Challenges in Rhetoric of Science and Technology: ARST Report

Improving Patient Activation In Crisis And Chronic Care Through Rhetorical Approaches To New Media Technologies

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As the U.S. population both increases and ages over the next 40 years, the numbers of patients requiring healthcare for both crisis-oriented and chronic conditions will grow in tandem (USHHS, 2009). Dramatic and swiftly evolving pandemics such as swine flu (H1N1) and more "everyday" epidemics like diabetes, with its jump to nearly 19 million cases diagnosed in 2008 (compared with 1.6 million in 1958) will put tremendous strain on the existing healthcare infrastructure (CDC, 2009). This growth requires that healthcare practitioners and patients master new methodologies for communicating about care. Among

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these methodological possibilities are new and social media, such as websites, mobile phone text messaging, interactive websites, YouTube, Twitter, and Facebook. Web 2.0 technologies like these offer healthcare providers the opportunity to provide patients with instant healthcare information, to receive feedback from those patients, to create like-minded communities of patients that can offer support and reinforcement to one another, and to begin patient activation through information empowerment.

Here, communication and rhetoric of science scholars can help shape the future efficacy of Web 2.0 healthcare communication and the strategies its practitioners use toward patient activation. Much of the rhetorical work encouraging patients to take a more active role in healthcare decision-making is based upon models of health behavior taken from cognitive behavioral science (Hibbard *et al.*, 2004). These rhetorical methods (such as critical discourse analysis and content analysis) and approaches (such as analyses of argumentation and ideation) can also aid in helping accurately trace the discursive markers that typify the environmental and personal influences affecting patient behavior. Overall, methods of analysis in rhetoric and communications can help healthcare researchers and practitioners reflect on their field's theories and models, identify inherent contradictions and core implications, and refine how they operationalize those models.

Establishing the Link Between Rhetoric and Cognitive Behavioral Science

There are many conceptual similarities between the fields of cognitive behavioral science and rhetoric of science. For example, when researchers craft health education outreach campaigns, they often design materials in keeping with the health belief model, which assumes that patients make decisions based on their perceived susceptibility to a disease and its severity, perceived benefits and barriers of treatment, exposure to cues to action (such as radio PSAs or doctor's suggestions), and patients' perceived self-efficacy (Glanz & Rimer, 2002). Still other teams base health outreach education campaigns on the theory of planned behavior, wherein the extent to which patients believe they can control their behavior makes a difference in actual attempts (Ajzen, 1991). Finally, the transtheoretical model of health behavior suggests that

behavioral change occurs in stages: pre-contemplative, contemplative, preparative, active, and maintenance (Prochaska, DiClemente & Norcross, 1992). Rhetorical analysis can be integral in discovering and interpreting many concepts articulated in these models.

These models reflect what health behavior science calls "social cognitive theory" (Bandura, 1986). Social cognitive theory describes how personal factors, environmental factors, and human behavior all bear upon each other in determining patients' attitudes about health behavior, a vantage on medical science that should resonate with many communication and rhetoric of science scholars. Social cognitive theories of health behavior are an approach to patient education similar to sociology of scientific knowledge (SSK) on the production of scientific knowledge (Bloor, 1976; Williams & Edge, 1996). Both suggest that cultural and rhetorical factors are as influential in the production and dissemination of scientific facts as empiricism and verifiability. Both also hold promise for helping examine and design social and new media applications for patient education and activation, particularly since social and new media mechanize and externalize the recursive relationship between interactivity, networking and communities of practice.

Communication and rhetoric of technology scholars have already conceptualized the ways that new media transform this knowledge production by 1) affording more interactivity, whereby users can contribute posts, threads, comments, recommendations, ratings and "write back" into texts (Aarseth, 2002); 2) decentralizing sites of production and consumption across a network of amateurs and professionals alike (Castells, 1995); 3) expediting the transfer and duplication of information through digital exchange (Levy, 1997), and 4) offering new ways of representing the world (Deleuze, 2002; Roundtree, 2009; Shields, 2003). Increasingly, the general public has begun using social media and other information and communication technologies—i.e., mobile phone text messaging, YouTube, Twitter, and Facebook—to find and offer help during times of crisis.

Addressing Public Perception in Social Media Approaches to Health-related Crisis Communication

One area currently being explored is investigating how new media are used in health-related crisis communication, an important area of patient communication and education. Traditionally, the purpose of health-related crisis communication has been to impact how the public perceives and behaves in a health crisis. Organizations craft crisis communication before, during, and after a negative occurrence in order to protect themselves and others from damage by lessening or preventing negative outcomes (Barton, 2001; Reynolds & Seeger, 2005). Communication and technology scholars have reported how the public used such technology to distribute accurate lists of survivors and extra-institutional, insider information during the Virginia Tech shootings and the SARS outbreak in China (Ding, 2009; Palen *et al*, 2009). Some organizations, such as government agencies and hospitals, have also begun using these technologies for the purposes of publishing health-related crisis communication (Innovis Health, 2009; Mobile Health, 2010).

A forthcoming study examines how five hospitals with the most Twitter followers leveraged the medium during the health care reform debates and H1N1 outbreak during the summer of 2009 (Roundtree, 2010). The project uses grounded theory methodology to uncover recurring, emerging themes and discursive modes that characterize each hospital's tweets (Glaser, 1992; Strauss & Corbin, 1990). Only three of the five hospitals posted tweets regarding H1N1 and health care reform. The tweets were timely (thereby capitalizing on the digital immediacy that Twitter affords), but few. Furthermore, the tweets did not directly redress common misconceptions that dominated the public debate and festered on blogs and social networking sites. In fact, many of the tweets remediated traditional public relations genres and rhetorical strategies—including headlines framed as rhetorical questions, non-descript axioms, etc.—in such a way that might have perpetuated rather than squelched rumors and misunderstandings. Preliminary findings suggest that the hospital tweets ignored collective perceptions forming about these topics.

These findings also challenge the definition of crisis implied by many traditional models of crisis communication. Many models of crisis communication presume an episodic definition of crises, or events with definitive beginnings, middles, and endings. Theories of crises themselves suggest otherwise—namely, that stakeholders' perception of an event changes, evolves, and impacts whether an event develops into a crisis (Coombs 2007, 2010). Thus, Grabill and Simmons proposed a unique, participatory model of crisis communication, "that involves the public in fundamental ways at the earliest stages of the decision making process…an approach that allows the public to actively participate in producing the policy itself" (Grabill & Simmons 2008, p. 430). Since perceptions of crisis change over time, social media is well positioned to help negotiate and shape those perceptions, particularly during crisis gestation and protraction. Social media can facilitate interactions that negotiate the meaning and perception of events. Furthermore, social media can widen the network of sources of information during crises—information with which organizations themselves can tailor how they understand and respond to crises. However, new media's networked, interactive nature might impede processes of providing information, assuaging fears and mitigating damage, insofar as the media dispenses with conventional processes of validation such as source checking and peer review. Therefore, it might be a more realistic goal for organizations to use new media in crisis communication for the purpose of discrediting misinformation or aggregating fact-checking unofficial sources of information, rather than attempting to prevent or decrease the amount of negative or incorrect information.

Connecting Chronic Care, Rhetorical Studies, and New Communication Technologies

Chronic disease, especially the various co-morbidities associated with obesity, accounts for ever-increasing time and dollars spent by the health care system. These conditions have reached epidemic proportions (Deitel, 2003; Mitchell & McTigue, 2007; Morris, 1993; Ratzan, 2005). Chronic diseases often do not respond to specific and short-term clinical interventions; instead, they require ongoing dialogue between patients and physicians

(Wagner, 1998; Wagner *et al*, 2001). Long-term lifestyle modification is often the best means of adequate treatment. One of the main problems for patients is that many health practitioners do not have the time or sometimes fail to engage in lifestyle management discussions and long-term interventions with their patients (Galuska *et al*, 1999). Given this problem, medical researchers and practitioners are now working to understand the kinds of lifestyle interventions that might have a real impact on obesity, diabetes, and other co-morbidities, such as "intensive counseling" (McTigue *et al*, 2003).

For example, Wagner (1998) and Wagner *et al*, (2001) noted the importance of adequately delivering health information and skills, from the research laboratory to clinicians and then patients. The Chronic Care Model (CCM) that they have developed seems to call out for contributions from communication scholars, primarily those interested in the dissemination of technologies and practices that enhance the delivery of health information to patients and provide a different vision of the patient as one active in their own health (Rubinelli *et al*, 2009; Stone, 1997). As these all require enhanced networks of communication and persuasion, the connection to rhetoric and communication theory seems obvious.

However, much existing work has focused on health messaging and health literacy, but not on the complementarity between interactive evidence-based online lifestyle interventions and clinical care, Although many communication scholars have contributed important insights into the development of online tools for patients and practitioners (Ancker *et al*, 2009; Huang *et al*, 2009; Rains & Young, 2009; Roberto *et al*, 2008; Roberto *et al*, 2009). McTigue *et al*, (2009) note that "studies examining Web-based programs to promote weight loss have focused on non-clinical settings, are often relatively short-term, and have had mixed results" (pp. 851-852). Some problems identified included website design, asynchronous messaging between participants and health care practitioners (i.e. "coaching notes" rather than immediate conversation), and the ongoing issue of access to technology (McTigue *et al*, 2009, p. 852). For this reason, a group of researchers at the University of Pittsburgh developed a study to adapt the Diabetes Prevention Program (DPP), a program designed in part to test the

effect of a face-to-face lifestyle intervention (The DPP Research Group, 2002a; 2002b; Hamman et al, 2006) into an Internet-based lifestyle intervention program (McTigue *et al*, 2009). According to McTigue *et al*, (2009), the intervention offered multiple lessons through an online portal and involved "self-monitoring" and ongoing interactions with lifestyle coaches trained in the "delivery of the lifestyle intervention" (p. 852).[2]

Moving from the development to the promotion and dissemination of such technologies is, of course, a major concern for health practitioners and other scholars invested in improving care. A current study (Rief, 2010) investigates the transition of this technology at the University of Pittsburgh from the research setting into the clinical setting via its sale by the commercial licensee of the program, DPS Health. This project explores the dissemination campaign being utilized by DPS Health through interviews, analysis of online artifacts such as articles and press releases, and analysis of the scientific research articles being produced by the research team at the University of Pittsburgh.

While the project is ongoing, Rief (2010) has identified several important research trajectories, including the issue of theorizing the connection between academic medical research and market-based dissemination, the potential for developing creative estuaries between researchers and their various publics (including potential corporate interests and their clients), and the creation of persuasive appeals for cultivating end-user interest in evidence-based lifestyle interventions. Communication scholars can play a critical role in theorizing the rhetorical pipeline that connects research dissemination and potential buyers (end-users) and offer novel insights that may elucidate (and potentially enhance) such relationships. Of course, additional work and analysis will be needed to fully understand these issues and develop a more robust articulation of findings.

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[2] The program, Virtual Lifestyle Management™ has been licensed to DPS Health and the copyright has been assigned to the University. The researchers do not receive proceeds from its sale (McTigue et al, 2009, p. 857).

Conclusions, Implications, and Future Trajectories for Research

Segal points out that rhetorical scholars and communication theorists should be increasingly concerned with "the relevance of rhetorical findings for clinical practice and health policy" (Segal, 2005, p. 4). It is our view that work on the development of new communication technologies (e.g. Web 2.0, social media, and web-based platforms for the development of lifestyle change) from rhetorical and communication theory perspectives can provide important insights to clinicians, medical researchers, and the institutions involved in disseminating their findings. As we have shown here, the theory and practice of communication is directly tied to the success and implementation of new technology.

Fortunately, the federal funding sources supporting the sciences, such as NIH, NIMH, and the NSF have recognized the importance of such research. For instance, the NIH has shown support for research concerning "dissemination" (Wolf, 2008, p. 212) and "communication theory" (Wolf, 2008, p. 211) as important elements of an ongoing effort to promote "translational science" (Feldman, 2008; Maienschein *et al*, 2008; Reis, 2010; Wainwright *et al*, 2006), a mode of inquiry that focuses on the development of cutting edge research and its movement from the research laboratory to the clinic. Scholars engaged in such "translational" work may now find excellent avenues for financial support as well as interdisciplinary collaboration.[3] As rhetoric is situational (Bitzer, 1968) and action-oriented (Lyne, 2001), we should be ready to address the incidence of health crises and chronic disease that have also occasioned a rise in the level of interest in health and medical communication, persuasion, and methods of information delivery. Rhetoric and communication theory can offer a hand where one is needed, a hand that may have broad implications for

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public understandings of health, risk preparedness, health care, and the patient-provider communicative dyad. As this work continues, we should take time to ponder that we are part of this public; that our health, our well-being, and the kinds of health messages and treatments we may face in the future could be informed by scholars from our own field.

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