THE DYNAMICS OF SILENCING CONFLICT

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ABSTRACT

In many organizations, when people perceive a difference with one another they often do not fully express themselves. Despite creating innumerable problems, silencing such conflict is a persistent phenomenon. While the antecedents of acts of silence are well documented, little is known about how some organizations develop norms of silence. To explore this evolution of a norm of silence, we draw on an ethnographic study that spanned the entire life of a dot.com, starting with its founding and ending with its sale to a larger company. Distilling our data using causal loop diagrams, we map the processes through which acts of silence became self-reinforcing. Building on that analysis, we propose and analyze a formal model of silencing dynamics that helps identify the conditions under which silence can move from an isolated incident into a self-reinforcing norm. Our analysis has several implications for understanding the development of norms in organizations.

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Organizations often develop cultures of silence based on shared assumptions that it is inappropriate to bring up one's differences (Morrison and Milliken, 2000). Studies of engineering organizations, for example, have documented the shared expectation that important information concerning design flaws be kept quiet, at least until a remedial action is identified. Roth and Kleiner (1999: 15-16), in their analysis of engineers in the automotive industry, conclude, "There is a basic cultural commandment in engineering--don't tell someone you have a problem unless you have the solution." Similarly, Edmondson, Bohmer, and Pisano (2001) show that in some cardiac surgery teams, people are afraid to speak out, even though the patient's life may be at risk.

While silence can be constructive and organizations would clearly have trouble surviving if their members felt comfortable expressing their differences about everything (Milliken and Morrison, 2003), silencing conflict can create a variety of problems. Those who fail to reveal their thoughts and feelings often experience stress, dissatisfaction, cynicism, and even depression (Jack, 1991; Beer and Eisenstat, 2000; Morrison and Milliken, 2000). Those who do not speak up often come to perceive that their perspectives do not matter and experience declining interest in work and disengagement from the organization (Kahn, 1990). Silence on the part of those who hold conflicting points of view has also been shown to have costs for the organization, including limiting creativity (e.g., Amabile, 1983; Ray and Myers, 1986; Leonard and Swap, 1999), impeding group learning (e.g., Argyris, 1990; Edmondson, 1999; Beer and Eisenstat, 2000; Garvin, 2000), and reducing the efficacy of the decision making process (e.g., Harvey, 1974; Janis, 1982; Nemeth, 1997). Given these costs, it is not surprising that silence has been

implicated in a range of organizational pathologies, including Watergate (Harvey, 1974), the Challenger launch disaster (Vaughan, 1996), the Columbia accident (Gehman et al., 2003), and a large collection of corporate scandals (e.g., Enron, WorldCom) and industrial accidents (Bhopal, BP Texas City).

A long and rich line of research tackles why initial acts of silence occur. Conlee and Tesser (1973), for example, identify a general reluctance, or "mum effect," associated with conveying negative information because of the consequent discomfort. Employees also worry about being the messenger of bad news (Ryan, Oestreich, and Orr, 1996). Other researchers suggest that employees do not want to "rock the boat" or create conflict (Redding, 1985; Sprague and Rudd, 1988) or risk damaging their image (e.g., Ashford et al., 1998).

While scholars have made substantial progress in understanding the antecedents of silence, far less is known about why, in some organizations, rather than being an occasional event, silence becomes a norm. A growing body of research has focused on the initial act that sets the process of norm formation in motion (e.g., Strauss, 1978; Feldman, 1984; Fine, 1984; Bettenhausen and Murnighan, 1985; Schein, 1991), and another body of work details the processes through which norms, once established, are sustained and propagated (e.g., Schneider and Reichers, 1983; Morrison and Milliken, 2000). However, the literature has yet to detail the mechanism through which an initial act evolves into a norm.

The limitation of existing approaches in explaining how initial acts of silence evolve has been recognized by several scholars who have called for greater attention to dynamics in future studies (Milliken and Morrison, 2003; Piderit and Ashford, 2003). Edmondson (1999), for example, in discussing her own work, provides a succinct evaluation of the state of the larger literature: "The theoretical model…leaves out the dynamic interaction [so]. . . how shared beliefs

are created gradually in teams over time as a consequence of minor events and subtle interactions cannot be assessed in this study, nor can whether self-reinforcing cycles or spirals exist" (p. 379).

Although research to date does not offer an explicitly dynamic model of silence in organizations, several related processes have been proposed. Argyris (1990) describes the self-sealing nature of "defensive routines," suggesting that silencing a difference leads to more silencing because people engage in a process of covering over the issues that they do not want to discuss and further making their undiscussability undiscussable. Cramton (2001) documents how the failure of information exchange in geographically dispersed teams leads to misinterpretation and negative causal attributions which have a disintegrative effect on team relationships; she further suggests that these disintegrative effects can create a self-reinforcing cycle, adding to the already substantial integration challenge confronted by geographically dispersed teams. Additionally, in a theoretical paper Lawler (2001) proposes that the outcome of social exchange itself, which is affected by information sharing, leads to affect associated with the group and, therefore, more or less solidarity and, in turn, more or less willingness to share information in the future.

While several researchers have identified important pieces of the silence puzzle, organizational scholars have yet to tackle the challenge of integrating those elements into a cohesive theory. Moreover, while current research often builds on a significant number of observations and experiments, the understanding of silence has yet to be informed by detailed longitudinal studies performed in the flux of day-to-day organizational activity. Without such data, producing an integrated conception of silence that builds on existing findings and captures the norm formation process will be difficult.

Collecting and analyzing such data requires confronting several challenges. First, not only must the data be longitudinal in nature, capturing how participants' propensity to speak up evolves over time, but the data collection must also commence with the origination of the pattern; studying well-established norms provides little insight into their origins. Second, developing an improved understanding of silence requires that researchers have access not only to what members of an organization say, but also to what they think but do not say. Finally, capitalizing on these data requires a theoretical perspective and supporting tools that enable one to both map the ongoing interaction among actual interchanges and evolving expectations and make logically consistent inferences concerning the consequent dynamics. To meet these challenges, in this paper we report the results of an ethnographic study that spanned the entire life of a dot.com, starting with its founding and ending with its sale to a larger company. To use this dataset as a basis for theorizing about the dynamics of silencing conflict, we further draw on the method of system dynamics (e.g., Forrester 1961, Sterman 2000).

Modeling the evolution of silencing conflict in a dot.com sheds new light on the processes through which acts of silence evolve into a norm of silence. We find that each act of silence exacerbates the perception of difference, creating a self-reinforcing cycle in which silence begets more silence even in the face of ever-growing difference. Through the development and analysis of a formal model, we find that silencing is prone to tipping behavior. That is, there is a critical threshold of silencing behavior beyond which an additional act of silence can catalyze a self-reinforcing process that generates a norm of persistent and pathological silence. Building on this insight, our theory offers several predictions detailing the characteristics of organizations most prone to developing norms of silence.

Below we provide background on the dot.com we studied, the data we collected, and the way in which we analyzed these data. We then summarize the key observations that led us to build a dynamic model of silencing conflict. Following that we detail each of the individual dynamics that intertwined to create the silencing phenomenon we observed. We then develop and analyze a formal model to characterize the dynamics of silencing behavior. Finally, we summarize the contributions of our effort and discuss their broader implications for understanding norm development.

METHODS

Notes.com was the brainchild of four college students looking to make their entry into the burgeoning dot.com market in the winter of 1999.[1] The company was founded to provide on-line lecture notes for college courses through a website. Notes were initially going to serve as the company's way to attract students to their website and eventually would serve as a product for which the company could charge. The plan was to expand the business in concentric circles. Beyond notes, Notes.com would offer other educational products and services, such as online study guides, practice exams, book synopses (similar to CliffsNotes), and assistance with writing research papers. Eventually, the outer circle would be composed primarily of other e-commerce activities of interest to college students.

Nine months after founding the company, the four founders had hired 25 employees in their Michigan headquarters and 4,000 notetakers at 83 campuses nationwide. To further expand the company, they raised $11.2 million in venture capital (at a $15 million pre-money valuation) and, as part of the deal, took on a professional CEO, who soon hired several additional professional managers and relocated the company to Silicon Valley. Seven months after the

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[1] All company names and the names of all individuals are pseudonyms.

professional CEO joined, the company was sold to another dot.com, University.com, for $125 million in stock. Four months after that, University.com went bankrupt, and the founders lost everything. (See exhibit 1 for a timeline.)

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Insert exhibit 1 about here

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Notes.com provides a useful setting to study the dynamics of silencing conflict for several reasons. First, things happened in a dot.com more quickly than in many traditional organizations. Notes.com went from birth to seeming success to death in less than two years, providing a complete view of the organizational lifecycle, which is normally unavailable in the typical one to two year ethnographic study. Second, because the business model, the company, and the relationship between the founders and the professional managers were all new, there were few established ways of doing things, allowing us to observe patterns as they emerged. Finally, the heterogeneity of the senior management team, after the professional managers joined, provided an ongoing flow of perceived differences to which those involved had to decide how to respond. While the professional managers were in their 30s and 40s with a minimum of 12 years of work experience, the founders were all 22 years of age and had never held full-time jobs beyond summer internships. The founders, however, had a deep understanding of Notes.com's target market —the college market —as they had recently been college students, while the professional managers had no recent exposure to this market. And, the founders had much more experience with the technology involved than the professional managers.

Data Sources

During nineteen months of Notes.com's existence, over 10,000 pages of field notes were collected. The first author spent 20-40 hours per week on site as an observer. A research

assistant also spent approximately 60 hours a week on site as an observer. Neither researcher was employed by or had any affiliation, financial or otherwise, with the company. Following standard ethnographic practice, both researchers immersed themselves in the life of Notes.com, attending meetings, observing day-to-day work, participating in impromptu hallway conversations, and taking part in social gatherings. The interactions observed included public conversations, as well as, semi-private ones in which several members of a group would talk among themselves. Private conversations also occurred where one member of Notes.com would discuss issues confidentially with one of the researchers. During the data collection process, the researchers developed close relationships with all of the participants in the organization, including the founders, the early hires, and the professional managers. The researchers also had significant contact with the advisors, angel investors, and venture capitalists, as well as the employees' parents and spouses.

The ethnographic nature of the study allowed us to confront one of the most significant challenges associated with studying silence. Silence is, by definition, a non-event; a decision not to speak up is difficult to observe. Yet, by virtue of our method, we could often capture what people did not mention in public. By observing participants' public interactions and partaking in semi private and private conversations, we gained access to many of the issues and concerns that they withheld from one another.

Analysis

Following the guidelines suggested by Glaser and Strauss (1967) and Miles and Huberman (1984), we began by exploring how interaction patterns within the company evolved. Periodic analysis throughout the nineteen-month data collection process helped sharpen questions, focus interviews and observations, and ground evolving theory. Following the entrance of the

professional CEO and his new hires, it became increasingly apparent that the relationship between the founders and the professional managers was central to the company's ability to advance.

Upon completing the 19 months of observation, the first author wrote a descriptive narrative of the lifecycle of the company with particular emphasis on the interactions between the founders and the professional managers. She also wrote two additional, more detailed, narratives describing the same interactions, one from the founders' perspective and one from the professional managers' perspective. The analysis of these two more detailed narratives revealed that while the founders and the professional managers increasingly differed on issues central to the success of their company, they frequently did not explain their perspective to members of the other group or inquire as to the other group's perspective. Instead, wanting to preserve their relationship and get their tasks done as quickly as possible, they were increasingly silent about what they were thinking and feeling, growing more critical of each other in the process.

To map how initial acts of silence evolved into patterns of silence, we relied on the causal loop diagramming method common in system dynamics (e.g., Sterman, 2000). Causal diagrams have a rich history in organization studies (e.g., Masuch, 1985; Weick, 1979; Sastry, 1997) and provide a convenient and precise technology for articulating process theories (e.g., Mohr, 1982; Pettigrew, 1997). To employ this method, we used the data from the fieldwork to suggest causal linkages among emergent categories. We followed an iterative process of identifying linkages among categories and then returning to the data to confirm or disconfirm their existence.

The resulting causal map details how the micro-level acts of silencing conflict between the founders and the professional managers combined to create the more macro-level dysfunction of silencing conflict—our map constitutes a theory of what happened at Notes.com. However, it is clear from other cases, that acts of silence do not always catalyze a norm of silence; in some

organizations silence occurs occasionally but does not evolve into a persistent and damaging norm. To identify the conditions under which acts of silence develop into a norm we use our causal map as the basis for developing a formal model of the evolution of silence. Analyzing that model yields several predictions (that extend beyond the conditions we observed) concerning the characteristics of organizations most prone to developing norms of silence.

DYSFUNCTIONAL PATTERN OF SILENCING CONFLICT

Our focus on the dysfunctional pattern of silencing conflict that developed in the relationship between the founders and the professional managers emerged from four observations. First, while starting with much apparent potential, the relationship between the founders and their new CEO, Peter, deteriorated significantly over the life of the company.[2] When the founders first met Peter, they were amazed that despite his impressive resume he came across as understated and agreeable. Peter, a graduate of Amherst College and Harvard Business School, had founded a real estate company, which, under his leadership, grew into a publicly traded company with two thousand employees, a market capitalization of $4 billion, and annual revenues of $500 million. Initially, the founders found Peter to be smart, funny, and playful. More importantly, Peter seemed to want to work with them, rather than replace them. They were excited and relieved when Peter said he wanted to be their coach and mentor, not their boss.

Peter too very much liked the founders and was delighted to find a start-up in which he and the founders had such complementary skills. The founders had deep knowledge of the college market and the technology involved, yet relatively little business experience. Peter,

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[2] According to Alderfer (1987: 207), "every individual member" becomes "a group representative whenever he or she deals with a member of other groups." Consistent with Alderfer, we often focus on the thoughts or behaviors of a person as a representative of the larger group to which they belong – either founders or professional managers.

believing that mentoring was one of his greatest strengths, looked forward to helping the founders build their company. He told them, "We will do this together, and we will collectively make mistakes. Together in one space, we will have a lot of energy." Peter privately told the first author: "I am interested because the idea makes sense. I have great admiration for the founders and what they have already accomplished. Together we can build a great company and have fun while we are doing it."

Despite this positive start, seven months later, when they sold Notes.com to University.com, both parties had grave doubts about the other. The founders came to blame Peter for Notes.com's difficulties. As one of them put it, "Peter [expletive] it up so bad… this is the biggest mess I have ever been part of." He added, "I just want to crawl into a fault line. It is so political. So many agendas. Everyone has their own agenda. No one seems to know what the facts are. It is very hard to figure out what to do, what people are trying to accomplish, who to trust." And, Peter was no less critical of the founders. He described, "My job is like being a father. They are less mature than my 13-year-old daughter. They are like acting out teenagers who have no limits."

In the end, the tension between the founders and the professional managers became so intense that between the time Notes.com signed the Letter of Intent (LOI) to sell to University.com and the day that the deal officially closed ten weeks later, University.com's management team sensed the tension. In response, they decided they should keep only one of these two groups. As a last minute contingency of the final deal between Notes.com and University.com, Peter and the professional managers he had hired were let go.

The second observation concerned the major source of friction in the relationship between the founders and the professional managers. Throughout the life of Notes.com, the founders

remained focused on "aggregating users," their term for developing a website with a large and regular user base of college students. While the professional managers initially shared this vision, as time progressed they developed a different vision for the company. Soon after the professional managers joined, Princeton University made using on-line notes an honor code violation. At that point, Peter recognized what he privately referred to as "the real potential downfall of our business." As Peter put it, "We underestimated the power of the universities to make their own rules." Peter came to believe that the most viable option for continuing to develop the company was to shift the focus of Notes.com from serving students to serving faculty. "I still like the original idea," Peter told the first author in a private conversation, "…but with the campus issues, we have no choice but to find a way to refocus to be more professor friendly."

When, several months later, the opportunity presented itself to buy Faculty.com, a faculty focused website, and shift their focus to be more faculty friendly, Peter was ecstatic, believing this was the way out of their most vexing problem. The founders, however, did not share Peter's enthusiasm. Most universities had not followed Princeton and changed their honor code. Moreover, whenever Jane, the woman in charge of public relations at Notes.com, met with disgruntled faculty or administrators she was able to regain their support. The founders, therefore, were not concerned about their business model. And, as a result, they thought Faculty.com was overpriced and would only serve to distract Notes.com from what they believed remained its core mission, providing notes, on-line, to college students.

Despite the growing divergence in the founders and the professional managers' views about the appropriate direction for Notes.com to pursue, our third observation concerned a non-event: At no time did we observe the professional managers or the founders constructively raise and discuss their differences. To the contrary, when meeting together they never sought to

understand each other's perspective. This gap was highlighted by an event that took place less than three months after Peter joined. In an attempt to deal with what Peter sensed was a growing difference between himself and the professional managers he had hired, on the one hand, and the founders, on the other, Peter scheduled an all day offsite for the management team with the express purpose to surface and resolve their differences as to the future direction that their company should take.[3]

Peter began the meeting: "Our goal is to end up on the same page. We are currently moving in an unclear direction, and we need to be more clear." They spent most of the day engaged in making lists about their personal values, the values they thought their company should have, and their stakeholders. The few times someone attempted to surface a difference, someone else quickly dismissed the discussion and changed the topic. For example, in the middle of the afternoon, Peter ventured, "We need to develop relations with professors. . . . Professors have got to become our audience." The founders disagreed. As one of them noted: "We went after the masses. We should continue to focus on students." This discussion abruptly ended when Dave, the newly hired vice president of product, piped up: "Vision does not require us to make this choice. We want to be the premier academic website and that is our vision."

When the meeting concluded nine hours after Peter had proclaimed their purpose was to end up on the same page, no such progress had been made. Yet, when they went around the room and expressed their reactions to the day's events, one would never have suspected that major disagreement remained unspoken. Hal, the newly hired acting head of marketing, went first. "My expectations were met," he said. "We made some great progress today. . . . It feels

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[3] At this point, Notes.com's management team included Peter, his four new professional hires (CFO, VP of Product, VP of HR, and a consultant in the role of VP of marketing), the four founders, and two of the company's original hires.

great. I am excited . . . passionate . . . committed to the future." Dave continued: "The consistency of vision and purpose is good to hear. We are pretty similar in what we are thinking. We are not automatons, but consistency is good." Jim, the new chief financial officer, boasted: "I am happy. I thought today was going to be a lot uglier. I expected battles. Yet things were remarkably consistent." Peter added: "It was a good starting point. . . . I enjoyed today." The company's founders also expressed relief at the consistency they had heard. Clyde, the "business brains" behind the company, sounded pleased: "After today, I am more comfortable that we are all on the same page." And Howie, the technical guru, shared: "It was neat to have everyone in the same room together. I was quiet because I wanted to hear what others had to say. I wanted to hear from the new people, with new ideas and new perspectives. It seems we all pretty much agree on what is going on. Thank you." Peter ended the day's events by suggesting that everyone go downstairs to the hotel bar to celebrate.

Despite everyone publicly expressing satisfaction with their level of agreement, the privately voiced reactions were far different. When the four founders gathered the next night to reflect on the "vision meeting," as they called it, one of them snickered, "What a waste. Nothing was accomplished." He paused, took a deep breath, and continued, "We are directionless. We used to know what was going on. But we lost our goal. Now we have no focus. We are bobbing in water. We have no momentum. We should be reacting and changing, yet nothing is happening." The other three nodded in agreement.

Peter and his newly hired professional managers were similarly troubled. They too felt that nothing had been accomplished. While Peter did not mention it to anyone on his management team, he said privately, "The meeting was only the beginning. We clearly will need

to meet again to reach closure on our vision. . . . I just wish the founders understood the importance of getting faculty involved. I don't know what's wrong with them."

Despite Peter's private revelation that further attempts to develop a common vision would be necessary, none occurred. Instead, the gap between the professional managers and the founders continued to grow. Following the vision session, Peter, well aware of the founders' desire not to purchase Faculty.com but not understanding how they could possibly feel this way, went ahead and pushed through the acquisition.

Our fourth observation details the dysfunctional situation that they created for themselves. Following the acquisition, Peter worried all the more about damaging his already fragile relationship with the founders. As a result, he never made any attempt to integrate Faculty.com into Notes.com. Instead, Faculty.com relocated to Notes.com's office but each company's members worked independently. The founders of both companies focused solely on their own company's objectives. And, when new people were hired, it was to work for either Notes.com or Faculty.com. No one worked for both companies and any potential synergies between the two companies, of which there were thought to be many, went untapped. Once again neither Peter nor Notes.com's founders sought to understand why the other felt so strongly about this acquisition. Instead, they ended up with two different business models functioning side-by-side draining resources and increasing negative emotions.

Recognizing the tenuous nature of Notes.com's situation, when a senior manager from University.com approached Peter about a potential acquisition, Peter was convinced that this was Notes.com's best option. As it turned out, four months after the sale, University.com went bankrupt, and Notes.com ceased to exist. One could argue that the demise of Notes.com was a classical case of the dot.com bubble — a dubious idea that attracted large sums of venture capital

funding but could not sustain itself (Cassidy, 2002). While this is plausible, it is important to note that Faculty.com was ultimately sold out of bankruptcy and continued to exist. Moreover, while silence may not have been the sole reason for their demise, it is clear that pursuing two alternative business models under one roof, given their shortage of resources, contributed to the ultimate failure of Notes.com.

MAPPING THE EMERGENCE OF SILENCE

The failure of the professional managers and the founders to explain their own perspectives or to inquire as to the thinking behind the others' perspectives diffused their attention, taxed their scarce financial resources, and created frustration for everyone involved. The interactions at Notes.com therefore provide a useful window into the evolution of a dysfunctional pattern of silencing conflict. Below we seek to explain *how* the pattern of silencing conflict in their relationship was established and *why* it persisted. We begin with the construct at the heart of the model that emerged from our data: silencing conflict.

Silencing Conflict

The notion of silencing conflict contains two critical components: "silencing" and "conflict." Following Northcraft and Neale (1994) we think of conflict as "…differences among perceptions, beliefs and goals of organization members" (p. 693).   Similarly, as Follett (1925/1995: 67) wrote: "Think of [conflict] not as warfare but the appearance of difference, difference of opinion, of interests. For that is what conflict means – difference."

The notion of "silencing" a conflict further refers to the failure to fully express one's perceived difference. Silencing covers a spectrum of activities. At the far end of the spectrum lies complete silence; a difference is perceived but no effort is made to raise it. Although less

extreme, aborted attempts to raise a perceived difference also constitute acts of silence. In these cases, someone starts to raise an issue but ceases her efforts before she feels she has fully expressed herself. There are many reasons a person might stop short of full expression, ultimately choosing to withhold her difference. If the other party is negative or hostile or merely tries to gloss over the issue, the person attempting to share her difference may cease her effort. Silencing includes any such act (or seeming non-act) in which a person stops short of fully expressing herself.

It is important to distinguish between a person who engages in an act of silencing conflict and a person who conforms. Conformity occurs when a person shifts her position – whether beliefs, values, and/or behavior – to a different position as a result of real or imagined social pressure (Kiesler and Kiesler, 1969). By silencing conflict, in contrast, we mean that the difference still exists but, in the end, full expression of it is withheld. In the case of silencing conflict, consensus is only a public appearance; it is not internalized. Silencing conflict, therefore, differs from groupthink. As Janis (1982: 247) explains, groupthink *is* about the internalization of group influence: "In a cohesive group of policy makers, the danger is not that each individual will fail to reveal his strong objections to a proposal favored by the majority but that he will think the proposal is a good one, without attempting to carry out a critical scrutiny that could lead him to see that there are grounds for strong objections." Moreover, unlike groupthink, we find that when people withhold themselves from fully expressing their differences, differences become exacerbated as opposed to eradicated.

The first apparent instance we observed of silencing conflict between the founders and the professional managers occurred soon after Peter's arrival. Peter was troubled by both the lack of infrastructure at Notes.com and the viability of their business model. In private, Peter

appeared distressed, impatient, sometimes even disgusted. He described how terrible the website was, how everything was "messed up," and how many issues they had with public relations. He also expressed confusion as to how the founders did not seem to find these problems more worrisome. Anxious to resolve these issues, but worried that too much criticism of the company at this early stage might send his relationship with the founders down a negative path – sidetracking them from achieving their primary goal of creating the most successful company possible – Peter did not share what he was thinking with the founders. He did not discuss his plans for changing internal operations nor did he say anything about the external problems he perceived. Rather, Peter began to hire professional managers to help him address these issues, never explaining to the founders *why* he needed to hire all of these new people.

Peter's hiring without explanation, in turn, created a perceived difference for the founders who did not understand the urgent need for all these new hires. As one of the founders explained: "Peter has interesting experience, and I like his management philosophy. I think we have a lot to gain from him. But I am worried about how he has been acting. I am worried about all these new hires. They do not have any technical expertise or knowledge of the college market. And, I do not understand the need to hire so quickly. Our problems are no worse and we've been doing fine so far." But, the founders also chose not to raise their questions or concerns with Peter, fearful of challenging him so soon; rather, they too engaged in silencing conflict.

We begin developing our model by assuming that participants at Notes.com perceived an ongoing stream of differences about their work that, in turn, were either surfaced or silenced.[4] In

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[4] Research on interpersonal and intra-group conflict distinguishes between two types of conflict: task and relationship (Guetzkow and Gyr, 1954; Priem and Price, 1991; Jehn, 1995, 1997; Jehn and Mannix, 2001). According to De Dreu and Weingart (forthcoming), examples of task conflict are conflicts about the distribution of

figure 1, we represent this stream as the flow variable (denoted by the arrow with valve symbol), *New Perceived Differences.* As the flow of perceived differences continues a collection of perceived differences accumulates. We represent this accumulation as the stock variable *Perceived Differences. S*tocks (or levels) accumulate the difference between their inflows and outflows and are critical to creating the dynamics of the systems in which they are embedded (see Sterman, 2000).

The stock of perceived differences creates anxiety (e.g., Harvey, 1974; Miller, 1976; Jack, 1991). This anxiety can be dealt with in one of two basic ways. One possibility is that the differences are surfaced. We represent this path as the flow variable *Acts of Surfacing Difference*, which drains the stock of perceived differences. Surfacing differences when done destructively can result in petty bickering, a bloody fight, physical violence, and even war (Pruitt and Rubin, 1986). However, when done constructively, surfacing difference can enable creativity, learning, and effective decision making (Nemeth, 1997; Leonard and Swap, 1999; Garvin, 2000). Recent research has further shown that there are two dimensions to the constructive surfacing of difference: 1) Collaborativeness, which has been found to be significantly associated with the team's innovativeness; and 2) Lack of contentiousness, which has been found to be significantly associated with the team's freedom to express task-related doubts and their ability to adhere to budgets and schedules (Lovelace, Shapiro and Weingart, 2001).[5]

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resources, about the procedures and policies, and about judgments and interpretation of facts. In contrast, examples of relationship conflict are conflicts about personal taste, about political preferences, about values, and about interpersonal style. The type of conflicts initially perceived by the founders and the professional managers at Notes.com were task conflicts, conflicts that pertained to a difference of opinion or idea about the task itself.

[5] A recent meta-analysis of research on conflict and outcomes suggests that the mere existence of task conflict beyond a minimal level will have a negative effect on performance, unless it is an open environment characterized by collaboration (De Dreu and Weingart, forthcoming). Taken together with research on the costs of silence cited earlier, these results suggest that whether people silence their differences or voice them in a contentious way will

Alternatively, those that perceive differences may choose to silence them.[6]   We represent this path as a second outflow from the stock of perceived differences, *Acts of Silencing Difference*. The rest of our map details why the founders and the professional managers engaged in acts of silencing difference and how these acts of silence became self-reinforcing. All dynamics arise from the interaction of two types of feedback loops, *balancing* loops – or deviation counteracting loops – and *reinforcing* loops – or deviation amplifying loops (Weick, 1979). Below we describe first the balancing loops that led to acts of silence and then the reinforcing loops that turned these isolated acts into self-perpetuating patterns.

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Sources of Silence

Why did acts of silence occur? The two parties had seemingly complementary knowledge bases and skill sets – the founders knew the technology and the market while Peter had substantial management experience – and they had both entered this partnership with the express purpose of doing something together that neither could do on their own. Yet, while their differences provided potentially useful variability, from early in their relationship, each party chose not to raise differences that were central to achieving the goals to which their partnership

negatively effect performance. Only if people feel safe to be open and are able to manage differences constructively, may they be able to mitigate, if not reverse, the negative effects of task conflict on performance.
[6] Hirschman (1970) describes three possible responses individuals can have to dissatisfaction in an organization – exit, voice, and loyalty. Exit is permanent movement away from the organization (e.g., quitting a job), whereas voice involves attempts to improve the situation. Loyalty involves a belief that things will improve and ranges from passively assuming that someone else will take action to improve things, to actively supporting the organization. Rusbult and her colleagues (Rusbult, Zambrodt and Gunn, 1982) have added a fourth response to dissatisfaction: neglect, which an individual shows by putting in less effort, not working at a relationship, and letting it fall apart. Whereas loyalty involves the belief that things will improve, neglect does not. The notion of silencing is closest to a passive kind of loyalty (not voicing oneself but believing things will get better) and sometimes results in neglect or exit when one loses hope that the relationship can be saved.

was directed. The data suggest two basic sources of silence: 1) the desire to preserve

relationships; and 2) the desire to complete tasks as quickly and efficiently as possible.

Desire to Preserve Relationships.   Peter did make an early attempt to raise his concerns

about the lack of infrastructure at Notes.com, but he quickly abandoned his effort when he

perceived the founders becoming upset and defensive. He confided, "When I tell [the founders]

about problems, they get upset. I am working on being more political in how I tell things to the

guys. I do not want to upset them."   Similarly, the founders worried about voicing their

concerns about Peter's aggressive recruitment of professional managers. They felt to question

Peter on his managerial decisions, especially before they had given him a chance could

threaten their relationship. As one of them expressed, "We have to trust Peter. We have built

the company this far, and having some professionals take the reins and teach us is a real

opportunity . . . I just hope these are the right people he is hiring." Both Peter and the founders

silenced critical issues for fear that raising them would damage their new partnership, a

partnership that both parties cared deeply about preserving because of its perceived importance

to the success of their company. Thus, the first source of silence we posit in our model is the

desire to preserve a valued relationship for instrumental reasons.

To capture this source of silence in our model, we show a positive link between the

accumulation of perceived differences and a new variable, *Anticipated Threat to Relationship*.

Each perceived difference constitutes a potentially divisive issue, so as they accumulate, the fear

of potential damage that might be done to the relationship also increases. One way people act in

an effort to reduce the outstanding threat is to silence some or all of the outstanding issues, an

option that both parties exercised. Thus in figure 2, we also show a positive connection from

anticipated threat to *Acts of Silencing Difference* (referred to heretofore as simply *Acts of*

Silence). Taken together, these new links create the *Desire to Preserve Relationship* loop. Each time the professional managers or the founders perceived a difference, which they feared might threaten their relationship, they responded to this threat by silencing the difference, thus reducing the stock of outstanding issues and the perceived potential threat to their relationship.

The source of silence embodied by the *Desire to Preserve Relationship* loop is consistent with Milliken, Morrison, and Hewlin's (2003) recent exploration of the sources of silence. They found people are concerned about not only damaging their own image but the relationship itself. They suggest people are concerned about protecting their social capital, which employees need to perform their jobs effectively.

Interestingly, however, this process differs from the process highlighted in the majority of the existing work on the antecedents of silence. Existing conceptualizations tend to focus on the personal costs associated with speaking up, including public embarrassment or retribution (e.g., Argyris, 1990; Ashford et al., 1998; Ryan and Oestreich, 1998; Edmondson, 1999). At Notes.com, in contrast, the data suggest that the founders and the professional managers were more concerned about the harm surfacing their differences might do to their relationship and ultimately to the success of their company.

Insert figure 2 about here

Desire to Complete Tasks. The second source of silence emerging from our data was highlighted by an interchange among Peter, the board of directors, and the founders that occurred soon after Peter's arrival. Growing increasingly concerned about ongoing problems with the website and the fact that he still had not been able to find a vice president of engineering, Peter proposed to the board (whose four voting members were Peter, Howie, and their two major

venture capitalists) that they hire technical consultants to bolster Notes.com's technical staff and help improve their website. Howie, the technical guru on the founding team, who had been given the title Chief Technology Officer after Peter joined, had serious concerns with this proposal. The consultants would cost $250,000, and planned to change the programming language used to construct the Website from Cold Fusion to JavaScript. The other members of the board, however, made little effort to understand Howie's concerns. They felt Notes.com had to hire technical consultants immediately.

Howie explained his concerns to the first author: "The two [Cold Fusion and JavaScript] are very different languages, and while Java may be better longer term, no one in our company knows Java. We will all need to get retrained." Yet, recognizing the substantial time pressure they were under and not wanting to inhibit their progress, Howie also made little effort to explain his concerns to the rest of the board.

To capture this source of silence, in figure 3, we add a positive link between the stock of perceived differences and a new variable, the *Anticipated Time to Complete Task* (this positive relationship is again denoted by the causal arrow with the positive sign). Surfacing differences takes time and in some cases can substantially delay the completion of important tasks. As differences accumulate, the perceived amount of time necessary to complete a task, assuming that each difference is raised, increases. The growing anticipated task completion time in turn leads to an increased *Sense of Urgency*. One way to reduce this sense of urgency is to silence and therefore leave unraised some of the outstanding issues. In the example above, the board felt that improving the website was sufficiently urgent that they tried to suppress Howie's concerns. And not wanting to risk slowing them down, Howie, in turn, silenced himself.

These links combine to create a second feedback loop: when participants perceived differences, they anticipated a longer task completion time and concomitant urgency, and reacted by silencing their differences, thereby reducing the anticipated time required to complete the task. The *Desire to Complete Task* feedback captures participants' choice not to raise important issues in an effort to get tasks done as quickly as possible.

While existing studies of time pressure do not expressly focus on silence, they support the links comprising the *Desire to Complete Task* loop. Time pressure has been found to lead negotiators to reach settlements more quickly (Yukl et al., 1976). Moreover, when people are under time pressure, they have been found to be more selective in the information they choose to process and to process that information more quickly (e.g., Ben Zur and Breznitz, 1981; Payne, Bettman, and Luce, 1996). Karau and Kelly (1992) further found that groups with too little time in which to properly complete their task focused their attention on task completion to the exclusion of social and other non-task activities (e.g., discussions about topics related to the problem's content that would not immediately move the task forward).

Insert figure 3 about here

Reinforcing Acts of Silence

As depicted so far, silence can be perceived as a productive strategy for both preserving relationships and completing tasks, and everyday experience confirms its wisdom in many situations. Few relationships, professional, marital, or otherwise, could survive the strain of having to work through every difference among participants. Similarly, timely completion of tasks that involve collaboration often requires that both parties keep some issues to themselves.

However, just as most social collectives cannot survive the strain of dealing with every difference, neither can they survive without some degree of explicit conflict. Conflict has been described as essential for effectively functioning societies, groups, and interpersonal relationships. The pioneers of sociology – Karl Marx, Max Weber, George Simmel – argued that difference is not only unavoidable in society, it is essential for cultures to thrive. Conflict can also be beneficial to organizations, resulting in improved decision quality and strategic planning, financial performance, and growth (Bourgeois, 1985; Schweiger, Sandburg, and Rechner, 1989; Eisenhardt and Schoonhoven, 1990; Jehn, 1995). Sociologists have further noted the importance of conflict at the group level. Coser (1956) wrote: "No group can be entirely harmonious. Groups require disharmony as well as harmony, dissociation as well as association; and conflicts within them are by no means altogether disruptive factors…. Far from being necessarily dysfunctional, a certain degree of conflict is an essential element" (p. 31). And, not only is conflict essential to robust societies, organizations, and groups, but social scientists studying meaningful and productive interpersonal relationships also have found it to be a core component (e.g., Walton, 1969).

In a world in which members specialize in different tasks and have access to different sources of information, surfacing different people's perspectives is central to organizational success. However, a crucial skill is the ability to determine which differences should be raised and which are better kept quiet (Argyris, 1990; Stone, Patton, and Heen, 1999). It is clear that the professional managers and the founders lost this capability, increasingly becoming trapped by their own silence. Our analysis revealed several dynamics that pulled them far from a desirable mix, creating a climate in which issues central to maintaining organizational

performance were left unraised. The first of these dynamics was highlighted by the events that followed the decision to hire technical consultants to assist in improving the website.

Speed Trap. Although he had never fully voiced his concerns, Howie worried that hiring technical consultants might create more problems than it would solve. Privately, he shared his concerns: "We'll end up with a problematic architecture and no one to support it." Several months later, when the deadline finally arrived, Howie's concerns proved prophetic. The launch of the new website had been pushed back several weeks. It was finally set for a Wednesday, and to ensure it happened smoothly, the consulting firm sent two consultants from their Denver headquarters. After a week of sleepless nights, they missed the new Wednesday deadline, but managed to launch the website the following Saturday morning. As soon as the site was launched, the Notes.com technical team went home to get some rest, and the consultants flew back to Denver.

When Howie woke up later that Saturday afternoon, he found that the site was again not working. There was a bug, but as he had feared, the consultants were gone. Worse, their contract had expired, and they wanted no more responsibility. All Howie could do was call his technical team together to try to fix their nonfunctioning website written in a programming language they barely knew. This new, even more pressing problem greatly increased the sense of urgency facing Notes.com, making raising differences all the more difficult. While Howie's concerns had been silenced due to the perceived urgency associated with fixing the website, the decision to hire consultants eventually created even bigger problems and more urgency for everyone involved.

Figure 4 captures this dynamic. We begin by showing the flow of acts of silence accumulating in the stock of *Silenced Differences*. This stock is important because both our data

and the literature suggest that issues that have been silenced do not disappear. Instead, they often remain latent, only to reappear later on.

The differences that were silenced between the founders and the professional managers often represented substantive issues, the surfacing of which was central to organizational performance. As unspoken differences accumulated, the likelihood that a task was executed using incomplete or incorrect information increased. For example, because Howie never fully raised his concern about the consultants' plan to change the programming language for the website, Notes.com ended up with an even bigger problem when a major bug was discovered, and they had no in-house expertise with the new programming language. To capture the effect of silence on performance, we show a positive link from the accumulation of silenced issues to a new variable, *Execution Problems,* and a further link from execution problems back to sense of urgency.

Taken together these links create the *Speed Trap,* a reinforcing feedback. Unlike the previous two loops, which caused people to silence in response to specific differences, the speed trap created ever-growing pressure to keep quiet. As participants silenced important differences in the interest of completing tasks and reducing urgency, they unwittingly created execution problems that fed back to create more urgency and the need for more silence.

The links comprising the *Speed Trap* loop are further substantiated by the literature. Lack of information sharing has been shown to lead to errors in decision making (e.g., Harvey, 1974; Larson et al., 1998). Studies in the new product development literature detail the substantial costs of failing to raise concerns at the time they are discovered (e.g., Roth and Kleiner, 1999). The studies reviewed earlier also show that the lack of information sharing due to time pressure further hinders performance (Payne, Bettman, and Luce, 1996; Karau and Kelly, 1992).

Performance Frustration. At Notes.com, execution problems did more than create temporal pressure; they also generated emotional responses. Consider, for example, Peter's decision to commission a study of Notes.com's target market, college students. Peter agreed to pay Hal, a marketing consultant, $100,000 to do the study while acting as the head of marketing. Privately, the founders expressed concern with this plan. Being college students themselves they felt they already understood their target market and, consequently, that the resources could be better used elsewhere. Nonetheless, they said nothing, and watched quietly as Hal began running focus groups at three college campuses geographically distributed across the United States.

Upon completing his study, Hal presented his findings to the Notes.com management team (which included the founders and the new professional managers). "The college experience," Hal reported, "is multi-dimensional, high pressure, fun, a time of parental separation, a time for self-discovery, a time to develop a tool box for life." Hal continued to describe his findings for approximately an hour and concluded with what he deemed the central finding: "Time management is a big issue for college students as they struggle to balance work and play."

As Hal spoke, the founders grew increasingly agitated. Daniel, the founder who happened to be seated next to the first author jotted on her paper, "Can you believe we paid for this?" Later, in a private conversation, an exasperated Howie said:

> We spent $100,000 to find out that students want academic tools. When Hal set up extensive focus groups to find out what our 'audience' wanted, we knew. We had pitched to our VCs that we knew our audience. That was our greatest asset. Why didn't they just talk to us? This is our culture, this is who we are, this is our

goal, we are the target audience. It was our founding principle that students want this stuff. . . . We could be selling liquid bleach at this point.

The resulting execution problem – paying $100,000 to learn something that they were convinced they already knew – created negative emotion. The founders were deeply disturbed that they had wasted money on Hal's report. At one point in their conversation, Howie mentioned, "We paid Hal upfront for all his work." Clyde responded, "What happens if he dies? There is no way we paid him up front. There is no way we would still pay him if he is dead." To which Howie announced, "According to Peter there is no way he will die. There is no way it will not work out!" Over and over they asked each other, "How can Peter not realize how ridiculous Hal's marketing report was?" And more generally they concluded, "The professional managers just don't understand the dot.com world. They don't understand who we are, how we do things, the speed and passion with which we work."

Clyde began to assess the new managers one by one:

The fact is that Sharon [the vice president of human resources] cannot hire. She has not brought in a single useful tech person. Who has she helped hire? No one in COPs [campus operations], no one is business development, no one in tech, no one in product development, no one in marketing. She has not hired a single person. We need a demon for hiring, and Sharon is too slow for this job.

Howie added, "These deficiencies are threatening the success of our company." Clyde went on:

Look at Jim [the CFO]. He lacks the killer instinct. He does not even know how to get us into a bank. Christ, I have the fucking connections to do it. I am only twenty-two, and I can do a better job than these people can. Sharon is too slow. Where is the action? I can hire better. I have already. And Jim? I can do his role too. I have already done it.

These negative emotions and attributions in turn weakened the founders' connection with the professional managers, making it all the more difficult for the founders to speak up. As Clyde commented to his co-founders, "There are certain things that are not getting addressed. But we cannot tell them. What should we do?"

To capture these dynamics, in figure 5, we add a positive connection between execution problems and a new variable, *Negative Emotion and Attribution*. As execution problems accumulated, participants became frustrated and tended to make negative attributions about others.[7] These negative emotions and attributions further reduced the *Quality of Connection*. As the founders became increasingly frustrated with Peter and his new hires, attributing many of Notes.com's problems to them, they perceived that their relationship with the professional managers was ever more fragile. The reduction in the quality of connection, in turn, raised the anticipated threat to the relationship of speaking up, thereby creating more silence. Following Hal's presentation, while the founders were frustrated, they concluded that raising their concerns with the professional managers was not an option.

These links create a second reinforcing feedback, the *Performance Frustration* loop, which again drove both groups to increasing levels of silence. Silence led to execution problems. In turn, execution problems resulted in negative emotions and attributions, which reduced the quality of connection, and created more silence.

The links composing the *Performance Frustration* loop resemble those in Lawler's (2001) affect theory of social exchange.[8] Lawler suggests that the outcome of a joint exchange creates an emotional response that is then attributed to the social unit and affects solidarity. Drawing on

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[7] While we aggregate negative emotion and negative attribution in a single variable, there is a debate in the literature concerning their causal order. Some argue that emotions must precede the cognitive processes of attribution, while others suggest that the two can proceed concurrently. Because our argument does not turn on this distinction –both negative emotion and negative attribution are likely to weaken social connection – and our data are not well suited to contribute to this debate, we represent them as a single variable.

[8] In many ways, the links composing the *Performance Frustration* loop also resemble Harvey's "Abilene Paradox." According to Harvey (1974), the invalid and inaccurate information that results when differences are silenced causes organization members to take actions that are counterproductive. In turn, organization members experience frustration, anger, irritation, and dissatisfaction with their organization and frequently end up blaming one another. If organization members don't deal with their inability to manage agreement, Harvey concludes: "the cycle repeats itself with greater intensity" (p. 67). Harvey, however, is focusing on a unique type of silencing conflict where everyone misperceives reality and withholds their differences despite underlying consensus.

earlier studies, Lawler notes that when exchanges occur successfully actors experience an emotional uplift, and when exchanges do not occur successfully actors experience emotional downs (Weiner, 1985; Lawler and Yoon, 1996).[9] Such global emotions are immediate, internal, involuntary events produced by the results of an exchange process (Weiner, 1985). Global emotions, in turn, generate cognitive-interpretative processes as actors attempt to understand their causes (Weiner, 1986). These causal attributions, presumed to coexist with the initial broad emotional response, generate differentiated affective reactions. Such emotions enhance or diminish actors' affective attachment to the social unit (Cook and Emerson, 1984; Lawler and Thye, 1999; Lawler, Thye, and Yoon, 2000). Positive emotion creates relational attributions that increase attachment while negative emotion fosters detachment (Weiner, 1985).

Insert figure 5 about here

Silent Spiral. Our analysis suggests that silencing difference was self-reinforcing because of its negative task consequences (i.e., execution problems). However, in addition to the task-related consequences of silencing, which affected both the sense of urgency and the anticipated threat to the relationship, silencing differences also had direct relational consequences. When either the founders or the professional managers failed to surface concerns, they experienced negative emotion and made negative attributions, not only in response to execution problems, but also as a result of the act of silence itself.   This dynamics was highlighted the day that Notes.com managed to hit 100,000 users.

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[9] There is a long-standing debate in the literature as to the role of cognition in interpreting emotions (Cannon, 1927; James, 1884, 1894) with some theorists arguing that cognitions are a necessary component of emotion (e.g., Lazarus, 1984) while others maintain that cognitions are not required for the experience of emotion (e.g., Zajonc, 1984). Lawler (2001:325) takes the perspective that "Emotions are defined as positive or negative evaluative states with physiological and cognitive components."

On the day that Notes hit the 100,000 target, Peter instructed Howie to buy expensive champagne, emphasizing, "This is a big occasion." While he never questioned Peter, privately, Howie expressed concern, "This was not such a good day. It was not that it was a bad day." Howie continued to explain that while he was delighted that they had finally hit 100,000 users, he felt it would have been much better if they had hit that number two months earlier, as they had originally forecasted. The goal for the semester had been 275,000-500,000 users. Now with the end of the semester fast approaching, they had only a month to more than double their achievement if they were going to attain that goal. The founders felt immense pressure to improve their numbers. They were determined to pick up the pace. However, they did not mention this to the rest of the management team. They just went along with Peter's plan and celebrated their progress to date.

After celebrating, however, the founders kept asking themselves how could Peter believe that hitting 100,000 users at this late date was such a good thing. How could the professional managers not understand how vital it was to aggregate users as quickly as possible? Howie muttered to his co-founders, "We are failures. And, the worst is that only we feel like failures. No one else in the company realizes we have failed. Peter has gone around for so long saying things are good."

The more uncomfortable the founders became, the more they began to doubt Peter's ability to manage. Howie noted, "Peter is good at schmoozing and addressing external matters. He does not know how to run the internals of the company." The founders told one of their key outside advisors, "Peter does not pay enough attention to the shortcomings and then act to fix them. But, we are not really in a position to say anything."

As the founders continued to silence their differences with Peter, their negative emotions and attributions further undermined the quality of their connection. If, as their relationship weakened, they had come to care less about the relationship then the pressure to silence might have abated. However, given their desire to preserve their relationship in order to ensure the success of their company, the anticipated cost of speaking up only further increased as the quality of connection disintegrated. As a result, their silence persisted. To capture these dynamics, in figure 6, we add a positive link between the accumulation of silenced differences and *Negative Emotion and Attribution*. The new link creates a third reinforcing feedback, the *Silent Spiral* loop.[10] As the founders silenced differences for fear of threatening their increasingly fragile relationship with the professional managers, they experienced negative emotion and made negative attributions, which, in turn, further weakened their quality of connection and generated additional silence.

Interestingly, although not necessary for an act of silence to trap a party in a downward spiral, in this particular case, both parties were silencing and both trapped themselves independently in the silent spiral. Although Peter never told the founders, he only suggested that they celebrated because he knew that user numbers mattered to founders. Privately, he expressed a very different set of concerns. He believed that the campus problems were fundamental, and if they could not find a way to redirect the company to address these problems, they were in serious trouble, far beyond user numbers. He explained, out of earshot of the rest of the company, "In the

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[10] The "silent spiral" captures a different phenomenon than the "spiral of silence" described by Noelle-Neumann (1974). She focuses on how people's willingness to express their opinion is influenced by their external environment. When people don't agree with the dominant public opinion, they are reluctant to express their own opinion for fear of isolation as a result of being deviant. On the other hand, people who perceive that they share the dominant public opinion will speak up, increasingly establishing that opinion as the prevailing one. Over time individuals who hold a minority opinion will therefore feel increasing pressure not to speak up due to the evolving strength of the dominant opinion. The silent spiral, in contrast, puts increasing pressure on a person to remain quiet not as a result of the growing strength of the difference and one's associated fear of isolation but rather due to one's growing perception that one's relationship itself is increasingly fragile and cannot endure dealing with one's difference.

end, whether we have 100,000 or 200,000 users is not going to affect our valuation. That is not the issue. The issue is these university problems. It's like a house on stilts in quicksand. That is the problem. Not the number of users." And, the more Peter silenced about these issues, the more frustrated he became, and the more he started to question the founders' understanding of what it took to run a company. When Peter silenced his differences, he too ended up experiencing negative emotion and making negative attributions, which, in turn, weakened his connection with the founders and generated more silence.

The links composing the *Silent Spiral* are supported in the literature. As silenced issues accumulate, they produce anxiety, resentment, and other negative emotions (e.g., Jack, 1991; Derlega et al., 1993; Harter, 2002), resulting in feelings of distance and disconnection in a relationship (Kantor and Lehr, 1975; Broderick, 1993; Miller and Stiver, 1997). Moreover, lacking information, attributions are made (especially negative ones) which may be destructive to group cohesion (Cramton, 2001). The reduction in the perceived quality of connection has therefore been shown to be both an emotional and cognitive change.

Insert figure 6 about here

Reinforcing Perceived Differences

The analysis so far suggests that the founders and the professional managers became trapped in an interconnected set of dynamics that reinforced acts of silence. Initial acts of silence, designed to preserve their relationship and speed the execution of important tasks, created additional relational and temporal pressure to keep quiet in the future. Moreover, as it turned out, not only did acts of silence escalate pressure to keep quiet, but also the perception of difference between the groups. Having silenced a difference, people typically did not sit idly. Instead, they

often took some action. However, because the action occurred without an explanation, members of the other group often did not understand why the act had occurred. Such unexplained acts created new perceived differences for members of the other group, fueling the silencing dynamics outlined so far.

For example, following the celebration of 100,000 users, the founders were so worried about their company's lack of direction that among themselves they committed to a renewed and even more intense focus on building user numbers. And, immediately after making this decision, the founders began to act on it. The professional managers, in turn, observed the founders' renewed focus on user numbers, but could not understand it. The professional managers felt it was misguided. Privately Peter reflected, "[The founders] are living in a fictional world, deluding themselves about the importance of user numbers. The real problem is not users, it's all the other obstacles that have popped up along the way." In this case, the founders' unexplained act created a new difference for the professional managers, who could not understand why the founders felt user numbers were so important in the face of what they perceived to be overwhelming evidence to the contrary. However, the professional managers also never inquired, instead becoming increasingly convinced that the founders needed to be treated with kid gloves.

To capture the effects of such unexplained acts, in figure 7, we add a final feedback loop. As the stock of silenced differences accumulated, each group engaged in an increasing number of *Unexplained Acts*. Such unexplained acts, in turn, increased the perception of difference. These variables and links create a final reinforcing feedback, the *Unexplained Acts* loop.

Recall that it was Peter's initial decision to hire professional managers that created the first perceived difference for the founders. The founders objected but remained silent about their objection, so as to maintain their relationship with Peter. This initial set of actions (or seeming

nonactions) catalyzed the whole set of silencing dynamics outlined in figure 7, creating new differences for both the founders and the professional managers along the way. Together, both groups, in the interest of maintaining their relationship and getting work done, unwittingly created a vicious cycle of growing differences and mounting pressure to keep quiet that ultimately led to an untenable situation where they were pursuing two competing business models under one roof.

Insert figure 7 about here

Causal Map Summary

The analysis of the qualitative data and its subsequent depiction in the form of a causal loop diagram suggests that silence can be a self-reinforcing phenomenon, one with the potential, as it did at Notes.com, to push an organization into a very counterproductive set of behaviors and supporting norms. Moreover, at least anecdotal evidence suggests that Notes.com is far from the only organization to experience this pattern; as we discussed in the introduction, the literature contains numerous examples of organizations in which mission-critical information was not surfaced and organizational performance suffered as a consequence. It is equally true, however, that silence can be a very productive strategy for maintaining organizational functioning; anyone who has ever been in a close relationship is well aware that some differences are better left unsaid. Moreover, many organizations experience some degree of silence but do not get stuck in a vicious cycle of ever-increasing silence and declining organizational performance. The analysis so far does not identify the conditions under which an organization will get caught in the cycle and thus leaves two questions unanswered: (1) when is silence a productive strategy for moving an organization forward and when does it descend the organization into a vicious cycle

of silence; and (2) under what conditions is an organization most prone to descending into a pathological cycle of silence?

FORMAL ANALYSIS

Since we study only one firm that did descend into the silent spiral, the question of when do individual acts of silence become a norm is fundamentally unanswerable by a direct appeal to our data. Nonetheless, our analysis does not have to be similarly silent. To the contrary, the principal benefit of developing a *theory* (as opposed to collecting empirical observations) is that its logical structure generates inferences (and therefore testable predictions) beyond the conditions from which that theory was itself derived (see Merton 19**). However, when dealing with dynamic phenomena, making such inferences based on intuition alone is fraught with error due to the well-established limits on human cognition in dynamic systems (see Sterman 1994 for a summary). To that end, in this section, we use the map presented in the previous section as the basis for creating a formal model of silencing dynamics. Analyzing that model generates a series of inferences concerning the conditions under which the phenomenon we observed is most likely to be present and provides a candidate answer to the more fundamental question of when silencing moves from productive to counterproductive. Like all formal models, ours does not yield direct insight into the behavior of organizations. Rather, it formalizes the logical structure of our emerging theory, thereby yielding several predictions that extend beyond the data from which they were derived. These predictions then enable the subsequent comparison of our theory to new data.

We begin this section with a brief description of our model (complete documentation can be found in an online appendix). We then characterize the dynamics that our model generates

and present a series of "comparative dynamics" analyses that outline the conditions under which this characterization is most likely to hold.

The Model

     Overview. The causal map outlined in figure 7 contains several subtle feedback processes. Experience suggests that attempting to capture all of these dynamics in the initial formulation will result in an overly complex model from which gleaning intuition will be difficult (Sterman 2000). To that end, we consolidate our map into a simpler structure, focusing our effort on the dynamic that appears to be most fundamental to the situation we studied. As we show later, although this formulation captures only a subset of the feedbacks that emerged from our mapping exercise, it nonetheless provides several new insights into the question of whether silence is a productive strategy for maintaining organizational functioning or a pathology capable of threatening the organization's existence.

     To consolidate our map into a simpler structure we begin with the notion of the organization's *capacity* to surface and resolve difference. We start with capacity as it appears in our previous analysis in two distinct guises. First, the dynamics described in the Speed Trap section stem directly from a lack of capacity. As the stock of silenced differences grows, productivity falls (due to execution problems) and the organization must dedicate a growing fraction of its resources to task completion. Consequently, the time and energy available for surfacing and resolving difference (i.e., the capacity) declines. Second, on the emotional side, *quality of connection* can also be interpreted as a measure of capacity as it determines the level of difference that a given relationship can tolerate. The *Silent Spiral* dynamics emerge because, like in the Speed Trap loop, as the stock of silenced differences grows, the organization's

capacity to handle difference declines due to the increase in negative emotion. To simplify our

model we combine both of these notions into a single construct, *Capacity to Handle Difference,*

and assume that this capacity is reduced as the stock of Recently Silenced Differences grows.

Our consolidated formulation thus represents a first cut at understanding the dynamics created

when a growing stock of silenced differences reduces the capacity of the organization to both

execute the work at hand and resolve new differences as they emerge. The benefit of this

approach is its simplicity; the cost is the resulting inability to determine how these phenomenon

interact. Future work may be profitably directed towards understanding these more subtle

interconnections.

Detailed Formulation. Figure 8 shows the stock and flow structure at the core of our

consolidated model. We begin by making two additions to the stock and flow structure outlined

in our qualitative analysis. First, we re-introduce the outflow *Acts of Surfacing* to track the

evolution of the relative emphasis on the two ways of dealing with difference. Surfaced

differences are assumed to disappear and never return, and for simplicity, we assume that

surfacing is 100% effective.

Figure 8: Stock and Flow Structure of Silencing
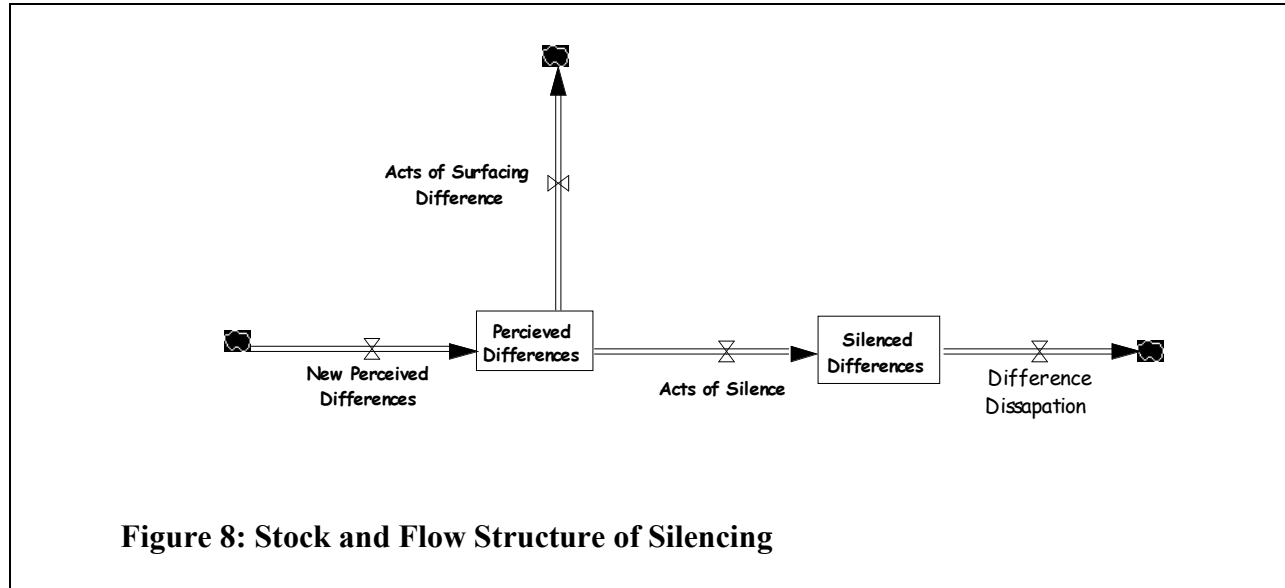
Second, we assume that Recently Silenced Differences eventually dissipate (meaning they are no longer cause psychological stress or create execution problems) through the outflow *Difference Dissipation*. As we discuss below, the time required for differences to dissipate plays an important role in determining how prone an organization is to developing a norm of silence.

Building on this stock-flow structure, figure 9 shows the three key balancing feedbacks in our model. First, both outflows from the stock of Perceived Differences, Acts of Surfacing and Acts of Silence, are governed by balancing feedbacks (labeled *Silencing* and *Surfacing* respectively). As the stock of Perceived Differences grows, so to does the *Desired Disposition Rate*, reflecting the assumption that as people perceive more differences, all else being equal, they will want to dispose of them more quickly to keep the number outstanding at a reasonable level. As the Desired Disposition Rate rises, participants are presumed to increase the rate at which they both surface and silence difference (these linkages are denoted by the positive arrows from Desired Disposition Rate to Acts of Silence and Acts of Surfacing respectively). These

links create the balancing Silencing and Surfacing loops; as the stock of Perceived Differences grows, the two outflows increase, thus offsetting the growth in the stock of outstanding differences.

How the Desired Disposition rate is split between silencing and surfacing depends on the available *Capacity to Handle Difference* (which aggregates both physical and emotional capacity). As the capacity available for difference resolution grows, participants are assumed to surface a larger fraction of the differences they perceive (denoted by the positive arrow from Capacity to Handle Difference to Acts of Surfacing Difference). Conversely, as the capacity declines, participants will silence more since they don't have time to undertake a complete resolution (captured by the negative arrow from Capacity to Acts of Silencing Difference).
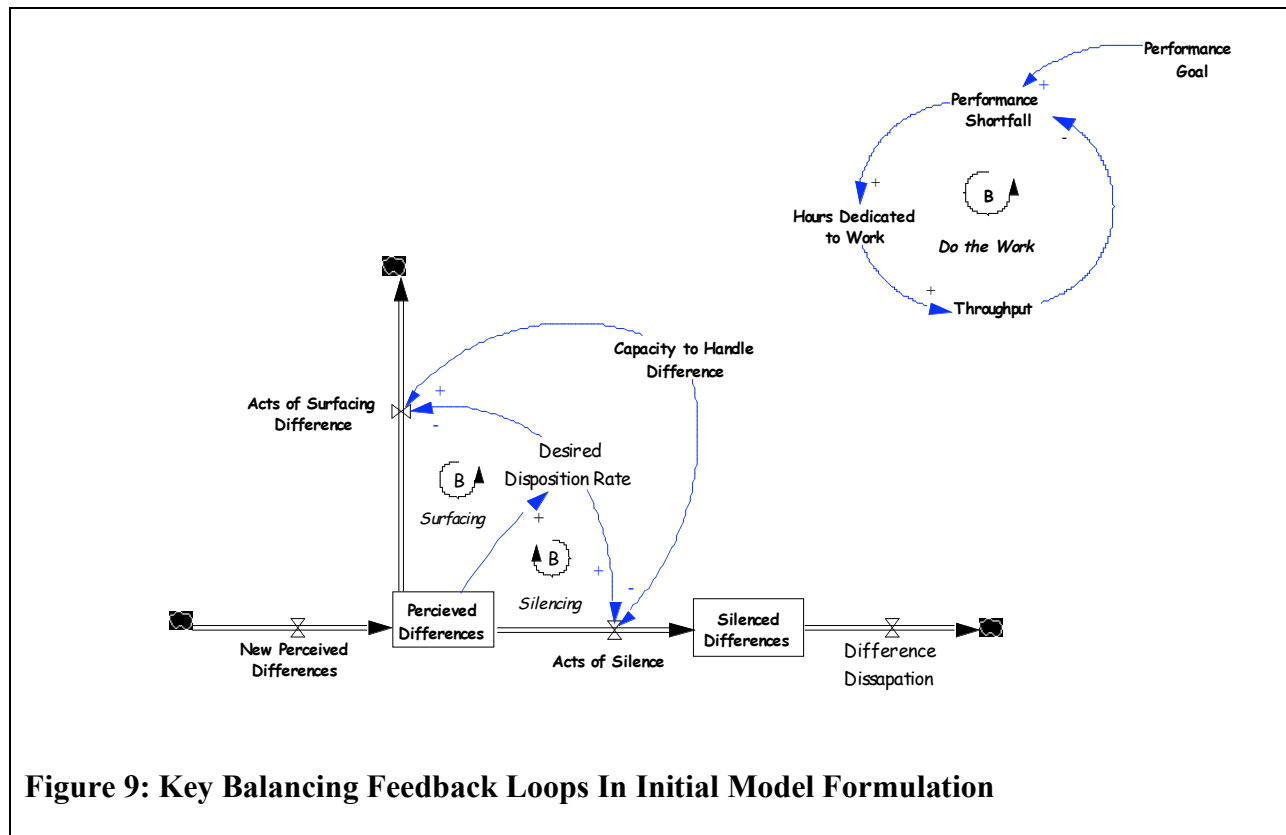
Figure 9: Key Balancing Feedback Loops In Initial Model Formulation

Finally, as shown in the upper right, we assume that the organization faces a goal for its core task, represented by the variable *Performance Goal*. Given this goal, the third important balancing feedback, the *Do the Work* loop, regulates the organization's progress towards its objective. If there is a *Performance Shortfall*, meaning that actual *Throughput* falls short of the Performance Goal, the organization is assumed to increase the number of *Hours Dedicated to Work*. The increase in Hours Dedicated to Work then increases Throughput, thereby reducing the Performance Shortfall.

Figure 10 connects the three balancing loops and, in doing so, adds the final feedback loop to our consolidated formulation.
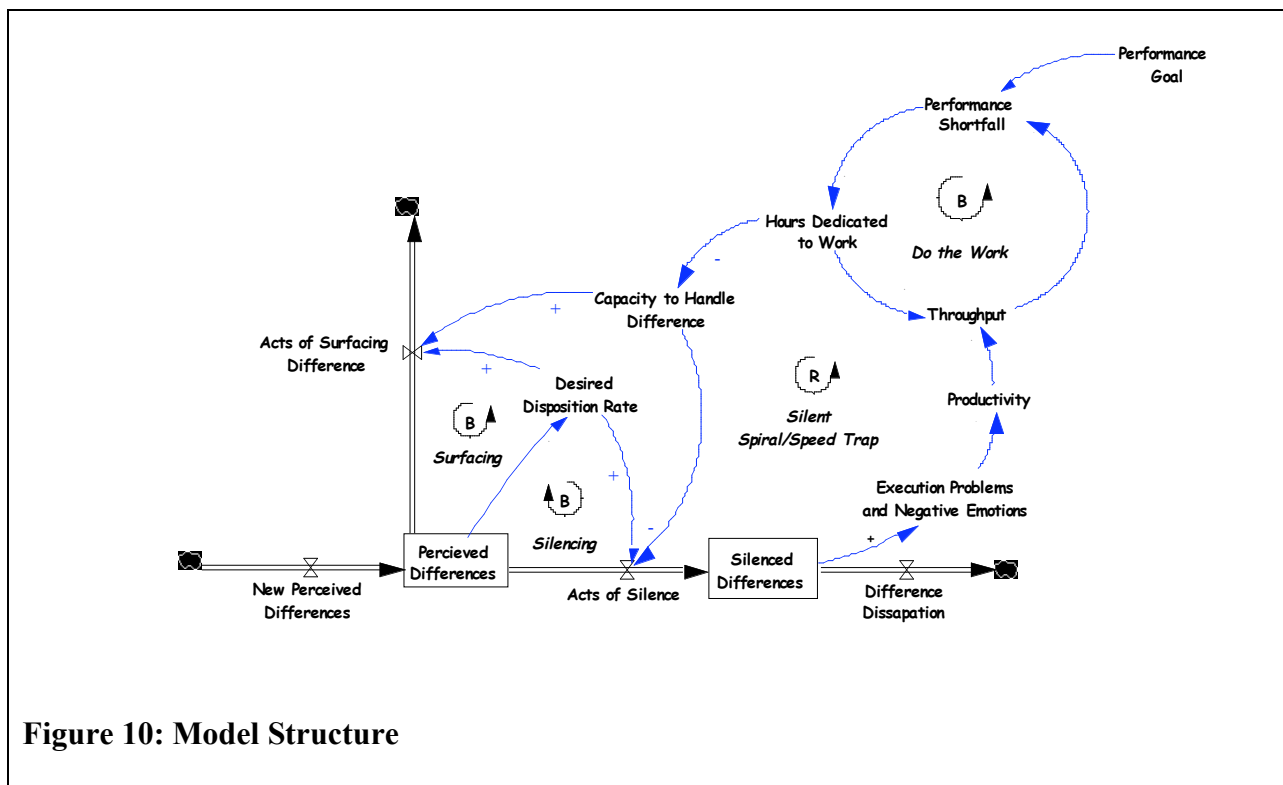
Figure 10: Model Structure

The first interconnection arises because, as we discussed above, a growing stock of Recently Silenced Differences reduces productivity due to both negative emotion and execution problems. To capture this influence, we show a positive link between Recently Silenced Differences and

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Execution Problems and Negative Emotions, a negative link from Execution Problems and Negative Emotion to *Productivity*, and, finally, a positive link between Productivity and Throughput. The second interconnection arises due finite availability of physical and emotional resources; as the time and energy dedicated to work grows (due to the functioning of the Do the Work loop), the time available for difference resolution must decline. We capture this interconnection by showing a negative link between Hours Dedicated to Work and Time Available for Resolving New Issues.

The addition of these links creates the final important loop in our initial model formulation, the *Speed Trap/Silent Spiral* loop. The Speed Trap/Silent Spiral loop is a reinforcing feedback which amplifies any deviations from steady state. Like many reinforcing feedbacks, this loop can work in either an upward, virtuous, direction or a downward, vicious, direction. When working in the upward direction—fewer silenced differences, great productivity, more time for issue resolution, and even less silence— the speed trap loop is a force for improved organizational performance. When operating in the downward direction however—a growing stock of differences, declining productivity, less time for issue resolution and an increasing degree of silence— the speed trap loop can pull the organization into a vicious cycle of growing silence and declining organizational effectiveness. In the following section we analyze this system to determine the conditions under which the Speed Trap/Silent Spiral loop works in the upward direction and the downward direction.
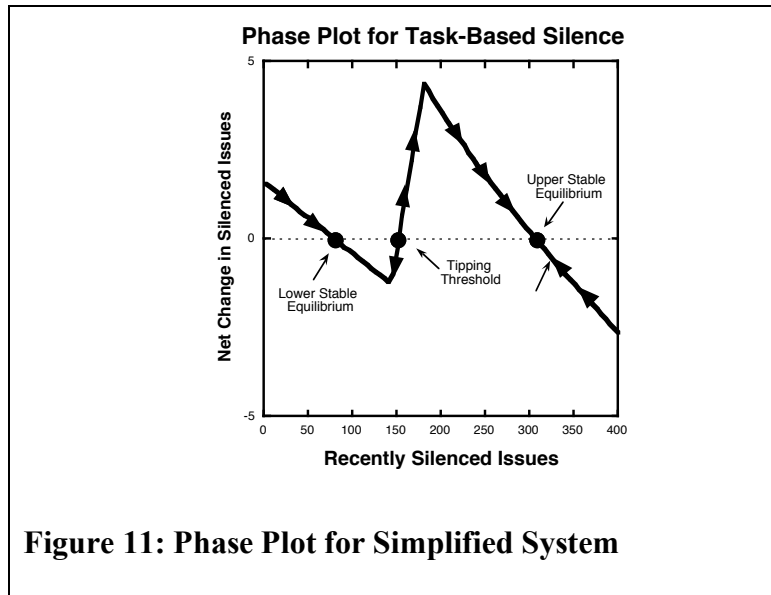
Characterizing the System's Dynamics

The full model is a second-order (two stock) system of non-linear differential equations and thus not amenable to many of the tools used for dynamic analysis. In non-linear systems

graphical methods often prove the most useful for characterizing dynamics (Strogatz 1992). To that end, we begin the analysis by approximating the full model with a first-order (single stock) system and then use rate-level plots to build intuition into the system's dynamics.[11]

Rate-Level Plots. The principal benefit of reducing the system to a first-order approximation is that it allows the use of a rate-level plot to characterize the system's dynamics. In a rate-level plot, the stock (or level) is plotted on the horizontal axis and the net change (or rate) in the stock is represented on the vertical one. The rate level plot shows both the system's equilibria—points at which the system is in a steady state and the stock is not changing—and the system's dynamics around those equilibria. Equilibria exist at any point at which the rate level plot crosses the horizontal axis (since at those points, by definition, the net change in the stock is zero). The system's dynamics around these equilibria are then indicated by the slope of the rate level plot. In any region in which the rate-level plot has a positive slope, the system is dominated by positive feedback—a growing stock leads to a growing inflow ($d^2S/dt^2 > 0$) further augmenting the stock. In contrast, in regions where the plot has a negative slope, the system is dominated by negative feedback—an increase in the stock leads to a decrease in the inflow ($d^2S/dt^2 < 0$).

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[11] Making this approximation entails assuming that participants in the organization under consideration can quickly determine whether they will silence or surface a particular difference, thus allowing us to eliminate the stock of Differences Requiring Disposition. Practically, the approximation will hold as long as the delay in disposing of differences is short relative to other delays in the system. In this case, the other significant delay in the system is the average life of silenced differences, which is likely to be quite long since it represents the duration over which a silenced difference can create negative emotion or an execution problem. Thus, it appears that our approximation is appropriate; while the disposition delay is likely measured in hours or a few days, differences, once silenced, are likely to persist for a month or more.

Phase Plot for Task-Based Silence

Net Change in Silenced Issues (y-axis, -5 to 5)

Recently Silenced Issues (x-axis, 0 to 400)

Upper Stable Equilibrium

Lower Stable Equilibrium

Tipping Threshold

**Figure 11: Phase Plot for Simplified System**

The slope of the plot at each equilibrium, then, determines its type. If the slope at the intersection with the horizontal axis is negative, then the equilibrium is said to be *stable*. Because the region around such an equilibrium is dominated by negative feedback, small perturbations are offset by the system's dynamics and the system will tend to return to that equilibrium. In contrast, if the slope of the plot at the intersection of the x-axis is positive, then the equilibrium is said to be *unstable*; small excursions, rather than being offset, will be amplified, and once the system leaves an unstable equilibrium it will not return. A system is thus unlikely to settle on an unstable equilibrium—an infitesimal perturbation will send the system on a new trajectory—but, as we will see in a moment, such points often play a critical role in determining a system's dynamics.

The rate-level plot for our simplified formulation is shown in figure 11. The rate-level plot crosses the x-axis three times, indicating that the system has three equilibria, two stable and one unstable. The trajectory of the system around these equilibria is indicated by the arrows on the plot. The equilibrium at the far left is stable—the phase plot is negatively sloped—causing

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small perturbations to be offset by the system's dynamics. Similarly, the equilibrium at the far right is also stable. The system also has an equilibrium that occurs between the two stable ones. This third equilibrium is unstable—the slope of the phase plot at this point is positive—and, as indicated by the trajectory arrows, the system's dynamics will drive the system away from this point towards one of the two stable equilibria.

Our initial formulation thus yields a system with two stable equilibria separated by an unstable one. This characterization of the system's behavior offers two insights into the dynamics of silence. First, the existence of two stable equilibria suggests that it is possible for the same organization to operate, in steady state, with two very different levels of silence and, therefore, performance. The stable equilibrium at the left of the plot occurs at a low level of silence and a high level of productivity. In contrast, the stable equilibrium at the far right occurs at a higher level of silence and, therefore, lower level of performance. Thus, although two organizations might be identical in terms of resources and capabilities, our theory suggests it is possible for these organizations to differ significantly in terms of performance. One would appear to have a functional culture, characterized by low levels of silencing and a high tolerance for surfacing difference. The other, in contrast, would display persistent silencing of important information, lower levels of productivity, and a constant resource shortfall as participants scramble to meet performance targets in the face of both negative emotion and continuing execution problems.

The second insight stems from the existence of the unstable equilibrium between the two stable ones. The system is unlikely to settle on this particular point, since even the smallest perturbation will push the system towards one of the two stable equilibria, but as shown in the following two experiments it nonetheless plays a key role in determining the system's dynamics.
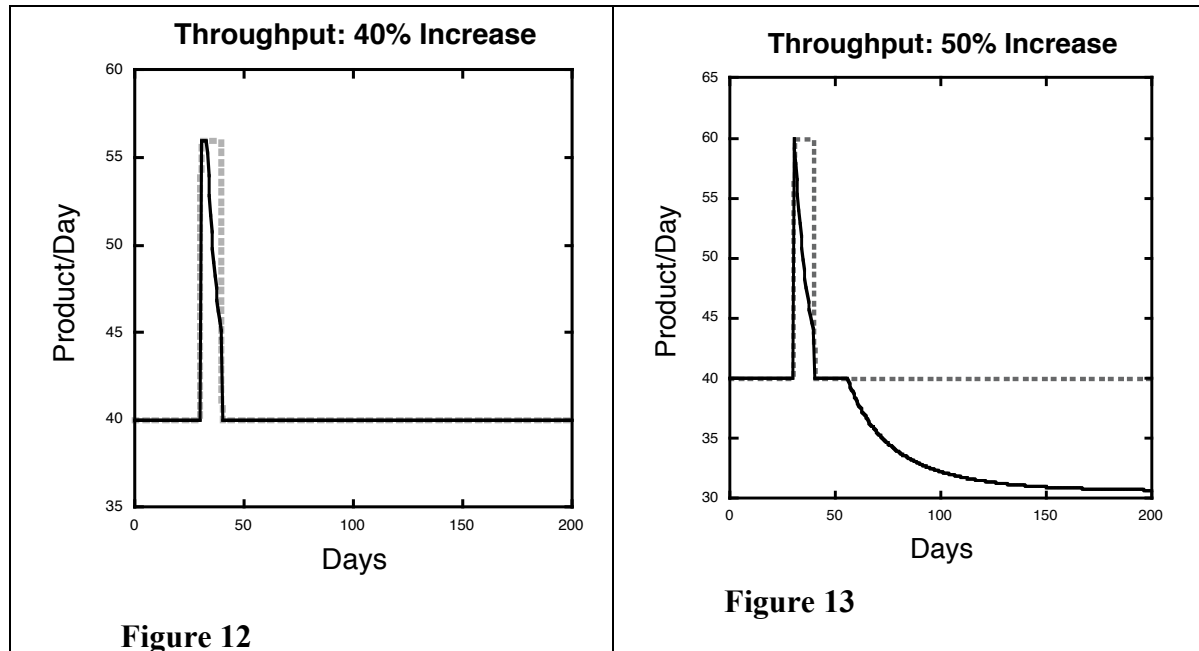
Figure 12

Figure 13

In the two experiments shown in figures 12 and 13 the system was initialized at the low silence/high performance equilibrium (the one on the left) and then subjected to a temporary increase in the performance goal. In the first experiment the goal was increased by 40%, while in the second a 50% increase was used. As shown in figure 12, the system ably accommodates the 40% increase; actual throughput rises to meet the goal and then returns to its pre-shock level. The 50% increase shows a different response (figure 13). Again, the organization increases throughput in an attempt to respond to the new target. However, once the target is returned to its original level, the organization is not able to maintain its original performance. Instead, throughput declines significantly and permanently.

Why is the system able to accommodate the 40% increase but not the 50% one? The short answer is that the 50% increase is big enough to push the system over the unstable equilibrium and onto a new trajectory towards the low performance/high silence equilibrium (the one on the right), while the 40% increase is not. A more complete and intuitive answer is provided in figures 14 through 16.
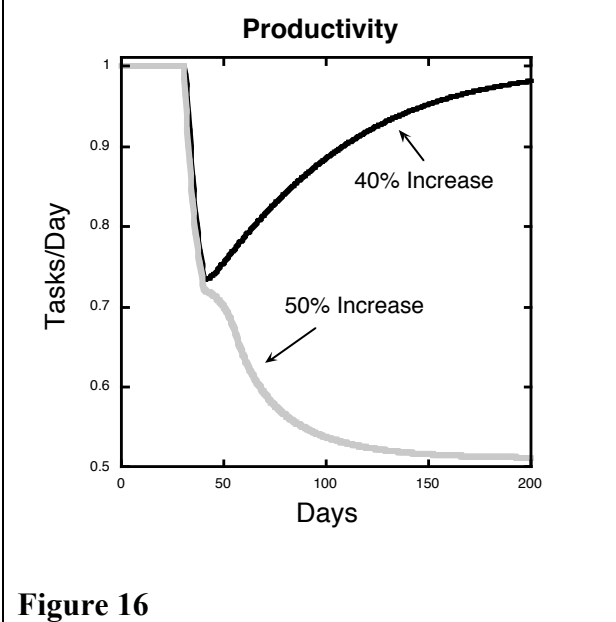
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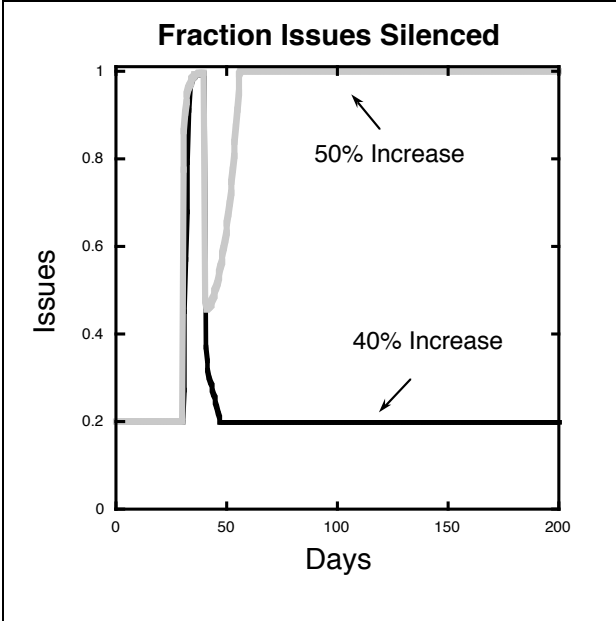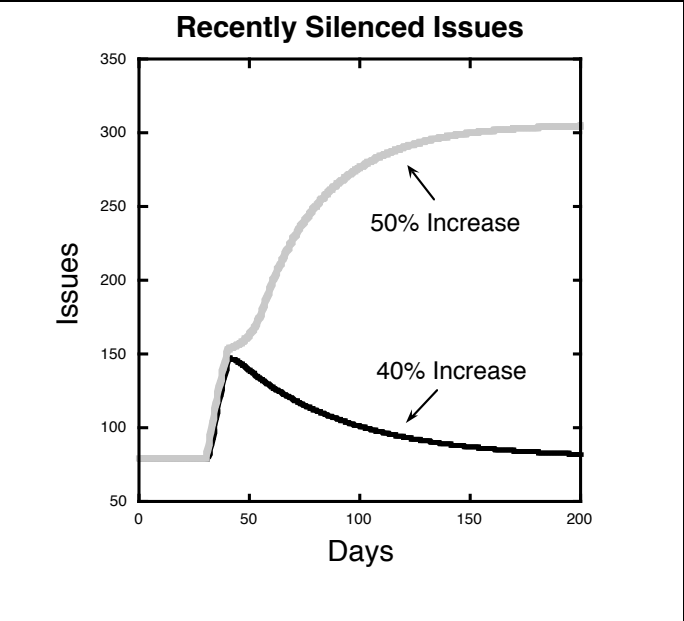
Figure 14

Figure 15

Figure 16

As shown in figure 14, following the increased performance target, the fraction of issues silenced grows significantly as the Do the Work loop diverts attention from issue resolution towards producing more output. As an increasing fraction of the issue stream is silenced, the number of Recently Silenced Differences begins to grow (see figure 15) and, consequently,

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productivity begins to decline (figure 16). Due to the productivity decline, the organization finds it even more difficult to meet its performance target and thus diverts additional resources away from issue resolution towards doing work. Note that prior to the return of the performance goal to its original value, these dynamics are only slightly more acute for the 50% increase; following the goal reduction, however, the experiments perform very differently.

The differing final outcomes result because in the case of the 50% increase, the decline in productivity is sufficient that, even when the performance goal returns to its pre-shock level, the organization can no longer meet that goal without an increased level of silence. In other words, the 50% shock is sufficient to push the system over the unstable equilibrium, causing the reinforcing Speed Trap loop to work in the downward, vicious direction and drive the organization towards the high silence/low performance equilibrium. The 40% increase, in contrast, is not large enough to push the system over this threshold, and thus, once the shock is completed, the dynamics of the system drive it back to the low silence/high performance equilibrium.

The analysis thus implies that organizations face a threshold of silencing—a tipping point—beyond which silence shifts from being a productive response to minor differences to a self-reinforcing pathology that can significantly reduce organizational performance. In other words, the location of the tipping threshold is what separates an isolated act of silence from acts of silence that catalyze the process of norm formation.

Returning to the first question that motivated our modeling effort, our analysis suggests that whether silence is productive or pathological is a matter of degree: silence remains a productive strategy for moving an organization forward as long as its use does not exceed the critical tipping threshold.   Such an answer is not entirely satisfying since we do not, as of yet,

know where the tipping threshold resides. However, while our model is not sufficiently well-developed that we can provide a point estimate of the location of the tipping point for a given organization, we can use it to generate additional insight into how the location of the tipping point differs across organizations and thus generate predictions concerning the conditions under which a norm of silence is most likely to emerge.

Comparative Dynamics

To study how the location of the tipping threshold differs across different organizational contexts, we perform several comparative dynamics analyses that show how the shape of the rate-level plot and the location of the three equilibria change with changes in key parameters in the model.

Resources. Figure 17 shows how the shape of the rate-level plot changes as the amount of available works hours is adjusted.

| Figure 17A | Figure 17B | Figure 17C |
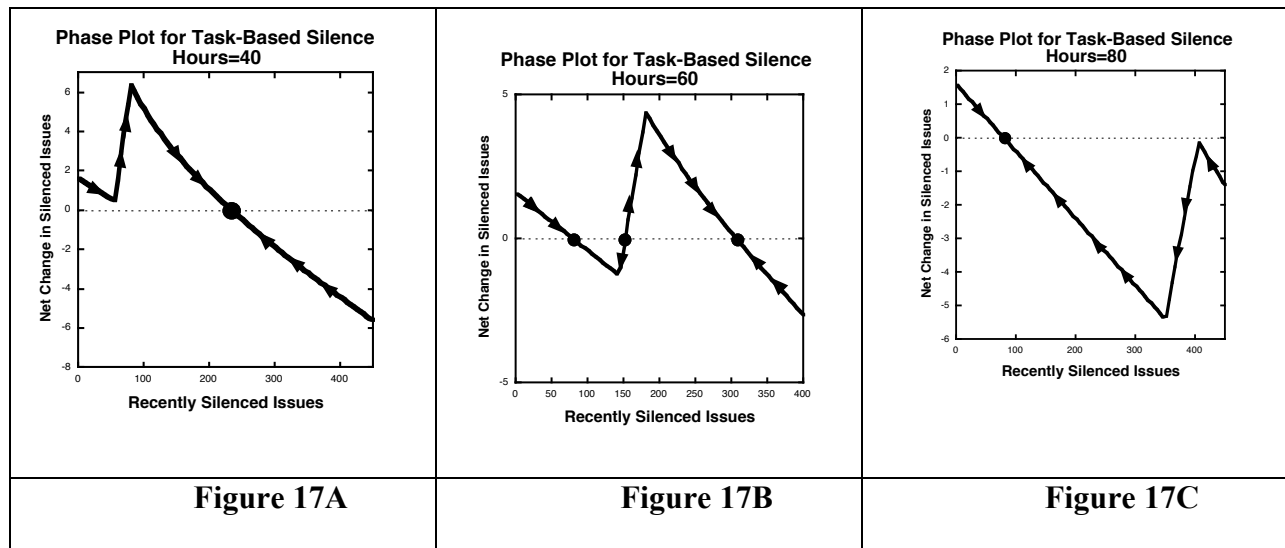
Figure 17A shows the system's dynamics when the number of available work hours is reduced. When there are fewer available work hours, the phase plot shifts upwards and to the

left. As the figure shows, under this condition, the high performance equilibrium and the tipping

point disappear and the system has a unique equilibrium with a significant level of silencing.

Conversely, when the number of work hours is increased, the phase plot shifts down and to the

right (figure 17C). Under this condition the low performance/high silence equilibrium and the

tipping point disappear and only the high performance/low silence equilibrium remains.

This analysis suggests that the dynamics of silencing are heavily influenced by resource

availability and leads to our first prediction: When resources are scarce the organization is more

prone to descending into a vicious cycle of silence. Most importantly, as indicated in figure

17A, our analysis suggests that as resources become increasingly scarce, a norm of silence

becomes inevitable because participants simply do not have the time to resolve issues.   Many of

the examples that motivated our analysis support this inference. Most notably, the Columbia

Accident Investigation concluded that production pressure and resource scarcity strongly

contributed to the culture of not surfacing difference at NASA (CAIB Report).

Objectives. Figure 18 shows how the system's dynamics change as the production goal

is adjusted.

Phase Plot for Task-Based Silence
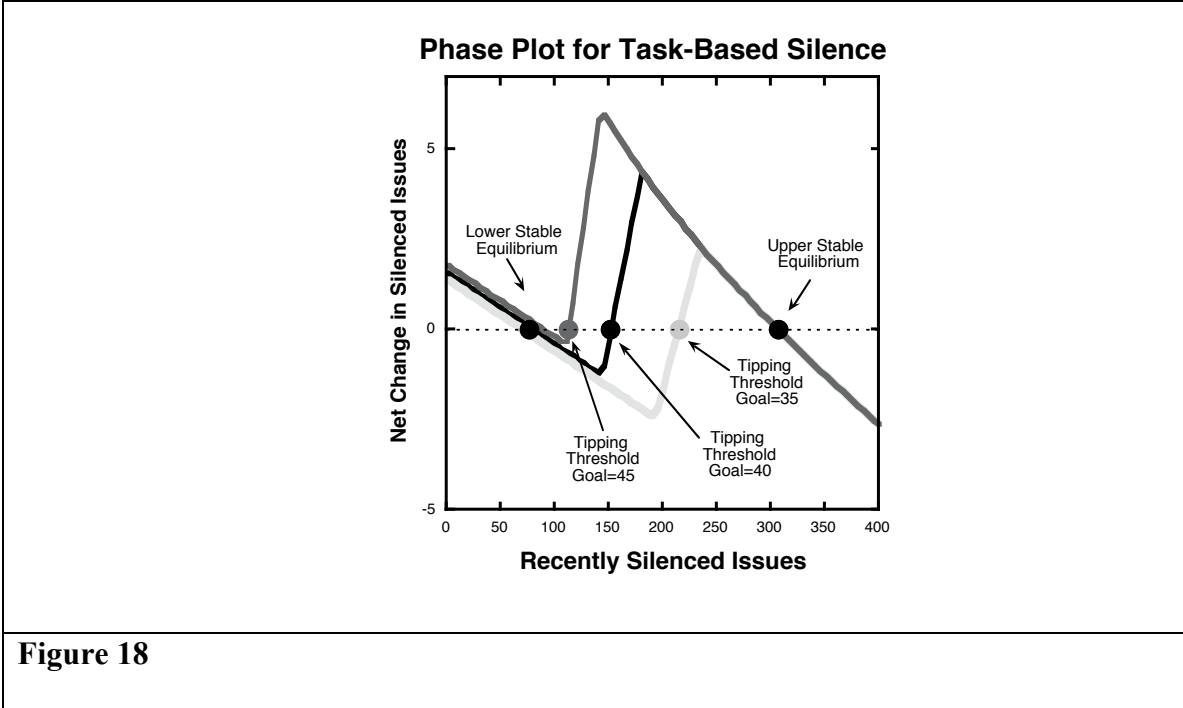
Figure 18

Starting with the dark grey trace, as the goal is increased, the tipping threshold moves to the left, and the distance between that threshold and the low silence/high performance equilibrium decreases. Thus, as the goal is increased an ever-smaller shock is required to push the system over its tipping threshold and descend it into a vicious cycle of silence. In contrast, as the goal is decreased, the tipping point moves away from the low silence/high performance equilibrium towards the high silence/low performance one. Thus, as the goal is reduced the system becomes more robust to temporary perturbations and an increasingly large shock is required to push the system over its tipping threshold.

The resulting prediction is similar to that outlined above: as the production goal is increased, given a fixed resource base, the organization becomes more prone to developing a norm of persistent silence. The effect of production pressure on silence was quite apparent in our data. As Notes.com fell behind its usage goals, the founders worked increasingly long hours to close the gap, thus leaving little time to surface the growing divergence between themselves

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and Peter concerning the appropriate direction of the company. The unfortunate consequence of this decision to stay silent was further growth in the number of execution problems, which, in turn, further impeded progress and necessitated even more silence.

Persistence. In the base case of the model, we assume that each unresolved issue resides in the stock of Recently Silenced Issues for an average of 50 days. This is a critical assumption as it determines how long a silenced issue will reduce productivity (via execution problems) and create negative emotion before it dissipates. In figure 19 we show how the system's dynamics change as this parameter is adjusted.

Figure 19
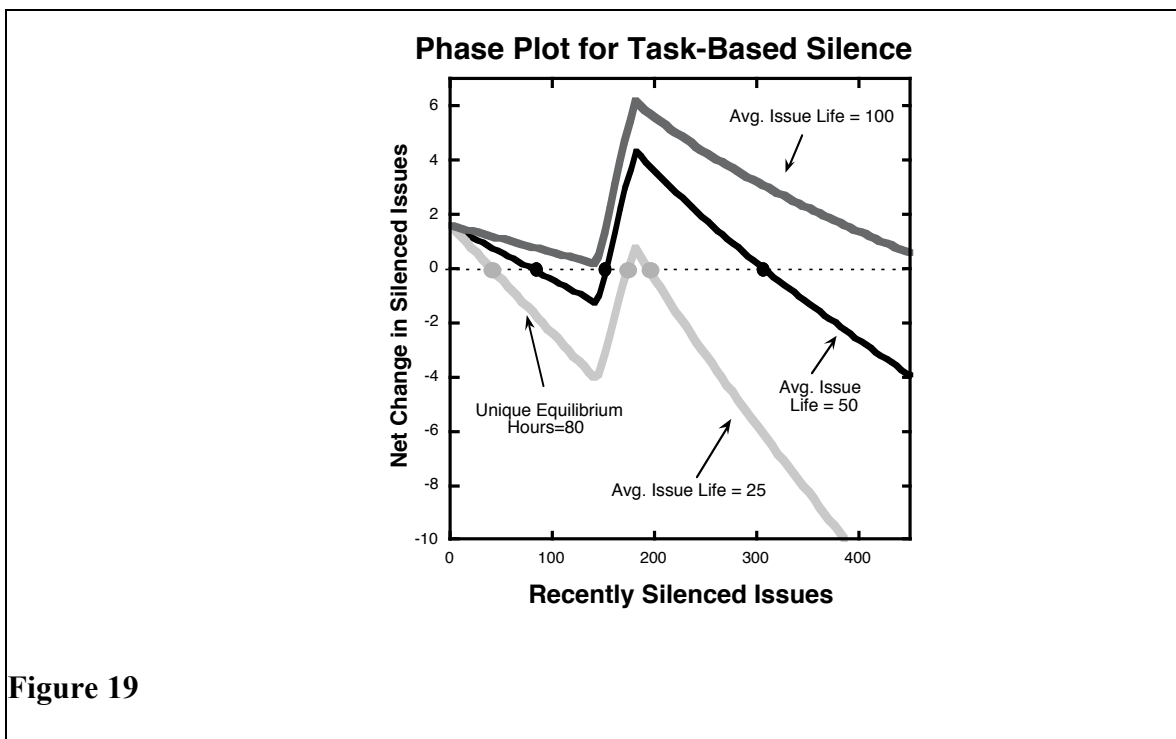
In this case, the phase plot is anchored to the vertical axis and rotates up or down as the average issue life changes. When that parameter is reduced, the phase plot rotates downwards, effectively increasing the distance between the high performance/low silence equilibrium and the

tipping threshold. Thus, as the issue life declines, the system becomes more robust to dysfunctional silencing dynamics. Conversely, when the average issue life increases, the plot rotates upward and the distance between the desired equilibrium and the tipping point decreases, creating a system that is more prone to developing a norm of silence.

Analyzing the effect of the average issue life yields a third prediction: organizations with more issue permanence are more prone to dysfunctional patterns of silence. This prediction has more subtle manifestations than those mentioned previously. In the model, the average issue life represents two conceptually distinct effects. First, there is the useful life of information; if a participant chooses not to surface a difference, from a task perspective that difference will eventually become obsolete due to changes in technology and practice. For example, Howie's silence concerning the challenges of changing programming languages only created execution problems until his staff had mastered the new language. Second, there is the emotional impact; a silenced issue may cause a changed psychological state long after the underlying information becomes irrelevant. Consequently, how one goes about assessing the average life of a silenced issue remains an open issue. The technical relevance will be a function of the pace of technological change and rate of turnover in the organization; the emotional duration depends on how long participants remember past differences. Taken together, these inferences suggest that organizations that experience a lower pace of change in both technology and people may be more prone to developing a norm of silence.

That said, it is worth noting that once such a norm is developed, the pace of technological and personnel change will probably have little influence. Much research has shown that organizational norms are readily transferable to new members who may have played no role in the norm's development (CITE). Although the pace of change at Notes.com was rapid, thus

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reducing the chance that a norm of silence would develop, once that norm did appear (due, it appears, to other features such as resource scarcity and schedule pressure) it was rapidly spread to other members.

Response to Performance Gaps. The last analysis we present concerns the strength of the balancing Do the Work Loop. In the model this is captured by the parameter γ, and represents how aggressively managers respond to production shortfalls. If γ is high, then managers respond aggressively to any perceived shortfall by quickly moving resources from issue resolution to production. Conversely, a smaller value of γ indicates that managers are more tolerant of temporary production shortfalls and thus do not move resources as rapidly between the two activities.
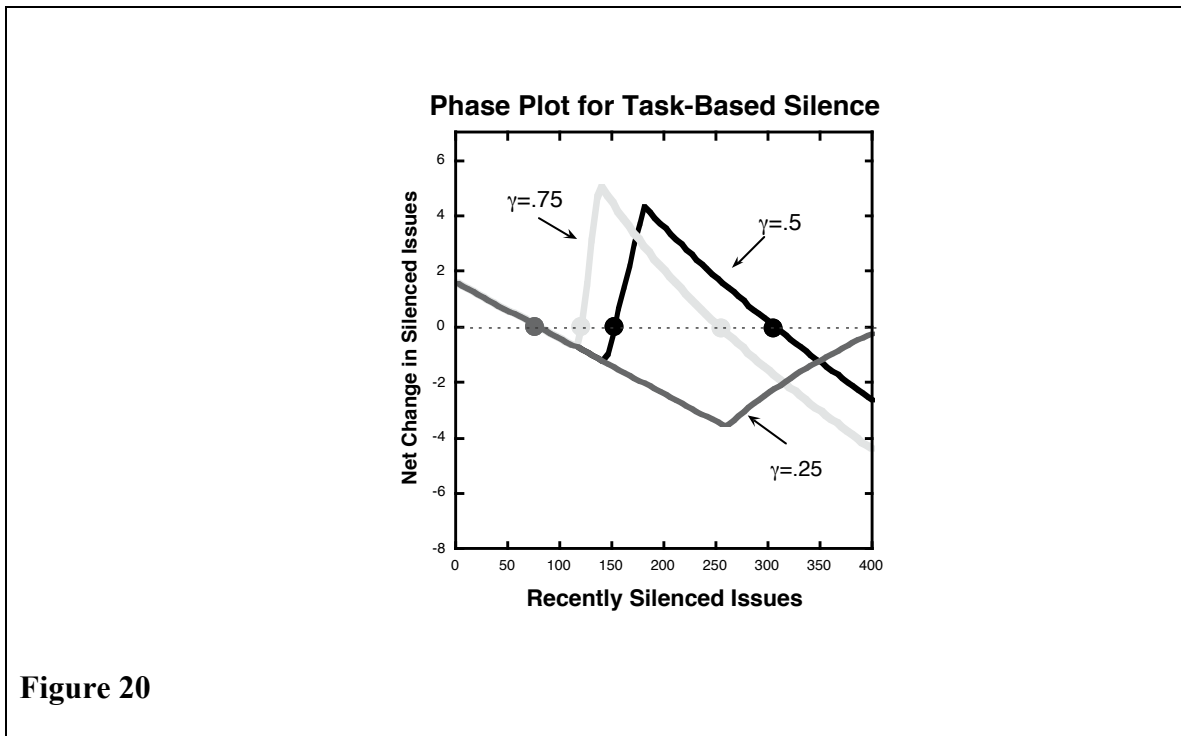
Figure 20

As shown in figure 20, managerial responsiveness has a significant influence on the system's dynamics. As γ is increased, implying that managers respond to shortfalls more aggressively, the system becomes more prone to tipping into silence. In contrast, as γ is decreased, implying managers are less willing to shift resources between work and issue resolution, the system becomes more robust and less likely to develop a norm of silence.

The influence of managerial aggressiveness stems directly from the existence of the tipping threshold. That the system has a tipping point implies that a specific decision to not speak up has the potential to descend the system into a vicious cycle of increasing silence and declining performance. In other words, the location of the tipping threshold is what separates isolated acts of silence from acts of silence that catalyze the process of norm formation. Consequently, when aggressive managers postpone issue resolution in favor of production they are effectively allowing more silenced issue to propagate, thus increasing their chance of crossing the tipping threshold.

Model Summary

Developing and analyzing a formal model of the theory we induce yields several additional insights in the process of silence. First, our analysis suggests the existence of a threshold beyond which individual acts of silence become self-reinforcing and create a norm of silence. The threshold notion provides one possible explanation for the most paradoxical feature of silence in organizations, mainly that it can be so productive in some contexts and so dysfunctional in others.   Second, our models helps identify how the location of the tipping threshold changes with key parameters in our model, thus yielding several predications about the contexts most prone to silencing: Organizations that face significant production objectives,

scarcity of critical resources, have high degrees of issue persistence and respond aggressively to production shortfalls are, our analysis suggests, more likely to get stuck in a dysfunctional pattern of silence.

DISCUSSION

Our findings come with all the usual limitations associated with inductive studies. We study only one organization and thus have no means of assessing the generality of our findings. However, a key benefit of formal modes of theorizing is the ability to articulate clearly the conditions necessary for the logical arguments that emerge from the data. Our model implies three such conditions. First, the successful execution of the task in question must depend on the sharing of divergent perspectives. A critical assumption in our model is that lack of sharing of these differences hurts the performance of the organization. Second, there must be urgency associated with the successful execution of the task (i.e., timely completion is preferred to significant delay). Without time pressure, execution problems do not increase the urgency to get work done. Because the execution problems impeded Notes.com's progress towards its objective, thereby intensifying the sense of urgency, more silencing occurred. Finally, both parties must be invested in the successful execution of the task and believe that they need each other to achieve this goal. If this condition is not satisfied, then as the quality of connection declines, participants may not feel as much desire to preserve the relationship. Our analysis thus suggests that as the sharing of divergent information becomes relatively more important to task performance, as time pressure increases, and as the parties involved care more about maintaining their relationship for instrumental reasons, patterns of silencing difference become more likely.

While formalized analysis does aid in developing clear and logically coherent theory, it does come at the cost of increased abstraction and loss of nuance. Our formal model simplifies

innumerable details of Notes.Com's experience. Most notably, to simplify our analysis, we have so far presumed that all silenced differences are created equally and that each has a similarly negative effect on performance (via execution problems and negative emotion). In any real situation some differences are relatively benign while others are mission critical. Missing from our analysis is any discussion of the ability of participants to determine which differences are important and which can safely be silenced. Such an ability is unlikely to eliminate completely the possibility of developing a norm of silence, but it may make the system more robust to temporary shocks. Future research could be profitably focused on developing a better sense of which differences really matter from both a task and relationship perspective.

Despite this limitation, our study has several implications for understanding the process of norm formation. Scholars have long recognized that organizations develop repeated patterns of behavior — norms—that both outlive those who created those patterns and prove remarkably persistent. Moreover, the change literature has amply documented both that existing norms are often difficult to change and that new ones are difficult to create. The mechanisms that turn an isolated behavior into a norm, however, remain largely unknown and continue to challenge scholars.   Until such mechanisms are identified the scholarly literature offers neither guidance to practitioners wishing to change their organizations nor insight into one of the most persistent features of organizational life. To that end, much effort has been dedicated to identifying the initial acts or decisions that created a norm (Strauss, 1978; Feldman, 1984; Fine, 1984; Bettenhausen and Murnighan, 1985; Schein, 1991), under the (often implicit) presumption that norms have an identifiable origin. Our results however suggest that such an approach may not be fruitful.

A key feature of systems that display tipping behavior is that the event that pushes the system over the threshold may be no different than the ones that preceded it; it is unique only in that it happened at the same time as other similar events. Thus, whether a particular behavior becomes a norm may be solely a matter of degree; did the volume of that behavior reach the level required to push the system over the tipping threshold? Put differently, our results suggest that norm formation is a system-level phenomenon, one that can only be understood by looking at the pattern of behaviors within the specific context. Our characterization further suggests that contextual features such as production objectives and time pressure play a significant role in determining the location of the threshold for norm formation. In such settings any effort to identify the specific acts that created a norm would lead to erroneous conclusions.

Note also another key difference between our findings and the existing literature. Existing work on norm formation tends to focus on the self-reinforcing processes around legitimacy (CITES). As participants in an organization take a given action they demonstrate to both others and themselves that the particular action is legitimate thus increasing the likelihood of that action happening in the future. The process we identify differs from this mechanism as it focuses on a behavior that is both illegitimate—failing to reveal important information—and not directly observable. A norm of silence, our analysis suggests, does not emerge because it becomes increasingly legitimate, but instead arises when an act of silence changes the task and emotional context of the organization in ways that make future silence more likely. Consistent with other recent studies of self-reinforcing dynamics (Perlow, 1999; Repenning and Sterman 2002), future effort to understand the emergence of norms might benefit from considering a broader class of processes that include links to both the physical and emotional states of the

organization under study. It is clear that many organizational norms are fundamentally illegitimate and, consequently, must have alternative origins.

Finally, by identifying the multiple, self-reinforcing and escalating dynamics that arise as a result of an act of silence, our findings have implications for those interested in intervening to create cultures where people more effectively express their differences. Those with an organizational development orientation have offered techniques for helping people communicate more effectively (e.g., Tjosvold, 1985; Argyris, 1990; Aronson, 1994; Isaacs, 1999). Our model suggests that while communication and inquiry skills are essential to productive interactions, their positive impact may be thwarted by task and relational dynamics. Put more practically, the skills cultivated in corporate retreats and "off-sites" may prove to be of little use to employees who, when they return to their day jobs, face intense time pressure, aggressive completion targets, and mounting execution problems. Even if employees are convinced that speaking up will not jeopardize their relationships, they may still feel pressure to keep quiet so as to get their tasks done as quickly as possible. Thus, our model suggests that creating cultures of speaking up will require addressing both the relational and temporal dynamics at the source of the self-reinforcing pathology of silencing conflict.

REFERENCES

Alderfer, C. P.
1987 "An intergroup perspective on group dynamics," In J. W. Lorsch (ed.), Handbook of Organizational Behavior: 190-222. Englewood Cliffs, NJ: Prentice-Hall.

Amabile, T.
1983 The Social Psychology of Creativity. New York: Springer Verlag.

Argyris, C.
1990 Overcoming Organizational Defenses: Facilitating Organizational Learning. Upper Saddle River, NJ: Prentice-Hall.

Aronson, E.
1994 "Communication in sensitivity-training groups." In W. L. French, C. H. Bell, and R. A. Zawacki (eds.), Organization Development and Transformation: Managing Effective Change. Burr Ridge, IL: Irwin.

Ashford, S. J., N. P. Rothbard, S. K. Piderit, and J. E. Dutton
1998 "Out on a limb: The role of context and impression management in selling gender-equity issues." Administrative Science Quarterly, 43: 23-57.

Beer, M., and R. E. Eisenstat
2000 "The silent killers of strategy implementation and learning." Sloan Management Review, 41: 29-40.

Ben Zur, H., and S. J. Breznitz
1981 "The effects of time pressure on risky choice behavior." Acta Psychologica, 47: 89-104.

Bettenhausen, K., and J. K. Murnighan
1985 "The emergence of norms in competitive decision-making groups." Administrative Science Quarterly, 30: 350-372.

Bourgeois, J. L.
1985 "Strategic goals, perceived uncertainty, and economic performance in volatile environments." Academy of Management Journal, 28: 548-574.

Broderick, C. B.
1993 Understanding Family Process. Newbury Park, CA: Sage.

Cannon, W. B.
1927 "The James-Lange theory of emotions: A critical examination and an alternative theory." American Journal of Psychology, 39: 106-124.

Cassidy, J.
2002 Dot.con. New York: Perennial.

Conlee, M. C., and A. Tesser
1973 "The effects of recipient desire to hear on news transmission." Sociometry, 4: 588-599.

Cook, K., and R. Emerson
1984 "Exchange networks and the analysis of complex organizations." Research in the Sociology in Organizations, 3: 1-30.

Coser, L. A.
1956 The Functions of Social Conflict. Glencoe, IL: Free Press.

Cramton, C. D.
2001 "The mutual knowledge problem and its consequences for dispersed collaborations." Organization Science, 12: 346-71.

De Dreu, C. K. W., and L. R. Weingart
Forthcoming "Task and relationship conflict, team performance, and team member satisfaction: A meta-analysis." Journal of Applied Psychology.

Derlega, V. J, S. Metts, S. Petrino, and S. T. Margulis
1993 Self Disclosure. Newbury Park, CA: Sage.

Edmondson, A. C.
1999 "Psychological safety and learning behavior in work teams." Administrative Science Quarterly, 44: 350-383.

Edmondson, A. C., R. M. Bohmer, and G. P. Pisano
2001 "Disrupted routines: Team learning and new technology implementation in hospitals." Administrative Science Quarterly, 46: 685-716.

Eisenhardt, K. M., and C. S. Schoonhoven
1990 "Organizational growth: Linking founding team strategy, environment, and growth among U.S. semiconductor ventures, 1978-1988." Administrative Science Quarterly, 35: 504-529.

Feldman, D. C.
1984 "The development and enforcement of group norms." Academy of Management Review, 9: 47-53.

Fine, G. A.
1984 "Negotiated orders and organizational cultures." Annual Review of Sociology, 10: 239-262.

Flynn, F. J., and J. A. Chatman
2003 "What's the norm here? Social categorization as a basis for group norm development." Research on Managing Groups and Teams, 5: 135-160.

Follett, M. P.
1925/1995 "Creative collaboration." In Pauline Graham (ed.), Prophet in Management. Boston: Harvard Business School Press.

Forrester, J.
1961 Industrial Dynamics. Cambridge, MA: Wright-Allen Press.

Garvin, D.
2000 Learning in Action. Boston: Harvard Business School Press.

Gehman, H. W and the Columbia Accident Investigation Board
2003 Columbia Accident Investigation Board Report 1. Arlington, VA.

Glaser, B. G., and A. L. Strauss
1967 The Discovery of Grounded Theory: Strategies for Qualitative Research. New York: Aldine.

Guetzkow, H., and J. Gyr
1954 "An analysis of conflict in decision making groups." Human Relations, 7: 367-381.

Hall, R. I.
1976 "A system pathology of an organization: The rise and fall of the old Saturday Evening Post." Administrative Science Quarterly, 21: 185-211.

Harter, S.
2002 "Authenticity." In C. R. Snyder and S. J. Lopez (eds.), Handbook of Positive Psychology. Oxford: Oxford University Press.

Harvey, J.
1974 "The Abilene paradox: The management of agreement." Organization Dynamics, 21: 63-80.

Hirschman, A. O.
1970 Exit, Voice and Loyalty: Responses to Decline in Firms, Organizations, and States. Cambridge: Harvard University Press.

Isaacs, W.
1999 Dialogue and the Art of Thinking Together. New York: Currency.

Jack, D. C.
1991 Silencing the Self. New York: HarperPerennial.

James, W.
1884 "What is an emotion?" Mind, 9: 188-205.

1894 "The physical basis of emotion." Psychological Review, 101: 205-210.

Janis, I.
1982 Groupthink. Boston: Houghton Mifflin.

Jehn, K. A.
1995 "A multimethod examination of the benefits and detriments of intragroup conflict."
Administrative Science Quarterly, 40: 256-282.

1997 "A qualitative analysis of conflict types and dimensions in organizational groups."
Administrative Science Quarterly, 42: 530-557.

Jehn, K. A. and E. Mannix
2001 "The dynamic nature of conflict: A longitudinal study of intragroup conflict and group
performance." Academy of Management Journal, 44: 238-251.

Kahn, W. A.
1990 "Psychological conditions of personal engagement and disengagement at work." Academy
of Management Journal, 33: 692-724.

Kantor, D. and W. Lehr
1975 Inside the Family. San Francisco: Sage.

Karau, S. J., and J. R. Kelly
1992 "The effects of time scarcity and time abundance on group performance quality and
interaction process." Journal of Experimental Social Psychology, 28: 542-571.

Kiesler, C. A., and S. B. Kiesler
1969 Conformity. Reading, MA: Addison-Wesley.

Labianca, G., and D. J. Brass
Forthcoming "Exploring the social ledger: Negative relationships and negative asymmetry in
social networks in organizations." Academy of Management Review.

Larson, J. R., T. M. Franz, C. Christensen, and A. S. Abbott
1998 "Diagnosing groups: The pooling, management, and impact of shared and unshared case
information in team-based medical decision making." Journal of Personality and Social
Psychology, 75: 93-108.

Lawler, E. J.
2001 "An affect theory of social exchange." American Journal of Sociology, 107: 321-352.

Lawler, E. J., and S. R. Thye
1999 "Bringing emotions into social exchange theory." Annual Review of Sociology, 25: 217-
244.

Lawler, E. J., S. R. Thye, and J. Yoon
2000 "Emotion and group cohesion in productive exchange." American Sociological Review, 106: 616-657.

Lawler, E. J., and J. Yoon
1996 "Commitment in exchange relations: Test of a theory of relational cohesion." American Sociological Review, 61: 89-108.

Lazarus, R. S.
1984 "On the primacy of cognition." American Psychologist, 39: 124-129.

Leonard, D., and W. Swap
1999 When Sparks Fly: Igniting Creativity in Groups. Boston: Harvard Business School Press.

Levinthal, D.A., and J.G. March
1993 "The myopia of learning." Strategic Management Journal, 14: 95-112.

Lindsley, D. H, D. J. Brass, and J. B. Thomas
1995 "Efficacy-performance spirals: A multilevel perspective." Academy of Management Review, 20: 645-678.

Lovelace, K., D. L. Shapiro, and L. R. Weingart
2001 "Maximizing cross-functional new product team's innovativeness and constraint adherence: A conflict communications perspective." Academy of Management Journal, 44: 779-793.

March, J. G., and H. A. Simon
1993 Organizations, 2nd ed. Cambridge, MA: Blackwell Business.

Marsden, P. V., and K. E. Campbell
1984 "Measuring tie strength." Social Forces, 63: 482-501.

Masuch, M.
1985 "Vicious circles in organizations." Administrative Science Quarterly, 30: 14-33.

Merton, R.
1948 "The self-fulfilling prophecy." Antioch Review, 8:193-210.

Miles, M., and A. M. Huberman
1984 Qualitative Data Analysis: A Source Book of New Methods. Beverly Hill, CA: Sage Publications.

Miller, J. B.
1976 Toward a New Psychology of Women. Boston: Beacon Press.

Miller, J. B., and I. P. Stiver
1997 The Healing Connection. Boston: Beacon Press.

Milliken, F. J., and E. W. Morrison
2003 "Shades of silence: Emerging themes and future directions for research on silence in organizations." Journal of Management Studies, 40: 1563-1568.

Milliken, F. J., E. W. Morrison, and P. F. Hewlin
2003 "An exploratory study of employee silence: Issues that employees don't communicate upward and why." Journal of Management Studies, 40: 1453-1476.

Mohr, L.
1982 Explaining Organizational Behavior. San Francisco: Jossey-Bass.

Morrison, E. W, and F. J. Milliken
2000 "Organizational silence: A barrier to change and development in a pluralistic world." Academy of Management Review, 25: 706-725.

Nemeth, C. J.
1997 "Managing innovation: When less is more." California Management Review, 40: 59-74.

Noelle-Neumann, E.
1974 "The spiral of silence: A theory of public opinion." Journal of Communication, Spring: 43-51.

Northcraft, G. B., and M. A. Neale
1994 Organizational Behavior: A Management Challenge. Fort Worth: The Dryden Press.

Payne, J. W., J. R. Bettman, and M. F. Luce
1996 "When time is money: Decision behavior under opportunity-cost time pressure." Organizational Behavior and Human Decision Processes, 66: 131-152.

Perlow, L. A.
1999 "Time famine: Towards a sociology of work time." Administrative Science Quarterly, 44: 57-81.

Perlow, L. A., G. Okhuysen, and N. Repenning
2002 "The speed trap: Exploring the relationship between decision making and the temporal context." Academy of Management Journal, 45: 931-955.

Pettigrew, A.
1997 "What is processual analysis?" Scandinavian Journal of Management, 13: 337-48.

Piderit, S. K., and S. J. Ashford
2003 "Breaking silence: Tactical choices women managers make in speaking up about gender-equity issues." Journal of Management Studies, 40: 1477-1502.

Polzer, J. T., L. P. Milton, and W. B. Swann
2002 "Capitalizing on diversity: Interpersonal congruence in small work groups." Administrative Science Quarterly, 47: 296-324.

Priem, R., and K. Price
1991 "Process and outcome expectations for the dialectical inquiry, devil's advocacy, and consensus techniques of strategic decision making." Group and Organizational Studies, 16: 206-225.

Pruitt, D. G., and J. Rubin
1986 Social Conflict: Escalation, Stalemate, and Settlement. New York: Random House.

Ray, M., and R. Myers
1986 Creativity in Business. New York: Doubleday.

Reagans, R., and E. W. Zuckerman
2001 "Networks, diversity, and productivity: The social capital of corporate R&D teams." Organization Science, 12: 502-517.

Redding, W. C.
1985 "Rocking boats, blowing whistles, and teaching speech communication." Communication Education, 34: 245-258.

Repenning, N. P., and J. D. Sterman
2002 "Capability traps and self-confirming attribution errors in the dynamics of process improvement." Administrative Science Quarterly, 47: 265-295.

Roth, G., and A. Kleiner
1999 Car Launch: The Human Side of Managing Change. New York: Oxford University Press.

Rusbult, C. E., I. M. Zambrodt, and L. K. Gunn
1982 "Exit, voice, loyalty and neglect: Responses to dissatisfaction in romantic involvements." Journal of Personality and Social Psychology, 43: 1230-1242.

Ryan, K., and D. Oestreich
1998 Driving Fear Out of the Workplace. San Francisco: Jossey-Bass.

Ryan, K., D. Oestreich, and G. Orr III
1996 The Courageous Messenger: How to Successfully Speak Up at Work. San Francisco: Jossey-Bass.

Sastry, M.A.
1997 "Problems and paradoxes in a model of punctuated and organizational change." Administrative Science Quarterly, 42: 237-75.

Schein, E. H.
1991 Organizational Culture and Leadership. San Francisco: Jossey-Bass.

Schneider, B., and A. E. Reichers
1983 "On the etiology of climates." Personnel Psychology, 36:19-39.

Schweiger, D. M., W. R. Sandberg, and P. L. Rechner
1989 "Experiential effects of dialectical inquiry, devil's advocacy, and consensus approaches to strategic decision making." Academy of Management Journal, 32: 745–772.

Sprague, J., and G. L. Rudd
1988 "Boat-rocking in the high-technology culture." American Behavioral Scientist, 32: 169-193.

Sterman, J. D.
2000 Business Dynamics: Systems Thinking and Modeling for a Complex World. Boston: Irwin/McGraw Hill.

Stone, D., B. Patton, and S. Heen
1999 Difficult Conversations: How to Discuss What Matters Most. New York: Penguin Books.

Strauss, A.
1978 Negotiations. San Francisco: Jossey-Bass.

Tjosvold, D.
1985 "Dynamics within participation: An experimental investigation." Group and Organizational Studies, 10: 260-277.

Uzzi, B.
1996 "The sources and consequences of embeddedness for the economic performance of organizations: The network effect." American Sociological Review, 61: 674-698.

1999 "Embeddedness in the making of financial capital: How social relations and networks benefit firms seeking financing." American Sociological Review, 64: 481-505.

Vaughan, D.
1996 The Challenger Launch Decision: Risky Technology, Culture, and Deviance at NASA. Chicago: University of Chicago Press.

Walton, R. E.
1969 Interpersonal Peacemaking: Confrontations and Third Party Consultation. Reading, MA: Addison-Wesley.

Weick, K.
1979 The Social Psychology of Organizing. New York: McGraw-Hill.

Weiner, B.
1985 "An attributional theory of achievement motivation and emotion." Psychological Review, 92: 548-573.

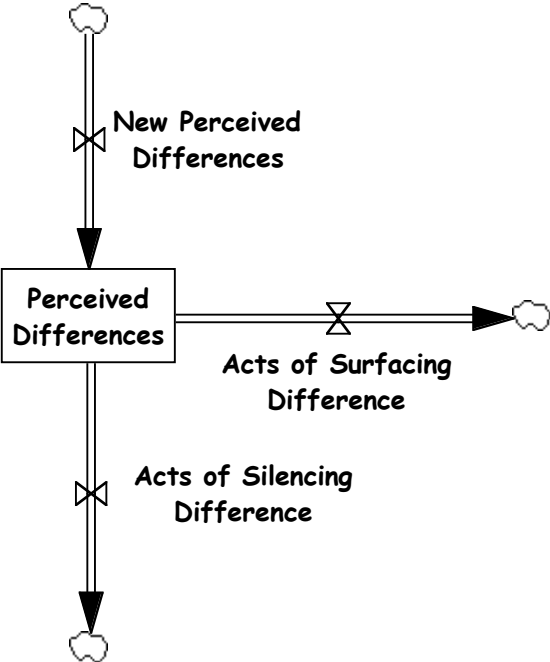1986 An Attributional Theory of Motivation and Emotion. New York: Springer-Verlag.

Yukl, G. A., M. P. Malone, B. Hayslip, and T. A. Pamin
1976 "The effects of time pressure and issue settlement order on integrative bargaining." Sociometry, 39: 277-281.
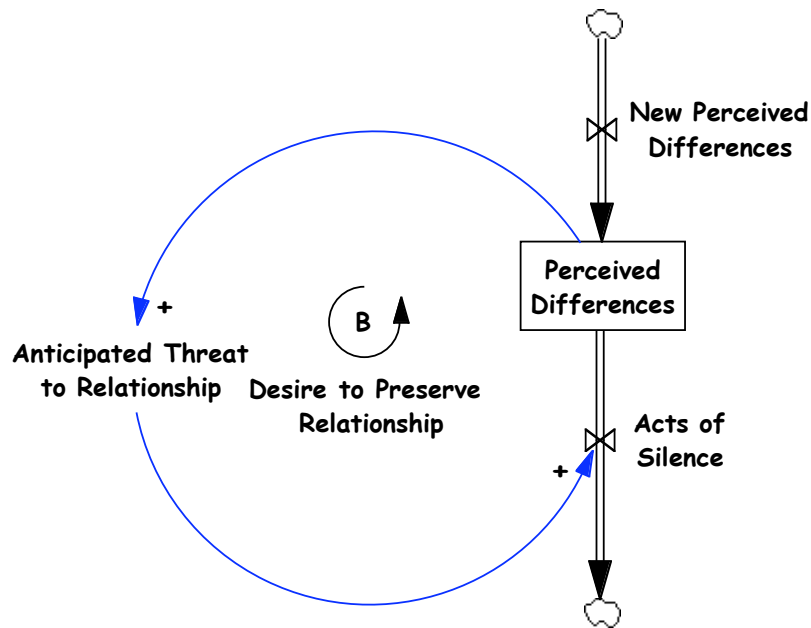
Zajonc, R. B.
1984 "On the primacy of affect." American Psychologist, 39: 117-123.

Figure 1: Stock and Flow Structure of Differences

Note: Boxes represent stocks; arrows with valves represent flows. A stock is the accumulation of the difference between its inflows and outflows (see Sterman 2000).

Figure 2: Silencing to Preserve Relationships

Note: Arrows indicate the direction of causality. Signs ("+" or "-") at arrowheads indicate the polarity of relationships: a "+" denotes that an increase in the independent variable causes the dependent variable to increase, while a decrease causes a decrease. Similarly, a "-" indicates that an increase in the independent variable causes the dependent variable to decrease, while a decrease causes an increase. The loop identifier, B, indicates a balancing feedback loop. Balancing loops are self-correcting (see Sterman, 2000).

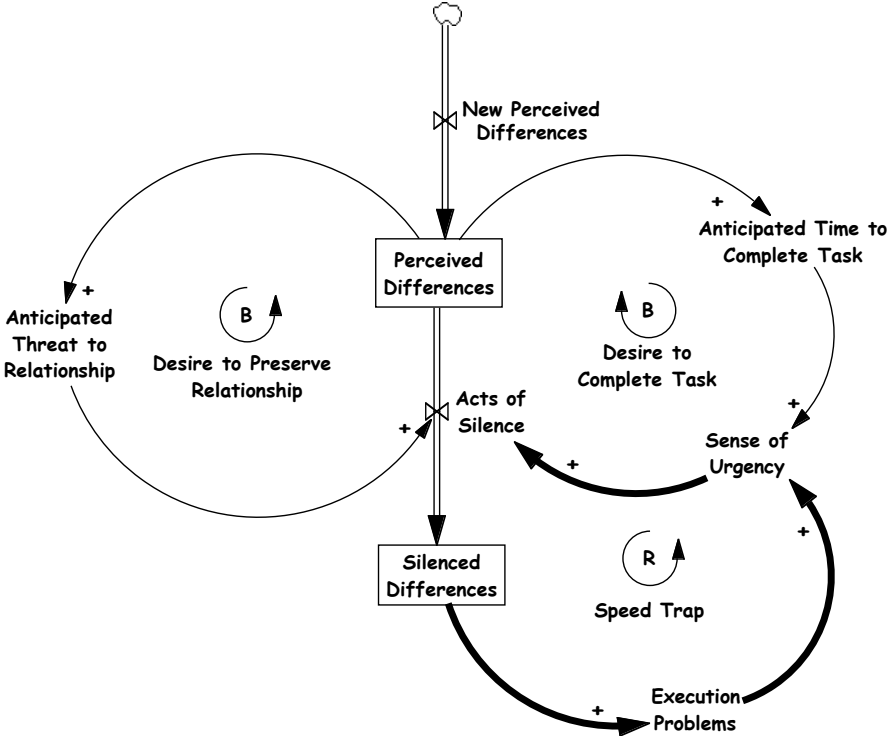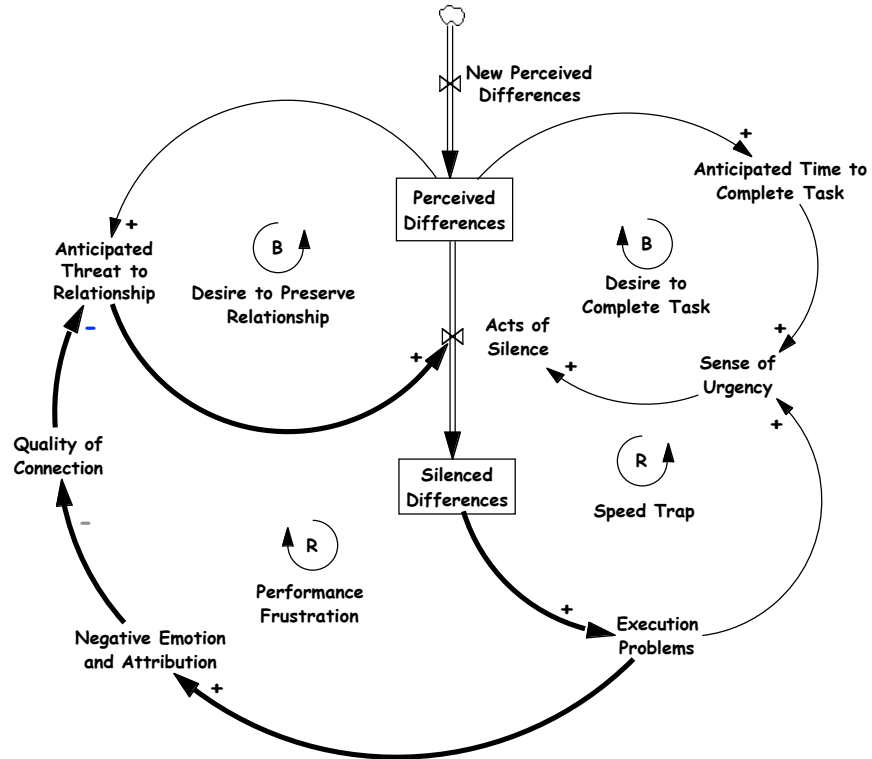**Figure 3: Silencing to Complete Tasks**
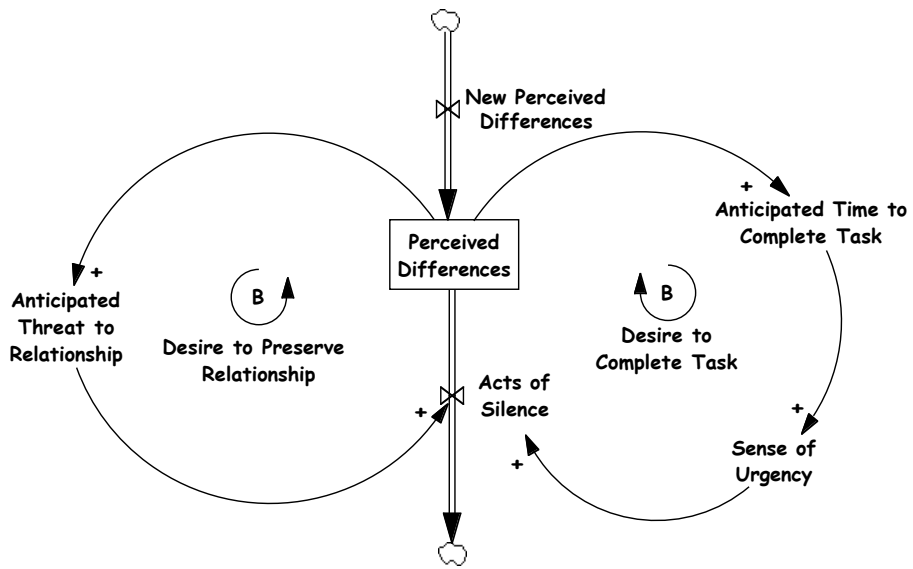
Figure 4: Speed Trap

Note: The loop identifier, R, indicates a self-reinforcing feedback (see Sterman, 2000).
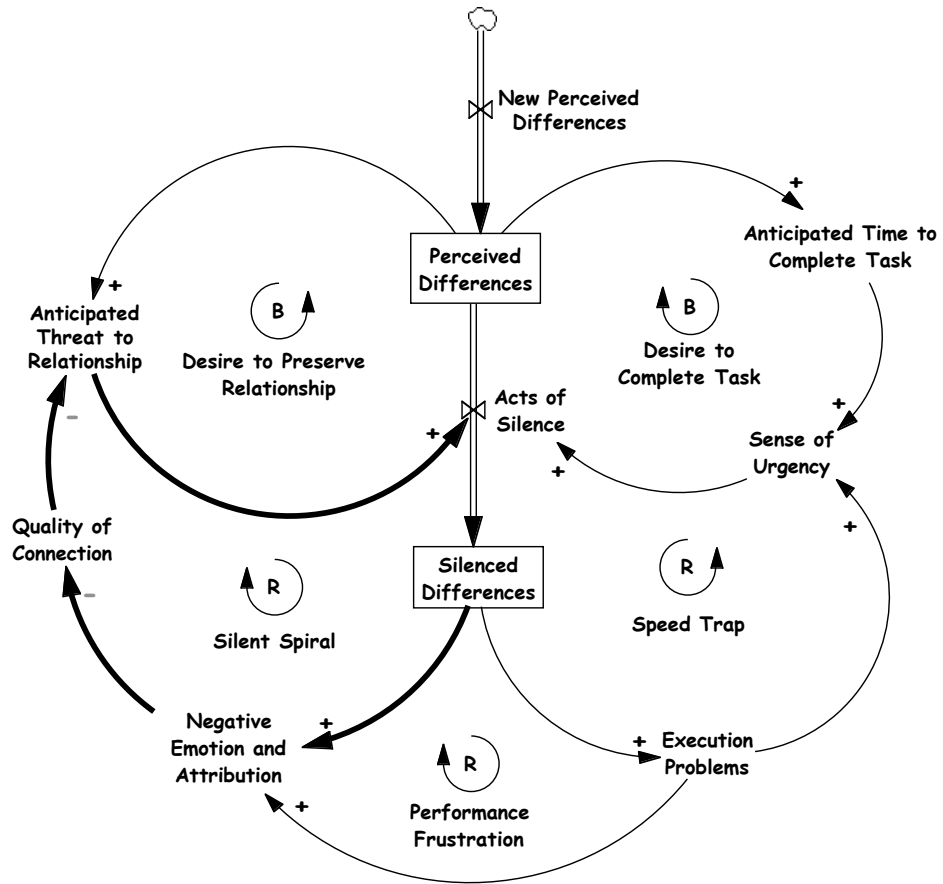
Figure 5: Performance Frustration

Figure 6: Silent Spiral

Figure 7: Unexplained Acts