to assess if these strategies provide real long-term benefits. Moving forward, whether in research or in practice, crisis managers and public administrators must recognize that effective communication is vital for all organizations, especially in times of crisis. Continuing to examine, create, and reform organizational structures and information processing techniques to better facilitate communication is a valuable and necessary endeavor.

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