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A Small Flaw Translates into Many Miscalculations: A Narrative Criticism of the Intel Pentium Chip Crisis

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A SMALL FLAW TRANSLATES INTO MANY MISCALCULATIONS: A NARRATIVE CRITICISM OF THE INTEL PENTIUM CHIP CRISIS

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Christine H. Hoek

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This study uses the Intel Pentium chip crisis of 1994 to gain an understanding of how technology issues are socially constructed in contemporary American public discourse. Two primary and competing narratives were discovered. First, Intel's narrative minimized the problem and argued that chip flaws are commonplace and the company would replace the chips for anyone who could "prove" the need for a replacement. The consumer's narrative, conversely, was one in which customers asserted that Intel's policy was paternalistic and instead demanded the replacement of their chips. The narratives were analyzed as the crisis moved through five primary events, with the crisis ultimately ending in Intel adopting a "no questions asked" return policy and setting new industry standards for handling flaws.

This study argues that the Intel Pentium chip crisis is clearly a transformational moment in American public discourse, validating the Internet as a viable communications medium and demonstrating that its power lies it its ability to create virtual activist communities of people who are connected through common interests. The study concludes by offering suggestions on how to handle a crisis that transpires as a result of the Internet.

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CHAPTER I

INTRODUCTION

In November 1994, Intel Corporation, a company known as the world's dominant computer chip maker, experienced a crisis—its most anticipated and highly promoted product, the new Pentium chip, was flawed. This would not be a crisis if it were handled properly; however, it was not. In reality, Intel knew about the flaw for months and kept quiet about it, believing that only a tiny fraction of users would ever be affected by the problem and that the company could simply fix the flaw in the next version of the chip (Jackson, 1997). Indeed, Intel's attempt to minimize the issue angered customers, confused potential buyers, and concerned investors, all of whom provoked an outcry of media attention, first via the Internet, then computer publications, and finally the mainstream media.

Problems with Intel's Pentium chip were first reported via Internet newsgroups frequented by heavy computer users (http://www.mathworks.com/pentium/index.shtml). Newsgroups are cyberspace bulletin boards where messages can be posted and virtual conversations can ensue. They accused the Pentium processor of generating inaccurate results when users performed sophisticated mathematical calculations. As the anger regarding the product flaw mounted in cyberspace, the issue gained momentum via traditional media, which caused casual

computer users to become aware of the problem and concerned that the Pentium chip flaw might affect their own personal computers.

At first, Intel minimized the issue by stating that "the error is likely to occur at a frequency of the order of once in nine billion divides" (A. Grove, personal communication, November 27, 1994, ¶ 7), or once in 27,000 years of average use. Pentium chip users were not offered immediate product replacements and Intel offered no product recall.

On December 12, 1994 computer giant IBM, usually an Intel ally, announced it had stopped shipping personal computers using Intel's Pentium chip, alleging that Intel had "significantly" underestimated the potential for errors arising out of the Pentium problem. Public confusion and skepticism were growing.

In effect, the story of Intel's public relations efforts was that there was "much ado about nothing." The chipmaker's account of the facts was that it did nothing wrong, taking a "we're innocent" posture and standing behind the idea that flaws in technology are the "norm" for new software and hardware products. The competing narrative of the consumer, "big companies don't care about the customer," tells a different story. It is easy to see that two different and opposing narratives are revealed. However, only the narrative that rang true with key constituencies would be the one that would gain currency during the heat of the crisis. Consumers wanted unflawed, replacement Pentium chips without any questions asked and without having to prove their case to Intel.

This thesis examines the events surrounding the Intel crisis, the various phases of the crisis, and the company's image restoration attempts. In so doing, it analyzes the nature of Intel's rhetorical strategies and then evaluates the effectiveness of those strategies. This thesis also will apply the narrative model of criticism as a method to analyze the way in which the crisis was presented to the public via the media. Chapter I provides the history of the Intel crisis.

Intel Crisis History

Today, scientists and engineers utilize computers to model their work. The computers make millions of calculations every minute and are relied upon for accuracy. Yet any type of inaccuracy can produce problems. The severity of a problem is difficult to predict until something devastating occurs, especially if the error goes undetected.

Imagine what would happen if an engineer conducting aerodynamic simulations on a new car design was just tenths of an inch off because of an unknown miscalculation. Potentially, millions of cars could be produced to those specifications and cause problems for consumers. A small, undetected problem such as decreased gas mileage or perhaps a more serious problem such as a car prone to rolling over when driven at high speeds may be the result. What would happen if a hospital nurse who was administering medication mixed the wrong percentages of drugs due to a computer miscalculation? The result could be deadly.

In December of 1993, Intel Corporation, the world's largest computer chip manufacturer, introduced the much-anticipated Pentium chip, a central processing unit (CPU), which serves as a computer's nerve center. The product's promise, among other things, was to accurately calculate complicated mathematic equations in the blink of an eye (Markoff, 1994b). Yet, this heavily advertised flagship product fell short of its promise. Although minor flaws are not uncommon with new technology releases, Intel did not respond to what it considered to be a minor flaw until it was too late and a crisis was at hand.

Public awareness of the Pentium flaw began October 30, 1994 when Professor Thomas Nicely of Lynchburg College in Virginia posted a message on the Internet that described a bug he had found when conducting sophisticated mathematical calculations in the course of his research.

> It appears that there is a bug in the floating point unit (numeric coprocessor) of many, and perhaps all, Pentium processors. In short, the Pentium FPU is returning erroneous values for certain division operations. For example, 1/824633702441.0 is calculated incorrectly (all digits beyond the eighth significant digit are in error). This can be verified in compiled code, an ordinary spreadsheet such as Quattro Pro or Excel, or even the Windows calculator (use the scientific mode), by computing (824633702441.0)* (1/824633702441.0), which should equal 1 exactly (within some extremely small rounding error; in general, coprocessor results should contain 19 significant decimal digits). However, the Pentiums tested returned 0.999999996274709702. (T. Nicely, personal communication, October 30, 1994, ¶ 1–4)

According to Andy Grove, president of Intel, that is when "the hubbub started" (A. Grove, personal communication, November 27, 1994, ¶ 9). Others also posted their experiences about how the Pentium chip was producing inaccurate calculations via

Internet newsgroups and the issue began to gain awareness (The Mathworks Home, 1994). From a public relations standpoint, Intel had a potential crisis brewing.

The New York Times broke the story in the general mass media on November 24, 1994 in a lengthy article that described the Intel Pentium chip problem in detail, concluding "an exclusive circuitry error is causing a chip used in millions of computers to generate inaccurate results in certain rare cases" (Markoff, 1994a, p. D1). In the article, Intel stated that it did not believe the chip needed to be recalled because the average user would be unaffected by the error.

At first, Intel minimized the issue by stating that "the error is likely to occur at a frequency of the order of once in nine billion divides" (A. Grove, personal communication, November 27, 1994, ¶ 7) or once in 27,000 years of average use. Due to the low probability that users would experience calculation errors, and the desire to avoid a costly product recall by generating general public awareness, Intel President Andy Grove issued an apology via the Internet on November 27, 1994, following the first press coverage and a month of Internet discussions by potential and existing chip users.

Grove's e-mail offered to replace the chip, *but* only for users who could show that they were running programs likely to be affected by what had become known as the "floating point error" (Yoder, 1994, p. B1). In other words, Intel expected customers to *prove* their need for a replacement chip. Additionally, those reading the e-mail were skeptical that it was truly from Andy Grove because Richard

Wart, Intel's technology director, posted it on behalf of Grove from his home on the weekend.

Since the chip was used in almost every manufactured personal computer (IBM, Dell, Compaq, Gateway 2000, and others), computer manufacturers had a vested interest in any Pentium chip error. Manufacturers attempted to create their own fixes to help users avoid encountering the problem. At a computer industry conference, Compaq Computer Corporation's chief executive, Eckhard Pfeiffer, said "his company planned to make available a software fix that would turn off the faulty hardware. Giving the user a slower—but accurate—solution" (Markoff, 1994b, p. D9). In the meantime, Intel was trying to wrap its arms around the crisis, even going so far as to "gather a group of computer industry experts" to develop a way for computers to detour around the bug (Markoff, 1994c, p. 41).

On December 12, 1994, computer giant IBM announced it had stopped shipping personal computers using Intel's Pentium chip, alleging that Intel had "significantly" underestimated the potential for errors arising out of the Pentium problem. Intel's stock fell rapidly on the news of the announcement, forcing a temporary halt to trading; when trading resumed, Intel stock was down more than $2 a share in "very heavy trading of 16.2 million shares" (Ziegler & Clark, 1994, pp. 1A, 10A). Now there was skepticism in the public's mind about how often an error might really occur—every 24 days or every 27,000 years? Intel was in the midst of a public relations crisis of the first order.

A wave of public anger began to build against Intel. Pentium chip owners began filing lawsuits sighting securities fraud, false advertising, and the violation of several state consumer-protection laws (Stipp, 1994). Intel's minimization strategy no longer held the floodgates.

Finally, on December 21, 1994, after two months of stonewalling customers with a stringent replacement policy, Intel announced a "no questions asked" return policy that would replace all flawed chips with an updated version of the Pentium chip, and began to advertise its new policy in newspapers across the country. The advertisement included instructions on how to receive an updated chip: "Those interested in receiving an updated version of the microprocessor can call (800) 628-8686" (Want Another Pentium?, 1994, p. D6). Investors responded favorably to this announcement by sending the stock up $3.44 per share (Carlton & Yoder, 1994). The crisis seemed to cease at this point and despite the two months of negative headlines, Intel's reputation weathered the crisis without too much damage.

As an added measure of customer satisfaction and product assurance, Intel introduced a worldwide network of Pentium-replacement service centers for retail Pentium users and conducted intense one-on-one contact with corporate users (Bernard, 1995). The company also established a toll-free hotline for customers who wanted to install their own replacement chips. According to Dennis Carter, vice president of marketing at Intel: "Our approach has been one-on-one, whether they're large IT customers or individual users, and to deal with whatever issues or

concerns they have. We'll do education or arrange for them to replace the chips, if that's what they choose" (Bernard, 1995, p. 32).

As intriguing as the Intel crisis seems, there may be broader implications to this crisis review. Perhaps corporations can use the Intel Pentium chip crisis as a model to learn how *not* to respond to the negative consumer narrative as well as a reminder of the consumer's influence. Additionally, the Intel crisis serves as one of the Internet's hallmark stories in which the power of technology and people can circumvent the traditional means of communication to be heard loudly and have significant influence.

Chapter II will next provide a review of the crisis literature and an analysis of potentially applicable crisis models to the Intel crisis.

CHAPTER II

LITERATURE REVIEW

Crisis Literature

The Intel Pentium chip crisis is clearly a transformational moment in American public discourse. Due to irate customers using Internet newsgroups to voice their complaints, this crisis was one of the first to gain momentum via the Internet, prior to the mass media fanning any crisis flames via traditional media outlets. Even though Intel is a computer technology manufacturer, it was not prepared to deal with an Internet crisis. "Unfortunately for Intel Corporation, one of its attempts at damage control was short-sighted and slow" (Basso, 1997, p. 29).

The crisis management literature outlines the characteristics of a crisis (Burson, 1985) and provides several models to explain how organizational crises go through distinct phases (Billings, Milburn, & Schaalman, 1980; Fink, 1986; Lukaszewski, 1987; Udwadia & Mitroff, 1991). The literature also reveals a plethora of defense, image restoration, and rhetorical strategies (Benoit & Brinson, 1994; Coomb, 1995; Fitzpatrick & Rubin, 1995; Johnson & Sellnow, 1995; Reinhardt, 1987).

Crisis Defined

A crisis results when publics are confronted with events that lead them to feel uncertainty, concern, and even outrage with regard to some condition that threatens their well-being and violates their expectations of responsible organizational performance (Heath, 1997). Hay (1996) views crises as subjectively defined conditions that are the connection to communication brought to life through narrative and discourse. Each crisis is unique and peculiar (Meyers, 1986). Guth (1995) compares the defining of crisis to that of defining art; both are indistinct — "one person's incident may be another's crisis" (p. 125).

From an organizational perspective, Heath (1997) defines crisis as "an untimely event that can be anticipated, that may prevent management from accomplishing its efforts to create the understanding and satisfaction between their organization and interested parties needed to negotiate the mutually beneficial exchange of stakes" (p. 290).

Essentially, a crisis has the potential to disrupt business or completely dismantle a business by creating unresolved problems between an organization and its publics. Crises are characterized by events that threaten the basic values and goals of an organization (Weick, 1988).

Meyers (1986) suggests that crises provide warning signs that changes are needed within an organization. He challenges organizations to view crises as not all bad stating that "a lot can be done during a crisis that would be difficult or impossible to accomplish during a business-as-usual period" (p. 5). Contending that

crises almost sneak-up in business, "assumptions have quietly eroded, undetected, undermining the most carefully crafted (business) plan like sand that's been washed from beneath a sea wall" (p. 9). In other words, a crisis can mount when an organization is isolated and does not take the time to maintain the pulse on its issues or publics, and it assumes that the business environment has remained unchanged.

One of the best-known models of defining a crisis was developed by Hermann (1963, 1969, 1972). This model contends that there are three elements which need to exist in order to create a crisis: (1) the threat, which is a potential hindrance to some state or goal; (2) a short decision time to make an effective choice to alter the course of the potential crisis; and (3) surprise, a lack of awareness on the part of decision makers that a crisis is about to occur.

Billings et al. (1980) build upon Hermann's crisis model (1963, 1969, 1972) by adding a first step in the process of defining a crisis. The first step is known as the *trigger event.* The trigger event occurs when "there is a gap perceived between the existing state (initial state) of an organization and a desired state (the goal)." Billings et al. (1980) also examined crisis and the degree of potential impact it can have on an organization. The degree of crisis is a function of the "perceived value of possible loss, probability of loss, and time sensitivity" (Billings et al., p. 304).

Three factors impact the probability of loss. The first is the level of confidence in the accuracy of the problem. The second factor that impacts the probability of loss is the number of plausible explanations for the discrepancy. The third and most important variable, according to Billings et al. (1980), is the response

to uncertainty, meaning response to the degree of uncertainty felt about the appropriateness of a response to the crisis. The last necessary variable presented in a crisis by Billings et al. is time pressure. The Billings et al. model analyzes what could be lost, what is likely to be lost, and the amount of time an organization has to react before the problem transitions into a crisis.

Crisis Severity

The models developed by Herman (1963, 1969, 1972) and Billings et al. (1980) help to define a crisis. In his model, Heath (1997) examines the severity of a crisis. He contends that crises come in different degrees and contrasts the degrees of crisis to the health of an organization:

> *Bed Rest:* the crisis receives front pages, top-of-the-hour coverage. It attracts public attention but is unlikely to threaten the existence of the organization even if the organization fails to strategically respond.
>
> *Medication:* a type of crisis that requires an organization respond to media inquiries and may even demand changes in operations to reduce the chance of recurrence; explanation and sympathetic response as well as minor operational changes are more than likely to be considered a sufficient response to the crisis.
>
> *Chronic:* a type of crisis that demands that the organization communicate with the media and formulate changes that are implemented to prevent recurrence. Without such a response, confidence in the organization and its personnel is likely to diminish. Stakeholders will abandon the organization.
>
> *Fatal:* a type of crisis that ends the existence of an organization because it lacked the ability to restore faith with its stakeholders. (p. 291)

Heath's healthcare metaphor is very fitting. It not only works as an analogy; the state of the crisis could also be compared to the communication health of an

organization. For example, an organization with poor communication health would more than likely fall into the chronic or fatal degrees of crisis not only because of the type of crisis, but because of its inability to respond and communicate about the crisis.

Crisis Responsibility

Conversely, Coombs (1995) defines four organizational crisis contexts that provide the *source of responsibility* and the degree to which it was the result of intentional acts. The first context is a *faux pas* or social irresponsibility. In this context critics accuse a company of violating current social norms. An illustrative example are the accusations from critics that Camel cigarette brand uses the "Joe Cool" advertising campaign to target/solicit teenagers and pre-teens into trying cigarettes. The second context is that of an accident. Due to some unexpected act of fate or product failure, an accident that harms people or habitat occurs. The third context is terrorism. Here intentional actions designed to harm an organization are taken. The intentional actions may include scandals, illegalities, product tampering, or workplace violence that potentially sabotage an organization's reputation. One of the most illustrative examples, which could be considered an *internal* act of terrorism, is the Enron scandal where the publicly traded energy brokerage firm concealed significant financial problems, took funds from employee 401Ks, and was forced to fire 4,000 employees and file bankruptcy in one day (case and details still pending). The final context is transgressions. Coombs defines transgressions as an

organization that intentionally places the public at risk by knowingly selling defective products, withholding safety information from authorities, and violating laws. Hearit (1999) redefines Coombs' transgressions context into a more understandable idea by succinctly categorizing it as product safety incidents.

For the purpose of this analysis focus will be given to transgressions. With this type of incident there is "some flaw in the design of a product that causes, or has the potential to cause, a great deal of harm to the individuals and/or institutions" (Hearit, 1999, p. 293). In this type of situation, users of the product or institution become innocent victims, as was the case with Firestone tires in the year 2000.

The transgression crisis begins when an organization's intentional actions knowingly place publics at risk or harm, such as selling defective or dangerous products. According to Coombs (1995), mortification strategies attempt to rectify the situation. Mortification strategies are also attempts to build positive impressions of the organization by recognizing the crisis in some way and attempting to atone for the crisis.

Crisis Models

Researchers have examined organizational crisis developmentally to understand the different stages it goes through and the strategies engaged at each phase to combat the crisis. The following explores the various stages of crisis, the crisis process, and methods for classifying crises.

Crisis Stages

The aforementioned models help to define and categorize crises. Fink, Beak, and Taddeo (1971) analyze the *stages* an organization progresses through in a crisis. They find that companies go through four distinct stages when hit with unexpected tribulations: (1) shock, (2) defensive retreat, (3) acknowledgement, and (4) adaptation and change. Fink (1986) later defines the four distinct phases of crises more clearly. The *prodromal* crisis is the warning stage. The *acute* state is otherwise known as the point of no return (some damage has been done). The *chronic* stage, also known as the clean-up phase, is where damage from the crisis is still being managed, but business is trying to resume to some type of normalcy. And *crisis resolution* is where things finally return to "normal."

Crisis Process

Fink et al. (1971) examine the common responses of an organization to crises. Meyers (1986) expands on Fink et al. and examines the *entire process of crisis* from the perspective of crisis manageability, providing a comprehensive view of crisis. A managed crisis goes through a sequence of stages: *pre-crisis* (evidence, acknowledgement, resolve), *crisis* (climax, assessment, direction), and *post-crisis* (rebuilding, recovery, reform) (Meyers, 1986). With early detection and intervention, the amount of organizational disruption can be reduced. But, management must be committed to responding to early warning signs and it must have a preliminary crisis team in place. An unmanaged crisis is like a disease that

"works its way through the company's system, undetected at first and possibly resulting in radical change or elimination" (Meyers, 1986, p. 205).

Like other scholars such as Heath (1997), Meyers (1986) uses the medical field as a means of comparison for the stages of crisis. However, his approach is to apply the lessons of the medical field as an example of an excellent *crisis management system*. The medical field is a system that allocates scarce resources so that the most good can be achieved.

Meyers (1986) categorizes business crises into nine distinct types: (1) public perception, (2) sudden market shift, (3) product failure, (4) top management succession, (5) cash, (6) industrial relations, (7) hostile takeover, (8) adverse international events, and (9) regulation and deregulation. For the purpose of this study, public perception and product failure are most relevant.

Public perception is when the way the world sees what is happening versus the way the company sees it are at odds. Reality is socially constructed through communication. So scientific facts or truths are no longer considered reality once the public has grasped a different perception. With public perception there is increased attention from the public sector, beyond which consumers or constituents, industry regulators and public officials become involved.

The three most common reasons products fail are poor engineering, the design fails to meet market demand, or the product design works initially and meets market needs, but flaws become apparent after the product is distributed and used

for an extended period of time (Meyers, 1986). The way in which a company responds to the product failure ultimately determines its ability to survive.

Beyond categorizing the type of crisis an organization may experience, Meyers (1986) provides a formal method to classify and identify the *gravity* of a crisis. Four factors are involved in the classification of a crisis: (1) dimension (the size of the stake at risk), (2) control (the ability to influence the environment), (3) time (how much time one has for maneuvering), and (4) options (the number and quality of one's choices). The relationship between the factors can help determine what tools should be applied to the crisis.

Furthermore, Meyers (1986) offers a crisis classification grid to help categorize the factors and how they relate (see Figure 1). The first step is to examine the *dimension* and *control* factors. Assess the relationship between the magnitude of the potential crisis and management's ability to influence its environment (i.e., prevent, control, contain, etc.). Meyers charts the factors on a grid rating them along a scale of 0 to 100. One hundred indicates that the "entire company is exposed" to the crisis and "management has little or no control of the forces behind the crisis" (p. 208), otherwise known as a Class A crisis, the most serious crisis, on the Meyer grid. The Class B crisis is also serious, but management is able to maintain some control over the situation. Class C implies that management maintains a relatively high degree of control and that there is little danger.

According to Meyers (1986), crises situations are fluid and they move through stages. He suggests that in order to manage a crisis successfully, an

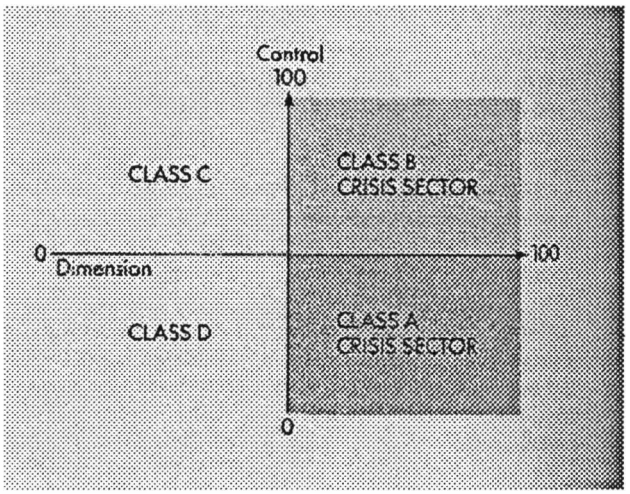

Figure 1. Meyers Classification Grid (Meyers, 1986, p. 208). Reprinted with permission.

organization should plot where it is on the grid because each stage requires different response options.

Meyers (1986) also suggests that top management only become involved when a crisis reaches an "envelope of executive concern" (p. 211) because top management cannot become involved in every potential crisis and still focus on running the business. This envelope is just prior to the crisis reaching either Class A or Class B (see Figure 2).

Time and *options* are also critical factors in a crisis situation. An organization must assess how much time it has to respond to a crisis and what options it has for responding. The less time and the fewer options an organization has to respond with to a crisis, the more serious the trouble. The converse is true as well. Again, Meyers (1986) plots these factors on a grid to determine where and how they interact (see Figures 3, 4, and 5). He also provides a diagram of the

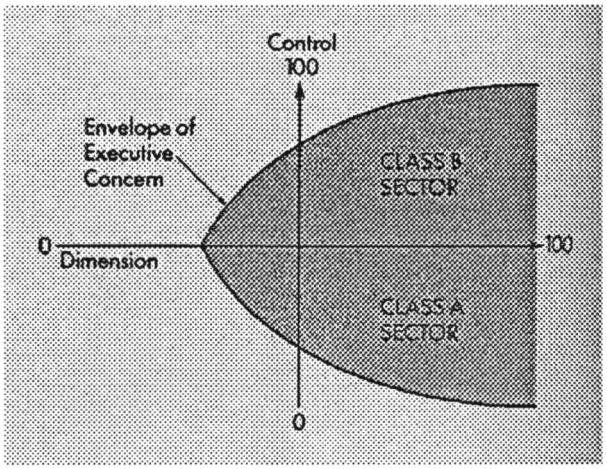

Figure 2. Meyers Envelope of Concern Grid (Meyers, 1986, p. 210). Reprinted with permission.

time-option factors "Jaws" interacting with the "envelope of executive concern" to demonstrate how a crisis can be examined with all four factors in mind: control, dimension, time, and options (p. 212). The worst crisis case is what Meyers calls "double jeopardy" where there is very little time to react, management has few options, potential for disaster is enormous, and management has almost no control.

Examination of the models helps to define crisis, depict the various degrees of a crisis, provide contexts for crises, and formalize the process that a crisis moves through by categorizing the process into stages. While most models contribute to the understanding of one specific aspect of crisis, Meyers' (1986) provides the most comprehensive examination. His model lends insight into the entire concept of crisis and provides a road map even for a novice.

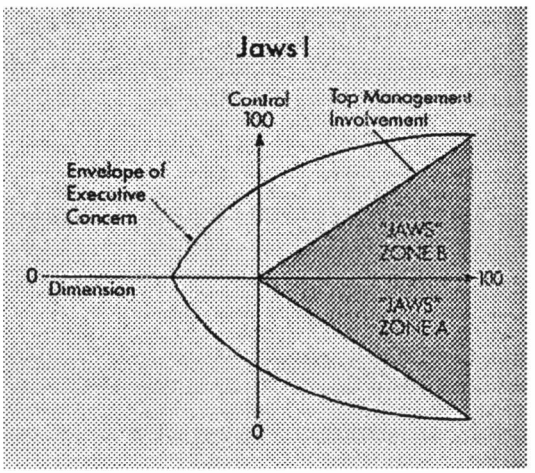

Figure 3. Meyers Jaws I Grid (Meyers, 1986, p. 214). Reprinted with permission.

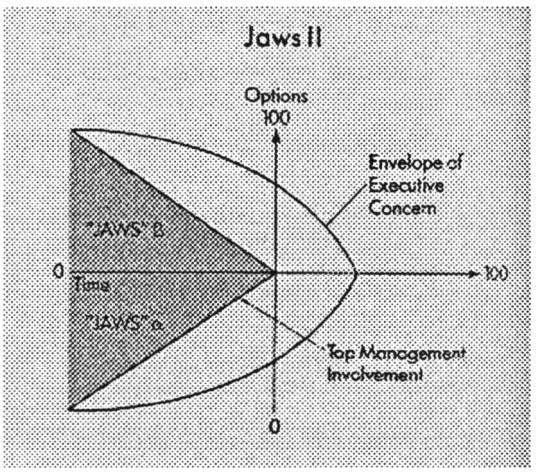

Figure 4. Meyers Jaws II Grid (Meyers, 1986, p. 214). Reprinted with permission.

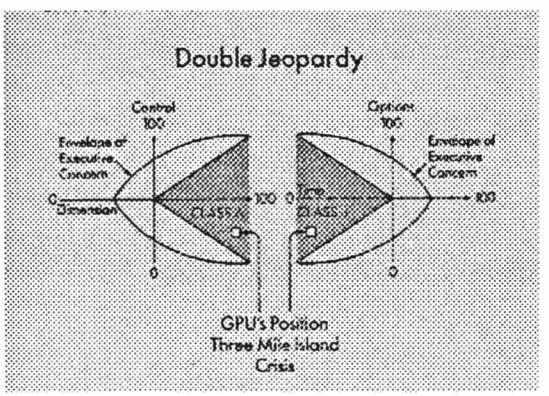

Figure 5. Meyers Double Jeopardy Grid (Meyers, 1986, p. 215). Reprinted with permission.

Life Cycle of Public Issues

It is interesting, and potentially relevant, to consider the life cycle of public issues in the context of crises. Public issues, like some crises, deal with consumers or publics and the influence they potentially have on an organization's behavior or

the products produced. When consumers as a whole become unhappy with a company, it is forced to change its existing behavior or potentially become extinct. Often, out of those changes come new industry standards or even social change; the Exxon Valdez oil spill and the Audi unintended acceleration crises are illustrative of this point.

The stages of a public issue's life cycle are outlined by Post (1978). In stage one, public issues begin their *gestation* when the expectations of a segment of the public about the performance of a particular firm or industry are not met. A gap forms between the actual performance of a corporation and public expectations about what that performance should be. In stage two, *new expectations* become successfully politicized. Stage three is the *legislative phase*, the response to expectations and the change agent. The final phase of an issues life cycle is stage four, the *litigation phase* where industry standards and practices are legally changed.

Phases one and two fit well within the context of the previously outlined crises models, especially that of Meyers (1986) which provides the category of public perception crisis. Phases three and four are congruent with the post-crisis and image restoration strategies.

Image Restoration and Apologia

"Image" is defined as the perception of a corporation held by the publics, shaped by the actions of that corporation, as well as by those of others (Benoit &

Brinson, 1994). A good perception or "image" helps an organization maintain its vitality or grow, while a negative perspective can be detrimental to the viability of an organization.

An apologia is a way for an organization to defend against charges of wrongdoing (Hearit, 1994). An apologia is not an apology, though an apology may be contained within the context; rather an apologia is the justification used by an organization to explain its behavior. Apologia provide rebuttals or "counter-interpretations" of the "facts" that surround charges of corporate wrongdoing (Hearit, p. 3).

The tradition of apologia is grounded in the identification and evaluation of strategies open to communicators during crisis, to repair an image, and to respond to criticism or to accusations of wrongdoing (Seeger, Sellnow, & Ulmer, 1998). Apologia tends to be employed as one of the first forms of acknowledgment that a crisis or wrongdoing has occurred.

Disassociation separates a relationship from a larger context (Ware & Linkugel, 1973). It attempts to safeguard the organization at the sacrifice of a single person or small group. For example, a disassociation of an employee seeks to define as distinct from its employer, Company X. An illustrative example of disassociation can be seen in the Enron scandal of 2001, when the company's accounting firm, Arthur Anderson, was accused of shredding documents that would prove which Enron executives were involved in concealing the company's financial troubles. Initially, Arthur Anderson attempted to disassociate itself from the Arthur Anderson

team that worked on-site at Enron, claiming that Arthur Anderson was unaware of that team's actions. Disassociation, which is similar to scapegoating, can be used in isolation or conjunction with apologia.

Hearit (1994) offers three primary disassociation strategies used by corporations to restore their images: the *denial stance* which uses an opinion/knowledge dissociation strategy—the classic Nixon response to the Watergate scandal "I knew nothing"; the *differentiation stance* which uses an individual/group dissociation strategy—otherwise known as the scapegoat syndrome; and the *explanation stance* which uses an act/essence disassociation strategy—"it was an accident."

Opinion/knowledge disassociation is an organization's effort to deny guilt by claiming that current discussions of the organization are mere "opinions" that do not represent "actual knowledge" of the events that created the crisis. Such companies dispute the charges and accuse them of being groundless and not representative of the facts (Hearit, 1994, p. 119). The classic scapegoat syndrome, otherwise known as the individual/group disassociation strategy, is when corporations state that the people or group involved in wrongdoing did so without the consent or knowledge of the corporation. Act/essence disassociation is another disassociation strategy used by corporations. In this approach, a corporation admits that the wrongdoing has occurred, but contends that the act is not characteristic of the organizations "real essence."

Crisis Strategies

Researchers have examined how organizations respond to crises and what strategies are implemented and when, seeking a repeatable, successful pattern. Once an organization undergoes a threat to its reputation, pre-crisis, during, or post-crisis, it often utilizes image restoration strategies as an attempt to maintain or restore its image. There are various restoration strategies. Benoit and Brinson (1994), building upon the work of Burke (1970) and Ware and Linkugel (1973), offer an "integrated typology of five broad discursive image restoration strategies: denial, avoiding responsibility, minimization, mortification, and correction" (p. 77).

In 1986, car manufacturer Audi's unintended acceleration issue gained national exposure due to a news segment appearing on the CBS television program *60 Minutes.* The way in which Audi handled the crisis provides a real-life example that can be applied to Benoit and Brinson's (1994) restoration strategy typology.

The first strategy is *denial*, where the accused refutes the accusations or shifts blame. Initially, Audi stated that most documented acceleration problems occurred with people 5' 6" and under, and who were mostly women. The company blamed gender, not itself. The second strategy, *avoiding responsibility*, occurs when the accused does not deny the offense, but claims he or she is not responsible due to someone else's action, a lack of information, an accident, or committed with good intentions. Next, Audi went so far as to recall floor mats to make them more secure and prevent them from jamming under the pedal. Again, Audi did not want to

believe something was wrong with the engine; after all, Audi engines were the differentiating factor against its competition.

The third strategy is an attempt to *reduce the offensive nature* of the act, in effect reducing the damage to the organization's image. Benoit and Brinson (1994) offer five variants to this strategy. First, *bolstering,* which attempts to strengthen the public's affect toward the accused, reducing negative feelings. Second, an organization can attempt to *minimize* the unpleasantness of the offensive act. Third, an organization may *attack* the accuser in an attempt to lessen the impact of the accusation. Fourth, *differentiation* of the act from those of similar, but more reprehensible nature may reduce the negative feelings. Finally, providing *compensation* is a means to reduce the act's offensiveness. Initially, Audi appears to have initially attacked the accusers and *shifted the blame* in an *attempt to reduce the offensive nature of the act*, but later realized that it needed to combat the issue in broader terms.

The fourth image restoration strategy may occur through *mortification*. This strategy requires that an organization admit a wrongful act and ask forgiveness (Burke, 1970). Image restoration may occur through the use of a fifth method, *corrective action*, in which the accused vows to fix the problem. Audi's multiple attempts to fix the acceleration problem actually led to the implementation of several industry standards including shift–lock technology which requires drivers to place their foot on the brake before they can shift into reverse or drive.

In conjunction with an organization developing a restoration strategy, there is also a need for the veracity of evidence: Is there proof of whether or not a crisis event occurred? Often, an organization will need to research the accusation to determine its veracity — this is particularly true with product flaws. With other types of crises, organizations tend to hide behind the auspices of research to stall in responding to accusations or to bide time. Coombs (1995) suggests that the crisis-response strategy must fit the damage done by the crisis. Severe damage requires some form of atonement by the organization.

An organization's performance history also can be a significant factor in a crisis. If an organization has a long, reputable, trustworthy history, it may weather a crisis fairly well. Coombs (1995) suggests that organizations with negative performance histories utilize mortification strategies for the crisis. The mortification strategies are remediation, repentance, and rectification. Remediation offers some form of compensation or help to those who have been harmed. With repentance, forgiveness is asked. Rectification involves taking steps to prevent the incident from occurring in the future. All of these strategies make the organization atone for its actions and show it is worthy of public acceptance.

Issues Management

Since the late 1960s and the new socio-political dynamics, private companies recognized their responsibility to the economic, social, environmental, and political

arenas. With the public as a watchdog, organizations realized the impact of their image, good or bad.

Issues management is an organization's strategic use of issues analysis and strategic responses to help build mutually beneficial relationships within the communities where the organization operates (Heath, 1997). Although organizations may work to maintain a positive image, some must deal with the negative impact of a crisis.

Several issues that transitioned into crises have taken center stage in the public spotlight. An organization's ability to survive the spotlight depends on its ability to maintain or regain public approval when facing an issue that evolves into a crisis. A positive example of surviving the spotlight is the Johnson & Johnson Company and the Tylenol tampering crisis. Because of the seamless way Johnson & Johnson handled the Tylenol crisis, where capsules were contaminated and human victims were involved, it was able to re-establish the Tylenol brand and may have actually even *enhanced* the organization's public image (Heath, 1990). The Exxon Valdez crisis in 1989 also offers an example of how an organization's crisis could have *damaged* the company's image (Heath, 1990). The image did suffer significantly due to the major oil spill into Prince William Sound; however, because Exxon accepted responsibility, the discussions surrounding the crisis shifted to policies for the oil industry as a whole on hauling oil versus just focusing on Exxon.

Crisis Management

As previously examined while reviewing Meyers (1986) model, crises can be managed. The degree to which they are managed essentially determines an organization's ability to exist. "Crisis management concentrates on those brief moments of instability that must be dealt with first in order to get on with the larger and less time-sensitive job of reaching strategic objectives" (Meyers, 1986, p. 205). One of the primary objectives of crisis management is to maintain the public's perception of the organization—the organization's image. The structural aspects of crisis management are well-defined with guidelines on how to plan for a crisis and whom to communicate with during the process (Burson, 1985; Lukaszewski, 1987; Reinhardt, 1987; Udwadia & Mitroff, 1991). Time spent anticipating and planning for potential disasters and crises can enable organizations to maintain their reputations, credibility, and possibly even their market share during a crisis.

Observations

The review of the crisis literature has outlined the characteristics of a crisis and provides several well-developed models to explain how organizational crises go through distinct phases. The literature also reveals a plethora of defense, image restoration, and rhetorical strategies that tell us a great deal about how organizations can respond once a crisis has occurred. This thesis even offers the idea that the Public Issue Life Cycle Model can be effectively applied to crises that use a legislative outcome as a restoration strategy. Overall, this second chapter has

provided a context for the Intel crisis analysis. However, what has been overlooked in the crisis management literature is the idea that crises are, at root, stories, and consequently, scholars have not examined crises from the perspective of narrative. Also, the literature talks about the media as a vehicle for communicating about crises, but the Internet as a communication medium and as a vehicle by which crises are developed and resolved has not heretofore been explored. Therefore, this thesis will explore the Intel crisis as a story, otherwise known as a narrative, and will examine the role of the Internet as a communication channel during crisis.

Thesis Overview

Consequently, this study will examine the rhetorical strategies Intel employed during the various phases of its product safety crisis. It will apply the narrative model of criticism as outlined by Foss (1989) as a method to analyze the way in which the crisis was presented to the public via the media. The following research questions will guide this study:

1. Using narrative criticism, how was the crisis presented to the public via the media?

2. Using narrative criticism, what impact did the Internet play in transforming consumer dissatisfaction into a serious public issue?

3. Using narrative criticism, what restoration strategies were successful in helping Intel maintain its credibility in the industry?

4. How should organizations address criticism that emanates from the Internet?

Organization and Conclusion

As means of justifying and providing a context for this study, Chapter II has reviewed the research on crisis communication from a process perspective. In doing so, the characteristics of a crisis and several crisis models were examined to explain how organizational crises go through distinct phases. Also examined were various defense, image restoration, and rhetorical strategies that organizations use during and post-crisis. Chapter III will next provide an overview of the narrative literature and the elements of the model. Chapter IV will then apply the crisis and narrative models to the Intel crisis for examination and analysis, ultimately explicating the research questions more fully. Chapter V will provide an interpretation of the analysis as well as conclusions drawn from this study.

CHAPTER III

METHODOLOGY

Rhetoric

In order to understand the purpose of rhetorical criticism, rhetoric must be defined beyond a term that simply refers to meaningless statements or language designed to hide the truth. Discourse is the purposeful and public attempt to influence change. According to Cathcart (1981), rhetoric is a "communicator's intentional use of language and other symbols to influence selected receivers to act, believe, or feel the way the communicator desires in problematic situations" (p. 2). It is the purposeful and public attempt to influence change or persuade. The most important point in this definition is that the communicator is intentional about the language and symbols selected.

Hart (1990) provides an extensive view of rhetoric by defining it, demonstrating where it can be found, and the shape it takes. Additionally, Hart describes what rhetoric does and how it functions in society. This perspective is helpful to the rhetorical novice. He suggests that rhetoric *unburdens* the communicator, allowing that person to speak his or her mind. Rhetoric *distracts*; for example, media help to shape our views on specific issues not only by what is reported, but what is not reported in regard to issues, distracting us from thinking or knowing about the unreported portion of the issue. Rhetoric *enlarges* by either

encouraging associations (i.e., the media often equates crime with large cities) or disassociating ideas (i.e., cigarette manufacturers warn that smoking may be harmful to one's health, but that cigarettes are not addictive). Rhetoric *names*, helping listeners to become comfortable with new ideas and providing them with an acceptable vocabulary (i.e., initially the war with Afghanistan was called the war of "Enduring Freedom"; then it was renamed the "War on Terrorism"). Rhetoric *empowers* by creating the ability to communicate ideas, beliefs, and ideologies, effectively and persuasively. Finally, rhetoric *elongates*; it can stretch time, which is important to those who seek patience or an idea of the future (i.e., a better time, a world at peace, etc.).

Rhetorical Criticism

Rhetorical criticism is an investigation and assessment of discourse as a means to understand the rhetorical process (Foss, 1989). There are many communication lessons to be learned from the process of rhetorical criticism. Ultimately, the study of rhetoric improves future communication.

Scholars such as Foss (1989), Cathcart (1981), and Hart (1990) contend that rhetorical criticism ultimately improves the effectiveness of communication by generating ideas and theories about how communication can be enhanced. Rhetorical criticism also provides a better understanding of the rhetorical process and how it operates. Most importantly, it searches for the purpose of the specific rhetoric and attempts to determine if it was successful in meeting that purpose. For

example, when President George W. Bush addressed the nation immediately following the attacks on America on September 11, 2001, his purpose was not only to inform the nation of the events that had transpired, but also to provide comfort to the nation and assurance that someone would be held accountable for the tragedy. A work of rhetorical criticism would analyze whether or not President Bush was able to meet his purpose using a process of critique.

In order for a critic to determine the effectiveness of rhetoric, he or she must have established criteria to compare against. Critics have established multiple critical standards to evaluate the rhetoric they have studied (Cathcart, 1981; Hart, 1990). Cathcart (1981) offers a list of useful standards: results, truth, ethical, and artistic. All are interrelated to the search for how to determine what is "worthy or effective in human discourse" where nothing is absolute and there are no definitive measures (p. 26).

The *results* standard, otherwise known as the false standard, assumes that the purpose of the rhetorical message is to persuade the listener into doing or believing what the communicator wants. Therefore, if the listeners provide the intended result, then one can conclude that the message was effective.

This standard is simplistic, and when applied it presents two problems for the critic. First, it is difficult to determine the exact results of the speech. For example, an audience applauding could be interpreted as acceptance of the speaker's ideas. Conversely, a lack of response could be interpreted as an unmotivated audience that rejected the speaker's ideas, but in reality, the audience could just be tired or

apathetic. It also is difficult to distinguish between the short-term and long-term results of the speech.

The second problem a critic faces is determining whether the observed results were solely a product of the speech or influenced by other circumstances. For example, when a speaker asks those in the audience to donate money, but no one donates money, the speech could be interpreted as ineffective. Yet, the lack of donations could simply be attributed to the fact that no one brought money with them to the event.

The *truth* standard helps determine the effectiveness of rhetoric by how much it establishes or furthers "truth." The basic premise is that people seek truth. Therefore, a speech that upholds or reveals the truth is a good speech. Any speech that falsifies or misleads is bad or ineffective. The basic problem with this standard is knowing when the truth is being told. Another problem with the truth standard is that it can force a critic to rank a speech as effective because the speaker is searching for the truth, even though the speaker's presentation could be poor and the audience could be more confused afterwards than prior to listening to the speaker.

The *ethical* standard questions the speaker's motives. "Is the speaker an honest person and desires to uphold that which is good and noble, will he or she not attempt to persuade people in that direction?" (Cathcart, 1981, p. 29). This standard makes a speaker's personality, character, and motivation the standard of judgment. Like the truth and ethical standards, this too looks outside the message to find some

measurement of effectiveness. The results standard examines the audience response, the truth standard looks at the rightness of the speaker, and the ethical standard questions the speaker's intentions.

The *artistic* standard judges the speech on how well the speaker applied the principles of effective speech-making. This standard sets as its goal the ideal performance of art. Cathcart (1981) suggests that the artistic standard is the "most useful standard for judging speech making" (p.29). This standard assumes that there are principles of rhetoric to guide communication efforts. It also assumes that the standards can be used either effectively or ineffectively, depending on a communicator's understanding of them. The principles acknowledge that truth is more persuasive than falsehood; a credible speaker is more likely to be believed; and that those who promote worthy goals will have more results that last longer.

Cathcart (1981) is careful to demonstrate how any one of these standards used alone would not provide a complete or accurate criticism and each offers pitfalls. But used together, these standards create a balance for judging truth, ethical conduct, and justice, a standard triad for criticism.

Hart (1990) also provides a non-exhaustive, albeit brief list of standards that not only demonstrate ways to evaluate rhetoric, but also the tremendous variety of approaches available to critics. He warns critics that any of the standards can be applied foolishly or intelligently and suggests that said critics be judicious in their application of these standards. Standards offered by Hart (1990) are as follows:

1. *The utilitarian standard:* Did the message do what was intended? Did people respond as the speaker hoped? Compared to others who spoke on the topic, did the speaker do as well as could be expected?

2. *The artistic standard.* Was the use of language exceptional? Did the message meet the highest standards of beauty and well-formedness? Did it so stimulate the imagination that it brought new ideas to life?

3. *The moral standard:* This standard appears to be a combination of the ethical and truth standards offered by Cathcart (1981). Did the message advance "the good" and encourage public virtue? Did it meet acceptable standards of right and wrong?

4. *The scientific standard:* Did the message accurately represent reality? Did the speaker's arguments have a factual base and did conclusions follow directly from the evidence presented? Could the claims in the message be independently verified?

5. *The historical standard:* Was there anything in the message for "the ages?" Is it likely that the ideas presented and the values endorsed will outlast the speaker? Did the speech set processes in motion that resulted in major changes?

6. *The psychological standard:* Did the message purge the emotions of the speaker or the audience? Did the speech present the opportunity to calm important fears and anxieties? Were people so motivated by the speech that social energy and personal commitments were renewed?

7. *The political standard:* Did the message advance the goals of the social groups the critic endorses? Will the "right" sort of people be advantaged by the speech? Will any harm be done to the most deserving people in society because this speech was given? (p. 52)

Hart (1990) warns the critic not to simply judge something based on like or dislike, but to explain the rationale for the like or dislike. A critic cannot flippantly apply standards; "One must operate thoughtfully when choosing critical standards as well as when deploying them" (p. 53).

Although the standards assume different category names, there is overlap between the Cathcart (1981) and Hart (1990) list of standards. For example, both evaluate the effectiveness of the communication based on the outcome. Was the desired result achieved? Cathcart labels the standard that searches for communication effectiveness the *result standard* while Hart calls it the *utilitarian*

standard. The foundation of Cathcart's *result* standard is persuasion. The standard assumes that the communication must persuade the listener. Hart's *utilitarian standard* is similar to Carthcart's *result standard,* in that it attempts to determine if the message achieved the desired outcome; however, Hart goes beyond the idea that the communication must be persuasive and looks at other factors that may affect the acceptance of the message; factors such as speaker receptivity — how well people responded to the speaker and how well the speaker presented the ideas. Overall, then, Cathcart's standards provide a foundation upon which Hart expands.

These standards, regardless of method, are applicable to narrative criticism. Because most public communication could potentially be categorized as narrative; however, a better understanding of what narrative is and an examination of narrative characteristics is warranted.

Narrative

A narrative is representative of at least two events or situations in a time sequence (Foss, 1989). Narratives order and present a view by describing a situation that involves characters, actions, and settings that change over time. They are told in a logical order in a continuum that is unproblematic, and the value of narrative is its ability to help make sense of reality (Mitchell, 1980).

Goodman (1980) offers three general questions that help to define the nature of narrative. The questions are based on the presumption that narrative is valuable, whether it imposes order on reality, or actually creates disorder (Mitchell, 1980).

First, what are basic requirements for narrativity? Second, how much distortion can a narrative endure before it is transformed into something different? And finally, what is the relationship between the different versions of the story? Like the childhood game of telephone, a message becomes distorted and changed after being relayed multiple times. Narratologists seek to determine the point in time in which a narrative is most closely associated with the actual occurrence, but realize that no event is witnessed or retold without personal interpretation or bias.

In "Telling America's Story: Narrative Form and the Reagan Presidency," Lewis (1989) demonstrates how well storytelling can capture attention and elude the truth. Lewis' criticism of Reagan's presidency analyzes how Ronald Reagan became known as the great communicator even though he had significant opposition to his policies. The criticism identifies Reagan as being "unrealistic, simplistic, and misinformed" (p. 280). Lewis' criticism using the narrative perspective illustrates how Reagan's reputation, style, and the effect of his discourse are contradictory to his actual presidency. The criticism provides a well-defined example of how to examine a complex narrative that occurs over a significant period of time. The criticism examines the multiple forms of narrative used in Reagan's discourse to explain his presidency and people's response to it as well as the consequences of the narrative form itself. When positioning Reagan as the storyteller and his message as the story, Lewis concludes it is easy to understand his success. Overall, when Reagan was seen in storyteller mode he gave "a clear, powerful, reassuring, and self-

justifying meaning to America's public life" (p. 259). In the end, Lewis identifies Reagan as having one narrative structure, the storyteller.

Lewis' (1989) criticism is relevant because it translates the theories of narrative and storytelling, applying them to a real-life example. The criticism is also beneficial because it is an example in which the media played a significant role in communicating the story.

Foss (1989) offers a three-step process for using a narrative paradigm to help interpret reality. First, narratives define the central action of an experience. Second, narratives help us decide what a particular experience is all about. Last, narratives enable us to decipher information to determine the purpose. In order to interpret reality, a critic must analyze the substance and form, and then critique the narrative. The critic must consider both the factuality of the real events as well as the possible moral and symbolic realities (Mitchell, 1980).

In the abstract, narration is the symbolic actions—words and or actions—that have a sequence and are meaningful for those who create, interpret, or even live them (Fisher, 1987). Aristotle was the first to differentiate between technical and rhetorical logic. Technical logic seeks true knowledge and is concerned with the implications of the message. Rhetorical logic deals with probable knowledge and is concerned with gaining an audience's understanding. Aristotle made significant contributions and is considered to be the father of rhetorical logic.

Fisher (1987) proposes the narrative paradigm that is deeply rooted in Aristotelean thought. Fisher defines the paradigm as:

> A representation designed to formalize the structure of a component of experience and to direct understanding and inquiry into the nature and functions of that experience — the experience of human communication. The narrative paradigm proposes the following: 1) humans are essentially rational beings, 2) the paradigmatic discourse of human decision making and communications is argument; 3) the conduct of argument is ruled by the dictates of situations—legal, scientific, legislative, public, etc.; 4) rationality is determined by subject-matter knowledge, argumentative ability, and skill in employing the rules of advocacy in given fields; and, 5) the world is a set of logical puzzles that can be solved through appropriate analysis and application of reason. (p. 59)

Basically, the narrative paradigm proposes that human beings are storytellers who have the natural ability to recognize the coherence and fidelity of stories they tell (Fisher, 1987). Fisher contends that we experience life as a series of ongoing narratives. The various modes of communication can be seen as stories, interpretations of experiences in sequences.

The principles of coherence and fidelity are imperative to the narrative paradigm. Narrative coherence can be defined as the glue of the story. It examines the integrity of the entire story. Fisher (1987) offers an assessment model with three factors for determining story coherence. The first coherence factor is *structural coherence;* can holes be poked in the story? The second factor is *material coherence;* is the information consistent with other related stories? The third factor is *characterological coherence;* thinking of the storyteller as the presenter, is the presenter credible and believable?

Narrative fidelity is defined as the truthfulness of the story. Whereas coherence examines the context of the whole story, fidelity examines individual story components and whether or not the components "represent accurate assertions

about social reality and thereby constitute good reasons for belief or action" (Fisher, 1987, p. 105).

The reason that narratives work, advancing persuasion, is because they disarm listeners by enchanting them, stirring listeners' experiences and emotions, and they subtly present some sort of reasoning or argument of logic (Hart, 1990). "Much of public policy is determined by the stories persuaders tell" (Hart, p. 132). Essentially rhetorical narrative is storytelling with a purpose.

The Conduct of Rhetorical Criticism

There is no single agreed upon method to conducting rhetorical criticism; however, there are several general approaches that produce valid insights (Cathcart, 1981; Crable, 1986; Fisher, 1974, 1987; Foss, 1989; Hart, 1990). A critic examines four variables of any discourse: the speaker or source of the communication; the discourse, speech, message; the environment, the context or situation where the discourse occurred; and finally, the receivers or audience of the discourse.

There are some basic fundamentals or "tools" of critical methodology that can be applied to rhetorical criticism (Cathcart, 1981). A critic's intent must be to do more than just analyze content. The critic must try to decipher the meaning and impact of the communication while taking into account all of its complexities, relate them to each other, and communicate the relationship. Cathcart offers four tools to assist the critic in assessing the complexities of the rhetoric being analyzed. The tools are: (1) observation, (2) analysis, (3) interpretation, and (4) evaluation.

Observation is relatively objective; here the critic describes all the pertinent data. Analysis, interpretation, and evaluation are judgmental and hence, more subjective. The critic must use reason, draw conclusions, and apply values (Cathcart, 1981, p. 22).

Foss (1989) offers a process for formulating an essay of criticism. The 4-step process is as follows: (1) discovery of the rhetorical artifact and research question, (2) formulation of the critical method, (3) critical analysis of the artifact, and (4) writing of the critical essay. This process seems to be fundamental to good research and leaves the door open for critics to foster their own approaches when writing criticisms.

Intel Narrative Analysis

This study uses the narrative analysis as a method of rhetorical criticism that analyzes messages as a way of ordering and presenting a view of the world through a description of a situation involving characters, actions, and settings that change over time, as a way to critique the substance and form of Intel's response to the product safety issue, as well as to evaluate the narrative (Foss, 1989).

Narrative Elements

The first step in this rhetorical criticism is identifying the data to be analyzed. The data that form the basis for this analysis will be the initial posting from Professor Thomas Nicely; and all the news *stories* regarding Intel and the Pentium

chip flaw published between November 1994 and January 1995 collected from *The New York Times* and *The Wall Street Journal.* Additionally, articles about the issue in *ComputerWorld* and *EE Times,* both of which are trade computer publications, were referenced.

The second step in this rhetorical criticism process is to develop a method for analyzing the data. This analysis will make use of an existing critical method by applying the narrative method as a means to exam Intel's discourse.

This criticism will examine the Intel crisis as a narrative. In order to exam the narrative, this criticism will exam many aspects of the crisis as communicated via the various media aforementioned. This criticism assumes that there are two competing narratives: first, Intel's narrative, and second, the consumer's narrative. The criticism also will divide Intel's narrative into two parts: first, Intel's initial crisis narrative, and then, Intel's post-crisis narrative.

The criticism will begin by analyzing the *substance of the narrative* (Foss, 1989). First, it will *define the essence* of the competing narratives and the events that led to the occurrence of the narratives, examining the major events in the narratives. Foss (1989) defines events as "actions, happenings, or changes of state, some of which are more important than others in a narrative" (p. 231). The events of a story are known as the plot (Chatman, 1978).

Continuing the analysis of narrative substance, an examination of the *primary characters* involved in the narratives will be conducted as well as identification of the *primary target audiences*, defining those who communicate in

the narrative and whom they communicate toward. Third, the criticism will search for potential *cause-and-effect relationships* and what effect those relationships have on the narratives. Finally, the criticism will assess the *platforms of the competing narratives* as told by the characters and exam how the narratives change as the crisis evolves through the different crisis phases.

Narrative Coherence, Fidelity, and Themes

After examining the elements of the narratives, the criticism will next examine the *story coherence* of competing narratives using the three factors provided by Fisher (1987): *structural, material*, and *characterological,* as well as examining the *narratives for fidelity* and *repetition of themes*. A cursory review of the narratives reveals that the narratives do lack coherence at times, examining when and how often lack of coherency occurs will be enlightening. Additionally, determining what attempts to correct incoherence and how effective the attempts are should also provide insight into the effectiveness of the narratives.

Narrative Impact

Third, this study will analyze Intel's narrative by applying the contemporary *utilitarian* and *results standards* to determine the narrative's impact. Ultimately, the narrative criticism will answer two questions: how was the crisis presented to the public via the media? And, did the narratives have a long-term impact on Intel?

Crisis Classification

Finally, as a way to help other organizations learn from Intel's crisis, this criticism will attempt to plot the Intel crisis modeling Meyer's (1986) crisis classification and identification of gravity system previously reviewed. The criticism will plot significant points of the Intel crisis such as the first hint of crisis, Intel's response to the first national media coverage, and Intel's decision to offer replacement chips. Once these points of crisis are plotted, the real-life outcome will be assessed in comparison to that which Meyers' model predicts.

Today, Intel remains a well-respected, industry leader; it is apparent that Intel survived the Pentium chip crisis. Analyzing the Intel's actions throughout this crisis and hypothesizing the effects of those actions on in Intel's industry position today may serve as a positive model for other organizations that face similar circumstances.

Organization and Conclusion

Chapter III has reviewed the narrative perspective literature and the elements of the model. In doing so, it has formulated a narrative methodology for analyzing the Intel crisis. Chapter IV will now apply the crisis and narrative model to the Intel crisis for examination and analysis, ultimately explicating the research questions more fully.

CHAPTER IV

ANALYSIS

On October 30, 1994, Dr. Thomas R. Nicely, Professor of Mathematics at Lynchberg College in Lynchburg, Virginia, posted a message on the Internet regarding a flaw he found in the first-ever piece of internal computer hardware marketed toward the consumer, the Pentium chip, known as "Intel Inside" to most consumers. Nicely posted the following message:

> It appears that there is a bug in the floating point unit (numeric coprocessor) of many, and perhaps all, Pentium processors. In short, the Pentium FPU is returning erroneous values for certain division operations. For example, 1/824633702441.0 is calculated incorrectly (all digits beyond the eighth significant digit are in error). This can be verified in compiled code, an ordinary spreadsheet such as Quattro Pro or Excel, or even Windows calculator (use the scientific mode), by computing (824633702441.0)* (1/824633703441.0), which should equal 1 exactly (within some extremely small rounding error; in general, coprocessor results should contain 19 significant decimal digits).
>
> I encountered erroneous results which were related to this bug as long ago as June, 1994, but it was not until 19 October 1994 that I felt I had eliminated all other likely sources of error (software logic, compiler, chipset, etc.). I contacted Intel Tech Support regarding this bug on Monday 24 October (call reference number 51270). The contact person later reported that the bug was observed on a 66-MHz system at Intel, but no further information or explanation, other than the fact that no such bug had been previously reported or observed. (T. Nicely, personal communication, October, 30, 1994, ¶ 1–4, 9)

Nicely's post describes the Pentium chip flaw in detail and encourages others to run their own tests using his source code and to report their findings to him. This post is significant for two reasons: first, it is the "triggering event" of the Intel crisis;

and, second, in a small way, it forms the beginning of the consumer narrative which I will explicate here.

Within a month after Professor Nicely posted his discovery of the Pentium chip flaw on the Internet, traditional media outlets discovered the Internet dialog that was occurring and also began to report about Intel's Pentium chip flaw. By the end of November, the story had reached *The New York Times*; technology writer John Markoff (1994a) reported: "An elusive circuitry error is causing a chip used in millions of computers to generate inaccurate results in certain rare cases, heightening anxiety among many scientists and engineers who rely on their machines for precise calculations" (p. D1). The technical computer press also was hot on the story: "By last week, the Internet, which has become a de facto barometer on the issue, was abuzz with talk of users returning flawed systems," wrote Jaikumar Vijayan (1994, p. 1).

The Pentium chip flaw was rapidly transitioning from an internal product flaw to a company crisis. According to Markoff (1994b): "For Intel, which has spent millions of dollars on an advertising campaign using the slogan 'Intel Inside,' the news of the defect might create something of a public relations problem" (p. D1). This turned out to be an understatement.

The following analysis seeks to explore the narrative told within the context of the Intel Pentium chip crisis. To this end, this chapter will first examine narrative substance; second, it will apply the elements of narrative criticism to the significant events of the crisis as a means of sifting out the competing narratives for analysis;

and, finally, it will attempt to plot the Intel crisis as a means of highlighting significant crisis points in which decisions were made that ultimately affected its resolution.

Narrative Substance, Narrative Characters, and Target Audiences

As a means of conducting an analysis of the narrative substance, it is important to define the primary characters involved in the narratives, to identify the primary target audiences, as well as to define who communicates in the narrative and with whom they communicate.

The primary character of this crisis story is Andy Grove, CEO of Intel. Grove communicates to two audiences; the first includes original equipment manufacturers (OEM) that use the Pentium chip to manufacture their products (e.g., companies such as IBM, Dell, and Compaq). A second communication target for Grove is best described as end-users (or chip users). I divided chip users into two sub-groups. The first group is the general computer user, here termed the *General Consumer*. The second group is scientists and engineers, here termed *Techy Consumer*. At times, the sub-groups are referenced jointly as *Computer Users.* A final target audience, but certainly not least important, is Grove's communications with the media. At times, all of these Intel communication targets also create the competing narrative(s), becoming characters of the narrative as well. Additionally, media also act as a communication conduit for the narratives.

A closer look at the target consumer groups' responses to the Pentium chip flaw shows how Intel's initial communication attempts and crisis response strategies were unsuccessful in relieving consumer angst. The target consumer groups can be divided into two competing consumer narratives. First, the *Techy Consumers* who expect to find flaws in new technology and understand that there will be interim fixes or "band-aids." However, in this particular instance, the *Techy Consumers* were angry that Intel was limiting who qualified for replacement chips. Vijayan (1994) contended:

> User anger continued to mount as Intel Corp. steadfastly stuck to its heavily criticized policy of replacing buggy Pentium chips on a case-by-case basis. Also raised was the possibility that a few users may file class-action lawsuits if Intel does not redress the situation quickly. (p. 1)

Essentially, the *Techy Consumers* did not believe the policy was fair.

The second target is the *General Consumers,* who are not as familiar with technology as are the *Techy Consumers*. In the Intel case, they were skeptical of Intel's assertion that the flaw would never affect their personal computers and were angry that Intel would not replace their chips upon request. Markoff (1994d) asserted:

> Consumer products, once thought to be throwaway products that could be made to lower technical tolerances than scientific and engineering gear, may in fact have even more demanding specifications. Consumers have little patience with the trouble-shooting, "bug fixes" and "software patches" that computer professionals may be willing to take in digital stride. (p. D1)

Not only are these consumers demanding more from technology, they are becoming more technologically savvy and expect technological products to be flaw-free just like any other product.

The Essence of Narratives

This analysis begins with a discussion of the narrative substance, which examines the essence of the competing narratives and the events that led to the occurrence of the narratives. There are five primary events that led to discernable variation in the competing narratives: first, Intel's disclosure and minimization of the flaw and the competing narrative; second, Intel's failed apology and the competing narrative; third, IBM's counter-attack on Intel and Intel's competing narrative; fourth, Intel's real apology and the competing narrative; and finally, Intel's announcement of a new policy for dealing with errors and any competing narrative.

Primary Event 1: Intel's Disclosure

The disclosure of the Pentium chip flaw occurred first on the Internet, then in the trade media, and finally in traditional print and television media outlets. Intel's initial narrative was developed as a response to the *Techy Consumers* who had been commenting about Professor Nicely's October 1994 post regarding the Pentium chip flaw. Intel responded to the *Techy Consumers* with an Internet post by Intel CEO Andy Grove entitled, "My Perspective on Pentium," on November 27, 1994. The post by Grove began, "I'd like to comment a bit on the conversations that have been taking place here" and in the next paragraph it continues, "I read thru some of the postings and it's clear that many of you [*Techy Consumer*] have done a lot of work around it (the flaw) and that some of you are very angry at us" (A. Grove, personal

communication, November 27, 1994, ¶ 1–2). Out of the gate, Grove attempted to capture the reader's attention through empathy.

Though it might have been done with good intentions, the post actually created more skepticism among users. This is because the post was sent from Intel's Director of Technology, Richard Wirt's home computer. At the beginning of the post it stated: "Andy Grove has asked me to post the following for him. Since it is the weekend and we are out of the office, I am posting from my home system" (A. Grove, personal communication, November 27, 1994, ¶ 1). People may have had a difficult time believing that the CEO of a technology company would not have his own home computer system. Also, readers might question Grove's decision not to go into the office to post a message as important as this. More likely, however, Grove's post may have been considered bogus due to the common and much expected Internet fakery, and therefore, not considered relevant in its content. Additionally, taken at face value, the tone of the e-mail was defensive and minimized the situation. Grove's post is significant, one that has a profound influence on the competing narratives, because it revealed that Intel knew about the flaw prior to releasing the Pentium chip into the marketplace.

In an attempt to maintain its image and save face, Intel disclosed its knowledge about the Pentium chip flaw following Professor Nicely's post, although Intel had known about the flaw since June (Clark, 1994, p. A3). Benoit and Brinson (1994) cite avoiding responsibility as an image restoration strategy, but in this case it

appears that in order to maintain its credibility Intel had to tell the truth and take responsibility.

In his post, Grove explained how the Pentium chip was produced and the discovery of the flaw:

> The Pentium processor was introduced into the market in May '93 after the most extensive testing program we at Intel have ever embarked on. We held the introduction of the chip several months in order to give them (OEM customers) more time to check out the chip and their systems. We worked extensively with many software companies to this end as well.
>
> We were very pleased with the result. We ramped the processor faster than any other in our history and encountered no significant problems in the user community. Not that the chip was perfect; no chip ever is. From time to time, we gathered up what problems we found and put into production a new "stepping"—a new set of masks that incorporated whatever we corrected. . . . After 25 years in the microprocessor business, I have come to the conclusion that no microprocessor is ever perfect; they just come closer to perfection with each stepping.
>
> Then, in the summer of '94, in the process of further testing (which continued thru all this time and continues today), we came upon the floating point error. We were puzzled as to why neither we nor anyone else had encountered this earlier. We started a separate project, including mathematicians and scientists who work for us in areas other than the Pentium processor group to examine the nature of the problem.
>
> This group concluded after months of work that (1) an error is only likely to occur at a frequency of the order of once in nine billion random floating point divides, and that (2) this many divides in all the programs they evaluated (which included many scientific programs) would require elapsed times of use that would be longer than the mean time to failure of the physical computer subsystems. (A. Grove, personal communication, November 27, 1994, ¶ 4–7)

It is within these few paragraphs of the post that Intel's first narrative is introduced. Intel's narrative can be summarized as the following: We created a better product than before. As we've seen from experience, no chip is ever perfect so we weren't surprised to find a few flaws. The floating point error won't happen often; therefore, it's nothing to worry about. We'll just fix it for our next release and not burden

anyone with the details about it. Essentially, Intel believed that the flaw would do no harm and that it could be repaired in newer versions of the chip. Communication between the *Techy Consumer* and Intel was underway.

Up to this point, however, *General Consumers* were unaware of the Pentium chip flaw. News about the flaw first appeared in mainstream print media via *The New York Times*, on November 24, 1994, in an article entitled: "Flaw Undermines Accuracy of Pentium Chips"; this notified *General Consumers.* It is within the context of the first print media report that the combined *Computer Users'* narrative is represented. Markoff (1994a) wrote: "Some computer users said they believed that Intel had not acted quickly enough after discovering the error" (p. D1). Others quoted in the article gave voice to this point: "Intel has known about this since the summer; why didn't they tell anyone?" said Andrew Schulman, the author of a series of technical books on PCs. "It's a hot issue, and I don't think they handled this very well" (p. D1). The public responded negatively to Intel's disclosure by heavily trading Intel stock.

Cleve Moler, chairman and chief scientist of the Mathworks, a software company in Natick, Massachusetts, that develops mathematical software intoned: "The issue is being sure that the arithmetic is right. There are enough other things that can go wrong that I don't want to think about arithmetic" (Lewis, 1994, p. D1). David Bell, a researcher also voiced his concern: "The Pentium appeared as a cost-effective means to do the kind of analytical computing that scientists and engineers do. But when we hear and see that there are problems, that puts a question mark on

the results" (p. D1). The underlying sentiments of the *Computer User* narrative appear to be *skepticism* about the actual frequency that the flaw may occur versus what Intel stated, and *concern* for their ability to rely on their computers to calculate accurately.

As explored previously, organizations respond to crises with a variety of strategies. Benoit and Brinson (1994) suggest *minimization* as a strategy used to reduce the offensive nature of an organization's act and to reduce the damage to an organization's image. Intel utilized the *minimization* strategy when the company publicly disclosed the Pentium chip flaw.

The first use of minimization was targeted toward the *Computer Techy* via Grove's Internet post. The statement is as follows:

> This group concluded after months of work that (1) an error is only likely to occur at a frequency of the order of once in nine billion random floating point divides, and that (2) this many divides in all the programs they evaluated (which included many scientific programs) would require elapsed times of use that would be longer than the mean time to failure of the physical computer subsystems. In other words, the error rate a user might see due to the floating point problem would be swamped by other known computer failure mechanisms. This explained why nobody—not us, nor our OEM customers, not the software vendors we worked with and not the many individual users—had run into it. (A. Grove, personal communication, November 27, 1994, ¶ 7)

Intel continued to minimize the likelihood chip users would ever encounter inaccurate calculations as a result of the chip's error, and therefore concluded for average *Computer Users* that the error was of no need for concern. This minimization strategy and message was carried to the *General Consumer* as well via the print media. Markoff argued:

> Intel said yesterday that it did not believe that the chip needed to be recalled, asserting that the typical user would have but one chance in more than nine billion of encountering an inaccurate result as a consequence of the error, and thus there was no noticeable consequences to users of business or home computers. (1994a, p. D1)

Again, Intel's message was clear: the average user need not worry.

The consumer's perspective is again represented and the potential negative impact that the Pentium chip flaw could have on Intel was communicated via *The New York Times Financial Desk* ("Computer Stocks Tumble," 1994):

> Although the flaw, which was disclosed last week, affects only complex mathematical calculations, and will not affect most computer users, analysts said that Intel's poor public relations in handling the error could cost some computer makers that use the chip sales (p. D4)

Analysts were gearing up for the possibility that consumers were not going to gamble on buying a product with a flaw. As one end-user stated: "'Intel is to be faulted for their lack of disclosure rather than for the fault itself,' said W. Jerry Saunders 3rd, chairman of the Advanced Micro Devices Corporation, Intel's chief microprocessor rival" (Markoff, 1994b, p. D9). Perhaps consumers would have thought nothing of the flaw had they heard about it from Intel first and immediately.

Intel continued to minimize the flaw:

> Intel said yesterday that it did not believe the chip needed to be recalled, asserting that the typical user would have but one chance in more than nine billion of encountering an inaccurate result as a consequence of the error. (Markoff, 1994a, p. D1)

This quotation lends insight into Intel's narrative which remained: Most people won't be affected by the flaw, so only those who can prove they use the chip in a highly mathematical manner will be awarded a replacement. Meanwhile, *Computer*

Users reacted negatively to not being informed about the flaw for months and the potential that errors could occur versus the likelihood they would not, as Intel continued to claim.

Interestingly, Intel seemed unsure how to handle the public relations crisis. Markoff (1994b) wrote: "Intel said it would worry about how it had handled the matter after it had finished dealing with the immediate consequences" (p. D9). Howard High, an Intel spokesman, had this to say: "A few weeks from now we'll see what we goofed up this time around. Now we're concentrating on mobilizing the company and making sure all the people that need to be responded to get handled quickly" (p. D9). The comment from Intel's spokesperson led consumers to believe Intel had goofed up several times and that the company was only concerned with its existing customers, not potential ones.

Primary Event 2: Intel's Failed Apology

Apologia is a strategy used to respond to criticism or to accusations of wrongdoing (Seeger et al., 1998). Apologia tends to be employed as one of the first forms of acknowledgment that a crisis or wrongdoing has occurred. The aforementioned November 27, 1994 Internet post began with an apology from Andy Grove, Intel CEO: "I am truly sorry for the anxiety created among you by our floating point issue. It's clear that many of you have done a lot of work around it and that some of you are very angry at us" (A. Grove, personal communication, November 27, 1994, ¶ 1–2). It is interesting to note that Grove apologized for the

anxiety, not the actual flaw. This speaks to Intel's narrative that flaws are to be expected in technology.

Toward the end of the post, Grove used a mortification strategy, offering a second apology: ". . . and again please accept my apologies for the situation. We appreciate your interest in the Pentium processor, and we remain dedicated to bring it as close to perfection as possible" (A. Grove, personal communication, November 27, 1994, ¶ 13). The second apology is an actual apology for the situation caused by the flaw and it appears on the surface to be sincere. Then Grove reminded readers that no technology is ever perfect, once again stating the Intel narrative and explaining that the flaw really is not all that unusual.

As an additional attempt to restore some of Intel's image, Grove utilized an additional restoration strategy, corrective action. Within the post Grove offered *Computer Users* a plan of action:

> We would like to find all users of the Pentium processor who are engaged in work involving heavy duty scientific/floating point calculations and solve their problem in the most appropriate fashion, including, if necessary, by replacing their chips with new ones. We don't know how to set precise rules on this so we decided to do it thru individual discussions between each of you and a technically trained Intel person. We set up 800# lines for that purpose. It is going to take us some time to work thru the calls we are getting, but we will work through them. I would like to ask for your patience here. (A. Grove, personal communication, November 27, 1994, ¶ 11)

Intel assumes a very paternalistic role by deciding which computer users will qualify for a new chip and which will not. After all, because Grove's dialog is so vague, one must question what standards a consumer would be judged against, and how each

person's situation could possibly be judged equally without any stated standards to be compared against.

In concluding his post, Grove reminded the reader that Intel would stand behind the chips for the life of their computers and offered yet another apology. This time, the apology is for being long-winded and for the Pentium chip situation. The last point potentially sours any attempt to build a rapport with the *Techy Consumer*. Grove told the reader he "will continue to monitor communications," being a watchdog of sorts, but asks for forgiveness because he will not be able to "respond to each communication individually" (A. Grove, personal communication, November 27, 1994, ¶ 14). By telling the reader he may not respond, Grove protected himself from any unspoken promises, but also made it clear that he was too busy to respond, an obvious conclusion even the average consumer could make without having to be told. Intel's narrative is apparent: the flaw will not affect many users; therefore users must prove they need a replacement chip. Intel's replacement policy became known as "we'll tell you if you need a new chip policy" (Fisher, 1994c, p. 6).

Intel's response to the Pentium chip crisis was slow. Grove's Internet post came more than a week after *Techy Users* began to respond to Professor Nicely's post. Grove's response positioned Intel's narrative for the duration of the crisis. Two primary image restoration strategies were in use by Intel: first, minimization of the frequency the flaw could occur; second, a weak corrective action strategy that trivialized consumer concerns by only offering replacement chips to those who could

prove they were worthy. If Intel had concluded consumer concerns were relevant, the company would have issued replacements to all those who requested one. Additionally, Grove played down the fact that there were flaws by stating, "no chip is ever perfect"; although this may be true, it did nothing to resolve the situation or reduce anger (A. Grove, personal communication, November 27, 1994, ¶ 5).

Primary Event 3: IBM's Counter-Attack

Initially, IBM responded to Intel's news about the Pentium chip flaw by immediately announcing that it would be the first computer maker to replace Pentium chips in its personal computers. Intel's Pentium chip flaw provided IBM with a marketing opportunity because the company's Power PC chip competed with the Pentium chip; therefore, IBM could offer that to customers instead of the Pentium.

Additional announcements were made about IBM working with Intel to find solutions for the Pentium chip flaw. Intel announced alliances with IBM, Compaq and other customers to develop a software "patch," or small program, that could be used as a fix for the Pentium chip floating point error flaw. It appeared as though IBM was trying to have it both ways by being supportive but also attempting to capitalize on Intel's Pentium chip problems.

Then on December 12, 1994, IBM did a true about-face, and publicly announced that it would stop selling all its personal computers that were using the

Intel Pentium chip because of the Pentium chip floating point error. Lewis (1994) wrote:

> Although the problem with Intel's chip, known as the Pentium, has been widely publicized for more than a month, I.B.M. said it decided to halt shipments at the height of the busiest season for personal computer sales after determining that "risk of error may be significantly higher" for common calculations than Intel has indicated. Intel has contended that the flaw, in the part of the chip that performs mathematical division calculations, is so trivial that an average person may encounter a problem once in 27,000 years of normal use. But researchers at I.B.M. said yesterday that they had concluded the flaw could arise as frequently as once every 24 days for an average user. (p. A1)

Intel's credibility and narrative were in question. Intel had continued to minimize the frequency that a flaw may occur, saying it would happen once every 27,000 years. Now one of its biggest customers and a well-known brand had attacked Intel's assertions, claiming the flaw could show up as often as every 24 days. Intel would need to respond.

Again consumer confidence in Intel was shaken; Intel shares fell $4.50, to $58.25, before trading was halted at Intel's request so that it could respond to IBM's announcement (Fisher, 1994a). In response to IBM and the Pentium chip crisis, Intel took a defensive stance toward the accusation that it had considerably underestimated the potential for errors from the Pentium chip.

Intel held a conference call with securities analysts and Grove questioned the "validity of I.B.M.'s testing methodology" (Fisher, 1994a, p. 8). Grove effectively retorted with the idea that if IBM's accusation was correct, the Pentium chip flaw or miscalculation would have appeared thousands of times for users as well as Intel testers, which it had not. Intel hinted that the test conditions had been contrived

(Ziegler & Clark, 1994, p. 1). Once Intel defended itself against the accusations, Intel shares rallied, down only $2.375 (Fisher, 1994a). According to Fisher (1994a): "Andrew S. Grove, Intel's president and chief executive, questioned the validity of I.B.M.'s testing methodology as a substitute for real world use. 'If I.B.M.'s contention was right, the problem would have shown up thousands of times; it hasn't'" (p. D8). Intel's narrative remained the same and became even louder: the flaw is minimal and Intel was standing behind its product.

On December 13, 1994, *The Wall Street Journal's* response to Intel's Pentium chip crisis narrative provided an interesting perspective. The article highlighted how Intel had continued to belittle computer users concerns by continuously defending how minute the flaw was:

> Intel detected the little noticed Pentium bug last summer but failed to issue a recall or notify customers. It grudgingly agreed to make repairs for a limited number of hard-core users after word got out — only to be pressured into broadening the replacement program as press reports of the flaw multiplied. (Ziegler & Clark, 1994, p. 1)

The article retorts Intel's stance by painting Intel's handling of the situation in a poor light. It accused Intel of being pressured, not deciding on its own merits, to provide a better replacement policy.

Interestingly, analysts came to the defense of Intel; one even called IBM's announcement a "public relations ploy" (Fisher, 1994a, p. 8). It appeared as though analysts were continuing to rate Intel as a "buy" stock, calling the Pentium "a temporary glitch" (Fisher, p. 8). One analyst speculated on the probability of Intel undertaking a mass recall: "the likelihood of a mass recall by Intel was extremely

small, noting that there are more than three million Pentium machines in circulation and that replacing every chip would cost about $2.5 billion. They can't do that." (Fisher, p. 8). It appeared as though the industry was not expecting much of Intel either. Perhaps even the analysts believed that consumers were going to just have to accept a flawed product.

Following IBM's announcement, the competing user's narrative was silently affirmed when Intel's stock price began to plummet. Although *The New York Times* did not focus on the *Computer User* narrative, *The Wall Street Journal* gave voice to the *Computer User*'s concerns. Confused is a new descriptor for the *Computer User's* narrative, and is most applicable to the *General Consumer.* Ziegler and Clark (1994) wrote:

> Consumers, especially thousands shopping for a home PC to wrap up under the Christmas tree in the next two weeks, may have a difficult time deciding who to believe. The dispute pits IBM — a much-humbled computer giant but one that still wields considerable credibility and has one of the nation's best research labs — against Intel, a high-tech star that has spent tens of millions of dollars this year burning its name into the TV sets and minds of U.S. consumers. (p. 1)

This confused *Computer User's* narrative is confirmed in several newspapers articles. Headlines read: "The Pentium Proposition: To Buy or Not to Buy?" (Yoder, 1994, p. B7); "Windows or Mac? Pentium or 486? Now or never? Buying a personal computer has never been simple" (Fisher, 1994b, p. D1). So if the *General Consumer* ever felt confused or intimidated about purchasing technology prior to the Pentium chip problem, buying a computer had just become even more confusing.

Then, of course, there were the jokes that confirmed the *Computer Users* narrative and demonstrated a way for the powerless to strike at the powerful.

> Question: How many Pentium designers does it take to screw in a light bulb?
> Answer: 1.99904274017. That's close enough for nontechnical people.
>
> Q: What are the leading new names for the Pentium?
> A: Aprroxium, Almostium, Dyslexium.
>
> Q: What's another name for the "Intel Inside" sticker they put on Pentiums?
> A: Warning label. ("Take My Pentium Chip," 1994, p. 11)

By this point, *Computer User*s did not want to hear about the probability that a flaw might occur; they just wanted Intel to make the problem go away by offering to replace the chips at any cost.

On December 12, 1994, *The Wall Street Journal* reported that consumers had filed multiple lawsuits against Intel. The lawsuits accused Intel of many misdeeds, including "securities fraud, false advertising and violation of several state consumer-protection laws" (Schmidt, 1994, p. B4). These suits, along with the jokes, and falling fourth-quarter profits for Intel, shouted the *Computer User* narrative: we expect something more; we want new chips.

Primary Event 4: Intel's Real Apology

With the significant impact of the IBM announcement, and after weeks of what appeared to be stonewalling, on December 20, 1994, Intel reluctantly capitulated to the consumer narrative, offering to replace all flawed chips; "no

questions asked." Intel explained its decision in an advertisement published December 21, 1994 in *The Wall Street Journal*. The announcement is as follows:

> To owners of Pentium (Processor-based computers and the PC community):
>
> We at Intel wish to sincerely apologize for our handling of the recently publicized Pentium processor flaw.
>
> The Intel Inside® symbol means that your computer has a microprocessor second to none in quality and performance. Thousands of Intel employees work very hard to ensure that this is true. But no microprocessor is ever perfect.
>
> What Intel continues to believe is technically an extremely minor problem has taken on a life of its own. Although Intel firmly stands behind the quality of the current version of the Pentium processor, we recognize that many users have concerns.
>
> We want to resolve these concerns.
>
> Intel will exchange the current version of the Pentium processor for an updated version, in which this floating point divide flaw is corrected, for any owner who requests it, free of any charge anytime during the life of their computer. Just call 1-800-628-8686. (Grove, Barrett, & Moore, 1994, p. A7)

While Intel had changed its stance and accepted the core of the Consumer's narrative, the printed apology was remarkably similar to that originally posted on-line. Again, Intel repeated its original narrative, minimizing the need for concern and still taking a paternalistic stance. The apology never once demonstrated an understanding of the users' concerns; it simply acknowledged that users had concerns. Intel continued to position itself and its products as technology superior with the caveat that technology always has flaws. "The Intel Inside® symbol means that your computer has a microprocessor second to none in quality and performance" (Grove et al., 1994, p. A7).

The content of the advertisement demonstrates a heavy emphasis on the aforementioned image restoration strategy of corrective action. As the Intel advertisement stated:

> We want to resolve these concerns. Intel will exchange the current version of the Pentium processor for an updated version, in which this floating point divide flaw is corrected, for any owner who requests it, free of any charge anytime during the life of their computer" (Grove et al., 1994, p. A7)

Although it would take time for Intel to make replacement chips widely available, the announcement had an immediate impact: it brought the crisis to an end.

The competing *Computer User* narrative is ultimately what compelled Intel into offering a "no questions asked" return policy. "Humble Pie: Intel to Replace Its Pentium Chips" was the headline on December 21, 1994 in *The Wall Street Journal* (Carlton & Yoder, 1994, p. B1). Yet, even when it announced its new return policy, Intel continued to minimize the situation, "The past few weeks have been deeply troubling," said Andrew Grove, Intel's chief executive officer, in a prepared statement. "What we viewed as an extremely minor technical problem has taken on a life of its own." To "support" Intel's PC manufactures, "we are today announcing a no-questions asked return policy" (Carlton & Yoder, p. B1). In other words, even in announcing its new return policy, the company continued to maintain that there really was nothing substantively wrong with the Pentium chip and that the consumer's reaction was really "much ado about nothing." In executing the recall, Intel managed to maintain the company's financial stability and withstand the crisis—despite the critics' predictions, as is evidenced by the fact that once the no-

questions-asked return policy was announced Intel's stock went up $3.4375 (Carlton & Yoder, 1994).

Intel customers essentially demanded the corrective action. According to Clark (1994):

> While it originally limited replacement chips to users involved in sophisticated calculations, any customer who insists on a replacement is getting one, said Crag Barrett, Intel's chief operating officer. The tacit change follows liberal return policies announced earlier by some computer makers that buy Pentium chips. (p. A3)

The article continued by speaking on behalf of the consumer:

> Though Intel is now getting better reviews on the Internet discussion groups that were slamming the company, the move hasn't quieted critics. Eric Jansen, an analyst with Alex.Brown, said it took him a lot of persistence and 50 minutes on the phone to get approval for a new chip. "To put somebody through 50 minutes of intimidating, evasive discussion in my mind is an undue qualification process," said Mr. Jansen. (Clark, 1994, p. A3)

Intel had been forced into adopting a corrective action strategy.

Computer Users did not care about Intel's prediction for how frequently the flaw might occur; they wanted a product which was free of flaws because that is what they believed they purchased. The following quotation summarizes *Computer User's* expectations:

> Whether a Pentium-based computer stumbles once every 27,000 years, as Intel says, or as often as once every 24 days, as I.B.M. says, goes to the heart of the company's reputation as a quality manufacturer. And yet the problem has few parallels in marketing. After all, no one will die or become ill from a division error made by a Pentium-based computer. On the other hand, people have a right to expect that a very expensive machine, for which specific claims of quality are made, performs properly. (Ramirez, 1994, p. D18)

The combined *Computer Users'* narrative is simple: we want new chips because the current chips do not live up to the promises Intel had made about them.

Primary Event 5: New Policy for Errors

After Intel announced its "no questions asked" return policy, the crisis ceased and the issue disappeared from mainstream media until late January when Intel disclosed a new procedure for informing its customers and the public about flaws in its chips. In the future, after Intel identifies and documents a flaw, it will disclose the flaw first to its customers, and then to the public via addendums to the design handbooks for each of its chips. Intel will also maintain its toll-free customer service number. In the future, Intel promised to disclose flaws as they are found and analyzed, letting consumers decide for themselves whether they need replacement chips (Markoff, 1995g, p. D4).

Cause-and-Effect Relationships

There are several cause-and-effect relationships that become apparent as the substance of the narratives is examined. The most obvious is the relationship between Intel and its *Computer Users*. But that relationship needs to be broken down into each type of consumer and examined further.

The cause-and-effect relationship between the *General Consumer* and Intel is the most demanding. The *General Consumer* is not accustomed to dealing with technical manufacturers and the converse is true as well. *General Consumers* expect

companies to stand behind their products and right something that is wrong, or even potentially wrong. Markoff (1994d) demonstrated this point when he wrote: "Consumers have little patience with the trouble-shooting, 'bug fixes' and 'software patches' that computer professionals may be willing to take in digital stride" (p. D5). The ultimate cause-and-effect of Intel's unwillingness to recognize the *General Consumers* expectations and Intel's refusal to offer replacement chips is ultimately what perpetuated the Pentium chip crisis into the spotlight for weeks. An editorial by Mossberg (1994) demonstrated the realities of the *General Consumer's* perspective:

> Intel has spent the past few years running a massive consumer advertising campaign designed to make its name and the name of its high-powered Pentium chip household words. But over the past month, when it was forced to disclose a defect in the Pentium chip that causes it to do some math calculations wrong, Intel has done virtually nothing to reach out directly to that same mass audience of garden-variety computer owners in homes and small businesses. It has directly contacted technical and scientific users, big companies, computer retailers. It has issued press releases and held telephone conferences with Wall Street analysts. But it hasn't run any mass-market print or TV ads explaining the situation or publicizing the toll-free phone number it has set up for concerned Pentium users. Worse, Intel has taken the position that, for the kind of computing most of us plain folks do, a defective Pentium is good enough. (p. B1)

The *Computer User* narrative was spoken clearly: Intel does not care about us. Intel has marketed to us and sold us on its product, but now it will not stand behind it. Intel does not appear to be "walking the talk."

The cause-and-effect relationship between Intel and the *Techy Consumer* is typically that of understanding and trust. Although the *Techy Consumer* might have been impacted by the flaw, awareness of the possibility is typically enough for the

Techy. The *Techy* may even attempt to find a fix for the flaw him- or herself. But such was not the case: the Pentium *Techy Consumer* was angry. *ComputerWorld* Magazine reported:

> The Internet, which has become a de facto barometer on the issue, was abuzz with talk of users returning flawed systems. Also raised was the possibility that a few users would file class-action lawsuits if Intel does not redress the situation—and quickly. (Vijayan, 1994, p. 1)

The Internet provided the *Techy Consumer* with a place to vent frustrations, but also a place to discover how others were handling the flaw and how Intel was responding. *Techy Consumers* wanted everyone to be treated equally; one Techy was not more in need of a replacement than another.

There is also a cause-and-effect relationship between all of the *Computer Users*. It is the unified voice of the *Computer Users* that is heard the loudest in the narrative. Perhaps it is the combination of understanding, apathy, anger, conservation, and intolerance which enabled the narrative to build slowly, allowing Intel to stonewall on issuing a "no questions asked" policy a few months after the flaw was announced instead of immediately being called to action. Interestingly, upon Intel's announcement of its new "no questions asked" policy, computer retailers commented that any hostility generated from the Pentium flaw would be quickly forgotten (Markoff, 1994f, p. A1).

Media and the *Computer User* are entwined in a cause-and-effect relationship. At times, media represent the *Computer User*'s voice; at others it is a *Computer User*. Yet it also needs to be "unbiased" and present the story, "objectively" representing Intel's story, too. Media provide a podium for which

Computer Users can be heard. Conversely, the Internet is an independent medium providing 24 hour, 7 days-a-week, opportunities to converse about the issue and not only be heard, but also to potentially provide a means for a response or reaction. Without the Internet as a medium, this crisis may have been avoided because Professor Nicely's post would not have been available for public consumption. The Internet provides a self-controlled method of disseminating a message, but does not allow for a controlled response. Intel discovered this with Grove's post on November 27, 1994.

Media and Intel are another cause-and-effect relationship to be considered. Traditional media have the opportunity to be an advocate of consumer rights. Media have the ability to cast a positive or negative light on the Intel Pentium chip crisis with editorial comment and interviews. Intel is reliant upon traditional media to carry the company's message to the consumer. The traditional media is obligated, through accepted journalistic conventions and professional ethics, to tell the story.

Foundations of Narratives

Intel's narrative remained essentially the same throughout the crisis. It is best summarized by Flynn (1994):

> Despite several thousand phone calls a day, Intel continues to say that concern about the Pentium chip is overblown, that the glitch affects only those users performing certain highly complex mathematical calculations, and that the computer user would encounter it only once in 27,000 years of average use. (p. D1)

The company minimized the frequency that the flaw was likely to occur, causing mathematical errors, and it continued to trivialize consumers' concerns by claiming only people performing sophisticated mathematical functions should worry. Even when the company announced its new return policy, it continued to minimize the situation, "The past few weeks have been deeply troubling," said Andrew Grove, Intel's chief executive officer, in a prepared statement. "What we viewed as an extremely minor technical problem has taken on a life of its own" (Carlton & Yoder, p. B1). To "support" Intel's PC manufacturers, "we are today announcing a no-questions asked return policy" (p. B1). The sincerity behind Grove's words is believable; its obvious he has been troubled, but it appears as though he still cannot comprehend why consumers are demanding flawless chips. The following statement from the advertisement demonstrates this point. The advertisement states:

> The Intel Inside® symbol means that your computer has a microprocessor second to none in quality and performance. What Intel continues to believe is technically an extremely minor problem has taken on a life of its own. Although Intel firmly stands behind the quality of the current version of the Pentium processor, we recognize that many users have concerns. (Grove et al., 1994, p. A7)

The two competing consumer narratives of the *General Consumer* and the *Techy Consumer* were unique, but only when taken together as the *Computer User* narrative did they have the most significant impact. In summary, the *Computer User* narrative evolved from skepticism that Intel was being honest about how frequently the problem would occur and anger that Intel refused to offer customers replacements, to confusion about who to trust, and finally, anger at Intel and the company's lack of regard for the non-technical consumer. Ultimately and

begrudgingly, Intel was forced to accept the *Computer User* narrative and offer a "no questions asked" return policy.

Narrative Coherence, Fidelity, and Themes

When examining the Intel Pentium chip crisis in the narrative paradigm, it is essential to examine the principles of coherence and fidelity. Story coherence is the glue of the story and is composed of three factors: *structural, material, and characterological coherence* (Fisher, 1987). *Structural coherence* examines the story for merit, searching for any holes. Intel's story regarding the Pentium chip flaw does not appear to have any structural problems. What appears to be the problem is that Intel's narrative is incongruent with that of the *Computer User's* narrative. Additionally, both entities desired a different outcome. Intel only wanted to replace chips for *Techy Consumers* who really needed the chip to perform at a high level, while the *General Consumers* wanted new chips even if they only planned to play video games on their computers.

Material coherence searches for information consistency in relation to other stories. When IBM announced it would halt shipments of computers with the Pentium chip because IBM had discovered conflicting test results about the frequency that mathematical errors were likely to occur due to Intel's Pentium chip flaw, material coherence of Intel's story was tested. Although wounded, Intel's story remained materially coherent because IBM's move was credited by some as a "public relations ploy" and Intel had logically argued that if IBM's tests were

accurate, the flaw would have appeared a thousand times over (Fisher, 1994a, p. D8).

Characterological coherence looks at the storyteller as the presenter searching for credibility and believability. There are multiple storytellers to the Intel crisis. The most obvious would be Andy Grove, Intel's CEO. Overall, he appeared knowledgeable and confident, but seemed to instantaneously lose credibility when he revealed that Intel knew about the flaw for months and never publicly disclosed information about it.

Having only come forward after Professor Nicely's post made Intel appear as if it was trying to hide the flaw and waiting until the update to announce the problem. Grove stuck to his story throughout the crisis, maintaining that the flaw was minimal and it would not affect many users. This consistency adds to the coherence of Intel's story.

While story coherence examines the context of the whole story, fidelity examines individual story components and whether or not the components "represent accurate assertions about social reality and thereby constitute good reasons for belief or action" (Fisher, 1987, p. 105). Reality is socially constructed through communication. So scientific facts or truths are no longer "*the* reality" once the public has grasped a different perception. With Intel, once IBM announced its findings that the error occurred more frequently, Intel's singular "scientific truth" now faced a competing "scientific truth." Lewis (1994) wrote:

> I.B.M. said it decided to halt shipments at the height of the busiest season for personal computer sales after determining that "risk of error may be

> significantly higher" for common calculations than Intel has indicated. Intel has contended that the flaw, in the part of the chip that performs mathematical division calculations, is so trivial that an average person may encounter a problem once in 27,000 years of normal use. But researchers at I.B.M. said yesterday that they had concluded the flaw could arise as frequently as once every 24 days for an average user. (p. A1)

With two "scientific truths" open to debate, *Computer Users* were left confused and more concerned about the reliability of their Pentium chips.

With IBM's announcement, public perception had changed and a competing reality had set in. Additionally, Intel's continuous focus on its reality that the flaw would not affect many users weakened the story that the consumer heard. In a sense, *Computer Users* may have stopped listening to the redundant explanation because it was not an acceptable solution for consumers. Intel's story did not seem to "add up" for *Computer Users* any longer. The reality of the situation was that the product was flawed and could potentially cause problems; therefore, the product needed to be replaced—no questions asked.

Recurring Themes

There are two primary themes that reoccur throughout the Intel narrative. The first was that of Intel: the Pentium chip flaw would not affect many users. The second theme is that consumers expect Intel to replace faulty chips.

There are two underlying themes in the Intel narrative as well. The first is that technology is never perfect. As far as new technology products go, problems with the Pentium are the kind of bugs that computer-chip designers expect with each new generation of technology. But this time, the personal computer has become

more significant in both work and life, and Intel's own marketing efforts have put technology in the consumer spotlight of demand (Markoff, 1994d). The second is that when a product is heavily marketed, it has a reputation to uphold. While consumers were demanding "Intel Inside" due to the successful marketing campaign, Intel was unprepared for the realities of being a committed consumer goods provider when the reality of the situation conflicted with its marketing efforts (Markoff, 1994d).

Narrative Impact

In order to assess the impact of the entire narrative and the effectiveness of the rhetoric, the Intel Pentium chip story will be applied against two contemporary standards: the *utilitarian* and the *result* standard. The *utilitarian* standard assesses if the message did what it was intended, if people responded as desired, and how well the speaker did regarding the topic and in comparison to others who spoke on the same topic. When comparing Intel's efforts against the *utilitarian standard,* how the crisis was presented to the public via the media will be taken into consideration.

With the cost of a recall estimated at approximately "$2.5 billion" and Intel's belief that the Pentium chip floating point error would cause problems only once in 27,000 years of average use, Intel's message *intent* was to reduce concern and minimize fear that the Pentium chip flaw could cause any significant damage to the average user (Lewis, 1994, p. A1). However, the *Computer Users* did not answer Intel's narrative about the flaw with a lackadaisical response. Instead, they

interpreted Andy Grove's comments to be arrogant and uncaring, while the company's continuous attempts to minimize the situation only angered *Computer Users* further. Fisher (1994b) wrote:

> For small businesses, though, the problems have already occurred, and some were venting their anger yesterday on the Internet, the global web of computer networks. "I can't believe that Intel says it's not that important to most users," wrote Joey Jarosz, who identified himself as the president of Hot-N-GUI Inc., a Silicon Valley software consulting company. "I use my Pentium machine—or I used to till yesterday—to do my company's bookkeeping. I don't think the I.R.S. would accept 'My Pentium made me do it.'" (p. D1)

Computer Users were angry at Intel for assuming that they would simply accept the flaw and Intel's assertion that the average user would remain unaffected. Again, Intel appeared paternalistic while belittling the worries of the *Computer User.*

Although the speaker, Andy Grove, was clear and consistent in his message, he was unable to dissuade consumers from their original demand of wanting replacement chips. In fact, as Grove continued to hammer his point of view, *Computer Users* grew more steadfast in their demands. Proof of this can be found in the falling stock price, IBM's decision to decline to ship computers with the Pentium chip, and the *General Consumer's* expressed concerns about buying new computers, as well as existing *Computer Users* who expressed anger about the situation via the Internet and/or filed lawsuits. On December 16, 1994, *The Wall Street Journal* reported that multiple lawsuits were being filed against Intel, while the company continued to debate the significance of the flaw. The lawsuits accused Intel of many misdeeds including "securities fraud, false advertising and violation of several state consumer-protection laws" (Schmidt, 1994, p. B4).

Traditional media played a significant role as the consumer's informant. Both *The New York Times* and *The Wall Street Journal* editorialized the story, allowing the consumer's perspective to be heard as well as playing a significant role in helping to shape their opinion. The traditional media also was the cause for alarm, or the "Chicken Little" of the situation, using headlines and lead paragraphs that perpetuated consumer's anger. Even the adjectives media used tended to create a worrisome context (i.e., public relations *nightmare, heightening anxiety, damage the credibility, confusion, knowing who to believe,* etc.).

The Intel Pentium chip crisis is one of the first to be initiated in cyberspace. The Internet as a medium was a catalyst for the crisis. The Internet also became the "water cooler" for conversations by users. This relatively new medium provided a new forum for dissatisfied consumers to vent to each other and learn from one another. "The Internet, which has become a de facto barometer on the issue, was abuzz with talk of users returning flawed systems" (Vijayan, 1994, p. 1). Intel's lack luster attempt to jump into the discussions as a means to provide resolution only added to the dissention. Intel's credibility was further reduced by Grove's use of a different e-mail address as was the message penetration due to the perceived "fakery" of the message.

Overall, Intel failed to meet the *Utilitarian Standard.* The company's initial message was that the average Pentium chip user did not need to be concerned about the flaw because he or she would more than likely never be affected by it; it did not calm angry consumers, reduce the likelihood of a recall or replacement program, or

provide a better understanding. As for the speaker, consumers did not respond positively to Grove's message because he did not adapt his message to meet their needs. Instead, he continued to communicate the same message and appeared as though he was not listening to the consumer's concerns. Therefore, it can be concluded that Grove did not do as well as was expected, and the unnecessary crisis is proof. Clark (1994) wrote:

> Intel's stance doesn't surprise analysts who know Mr. Grove, a 58-year-old Hungarian immigrant and expert in semiconductor processes. An engaging man with an academic bent, Mr. Grove teaches graduate classes in management at Stanford University. He is also known as a combative, stubborn boss, traits that may have inclined him to stick to his own course when dealing with the Pentium flap. (Clark, 1994, p. A3)

Knowing more about the man behind Intel lends insight into the driving force behind Intel's narrative. It seems natural that someone who has a reputation for being stubborn would allow a crisis to unnecessarily escalate and continue just to get the point across that most people will be unaffected by the flaw.

The *result standard,* otherwise known as the false standard, assumes that the purpose of the rhetorical message is to persuade the listener into doing or believing what the communicator wants. Intel's narrative was simple: the average Pentium chip user did not need to be concerned about the flaw because he or she will more than likely never be affected by it. This narrative was communicated repeatedly. The purpose behind it was to reduce *Computer User* concern and to eliminate the need for what Intel considered to be unnecessary product returns. In the end, when applying the *result standard* against Intel's narrative, it is easy to determine it failed to meet this standard as well when comparing it to Intel's desire to avoid having to

replace all Pentium chips. Intel was not able to persuade *Computer Users* into believing that the flaw was nothing to worry about. Nor was Intel able to prevent *Computer Users* from demanding replacements. Intel abruptly reversed course and announced it would offer all customers a free replacement Pentium chip upon request. Therefore, it is safe to conclude that listeners (the *Computer User*) did not provide the intended result of Intel and Intel's narrative was ineffective. However, Intel managed to maintain its financial stability, the stock market responded favorably to Intel's new "no questions asked" return policy. The company's stock was up $3.4375 to $61.25 a share (Carlton, 1994, p. B1).

There are two implications of Intel's narrative and the competing narrative worth noting. For Intel, to assume that everyone, including *General Consumers* who had never been exposed to the process of technology, would accept the idea that technology is always flawed rendered its narrative ineffective. For the *Computer User*, it was important that Intel understand it was not the issue of probability that *Computer Users* were concerned about, it was Intel's lack of understanding for the *Computer User*'s rationality.

As a way to further understand the Intel Pentium chip crisis and examine it in relation to the context of crisis classification, I will now assess the crisis in accordance to Meyer's (1986) classification system. The purpose in doing so is to demonstrate how a non-essential crisis can escalate into a situation which may threaten an organization's ability to conduct "business as usual" and to determine at

which point Intel's crisis moved beyond management's ability to influence the outcome aside from capitulating to the consumer's demands.

Crisis Classification

Meyer (1986) provides nine distinct types of business crisis categories. The two that are most applicable to Intel's crisis are product failure and public perception. It is almost intuitive to understand why product failure applies. Initially, the Pentium chip met or exceeded market demands, but once the flaw was discovered consumers were unwilling to accept the product as it was.

Public perception, on the other hand, is a more illusive crisis category. Essentially, public perception can be defined as how the consumers viewed the Pentium chip flaw versus the competing reality — users would more than likely never be affected by the flaw. As consumer anger and concern increased, public perception became incongruent with Intel's reality that the flaw was so minimal that it would occur once every 27,000 years for the average consumer. *Computer Users* did not care how minimal their chances of being affected by the error were; they wanted the odds to be zero. If Intel had recognized the incongruence in public perception early on, the crisis could have been prevented or the duration reduced.

As previously reviewed, Meyers (1986) provides a theoretically comprehensive means for examining crises by helping to categorize them as well as to identify their potential gravity. Categorizing and plotting the Intel crisis may

provide other organizations with insight into the appropriate time to adapt narrative to meet *Computer User* needs.

Plotting begins by first applying the ***dimension*** and ***control*** factors to the Intel crisis. These factors examine the relationship between the magnitude of the potential crisis (the dimension axis) and Intel management's ability to influence its environment (i.e., prevent, contain, control, etc.—the control axis). The grid rates the dimensions along a scale of 0 to 100. The less "control" and more "dimension" equates with the idea that there is less that management can control and there is more that is at stake. As noted earlier, crisis situations are fluid and can move through stages. Intel has three significant moves on the ***dimension/control factor grid***.

First, when Intel knew about the flaw internally, prior to Professor Nicely's post, and had the opportunity to choose disclosure, the company was in quadrant C. Class C is a high degree of management control and relatively little danger. Second, after Nicely's post, Grove's post stating that it is policy to replace chips on an "as needed" basis, Intel moved into Class B—the crisis stakes were rising, but management was still able to affect the company's fate. Although Intel never fell into the brevity of Class A—where its existence was threatened and management could do little to influence the outcome—because it changed its return policy, it came close to losing credibility. Had Intel not been one of the few microprocessor providers, it may have fallen into Class A. Figure 6 diagrams Intel's crisis progression.

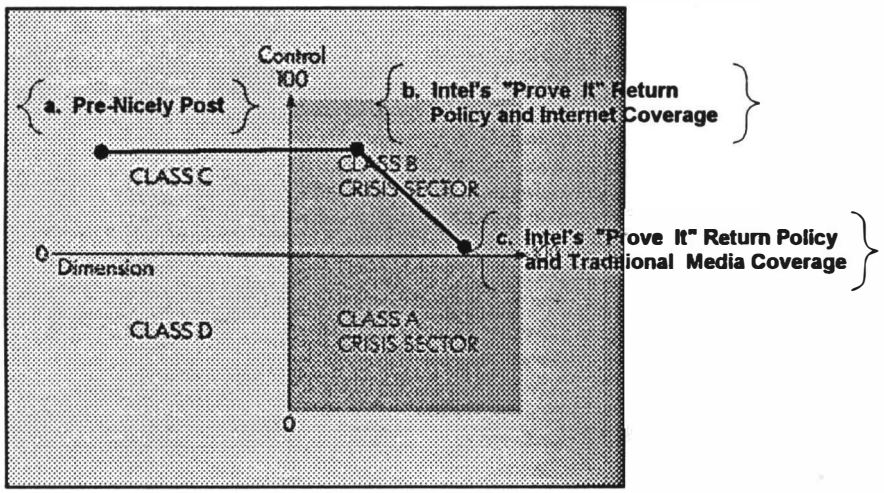

Figure 6. Intel Crisis Plotted on Meyers (1986) Classification Grid.

Finally, according to Meyers (1986), it is important to determine when management should become involved in a crisis. When a crisis approaches either zero or 100 on the control axis, it is pointless for management to become involved because it literally has no influence on the outcome. However, the "envelope of concern," those crises which fall within the zero to 25 range on the dimension axis, is the point at which management should become involved. Meyers categorizes the envelope as just prior to the crisis reaching either Class A or Class B. Because Intel's CEO, Andy Grove, appeared involved in the crisis from the first company Internet post forward, it is safe to assume that the crisis reached an "envelope of executive concern." Figure 7 highlights Intel's position within the "envelope."

Meyer (1986) recommends that the CEO and top management concentrate their efforts on an even smaller portion of the "envelope of concern" that he names

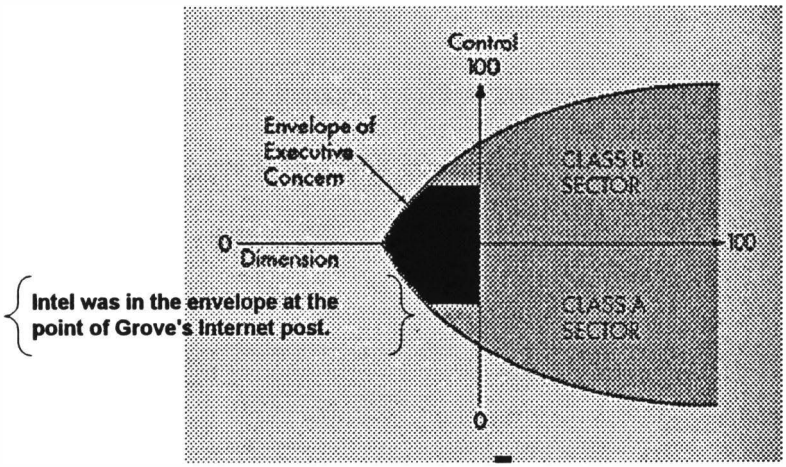

Figure 7. Intel Crisis Plotted on Meyer's (1986) Envelope of Concern Grid.

the "Jaws of Crisis." When a company is within the "Jaws of Crisis," the CEO and management should focus solely on the crisis at hand. When applying Meyer's theory to Intel, Intel was in the "Jaws of Crisis" as is evidenced by Grove as the spokesperson throughout the entire crisis. However, the fact that the first initial post may have not originated from him suggests some room for interpretation at this point. The risks were high; Intel realized that its highest profile product was in question and the impact of the crisis could be significant.

Looking beyond *dimension* and *control* to the other two forces of crisis, *time* and *options*, the Intel crisis can be assessed further. Intel took approximately six weeks to rescind its return policy from a "user you must prove it" stance to a "no questions asked" return policy. Though Intel had time to respond, it did not have many options. Intel did take its time in responding, but perhaps it was that time which propelled the crisis further. If Intel had recognized early on that it had only

one response to the crisis which would be acceptable to consumers, a "no questions asked" policy, it could have reduced its response time and ultimately its time in the spotlight. The shaded area in Figure 8 emphasizes Intel's position in accordance to the time and response options the company was up against.

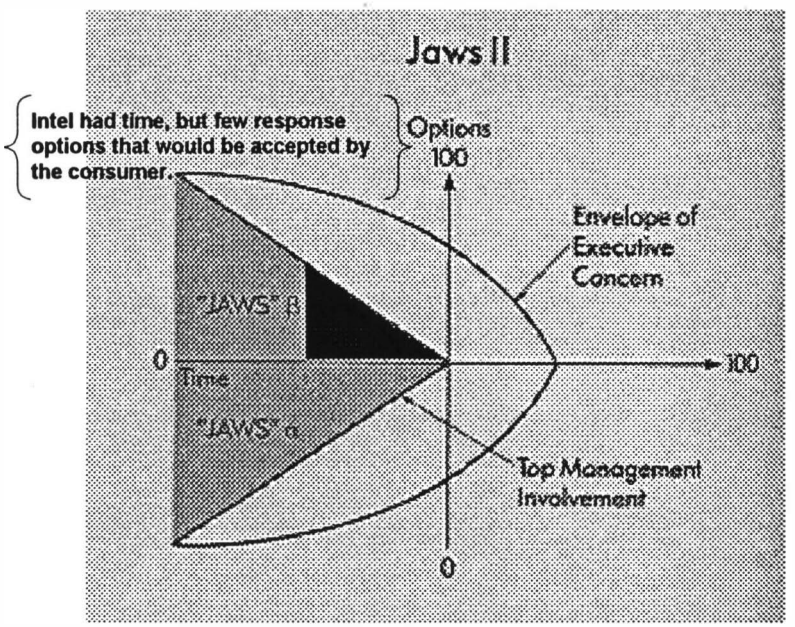

Figure 8. Intel Crisis Plotted on Meyers (1986) Jaws II Grid.

Organization and Conclusion

By examining the Intel crisis through the lens of a narrative critic, multiple narratives were discovered. The media through which the stories traveled also provided avenues for narrative exploration, determining if the intended messages actually transcended the potential clutter of media noise to be interpreted by the receiver as the sender had intended. The Internet provided a new form of media, one

that allowed interactive communication like never before among those who had a stake in the Pentium chip crisis. This crisis appears to be one of the first communicated through this medium. Chapter V next assesses these observations further, lending a critical eye not only to the discoveries of the narrative criticism, as well as drawing a number of conclusions *vis à vis* the nature of technology issues in this socio-cultural milieu.

CHAPTER V

CONCLUSION

A crisis results when key institutional publics are confronted with events that lead them to feel uncertain, concern, and even outrage with regard to some condition that threatens their well-being and violates their expectations of responsible organizational performance (Heath, 1997). With its considerable violation of consumer expectations, the Intel Pentium chip controversy was one such crisis. The product did not meet its marketed promise and consumers were angry at the flippant approach Intel used as an attempt to rectify the situation. For Intel, the Pentium chip flaw evolved into a non-essential crisis. Given Intel's prior knowledge of the flaw, the company missed its opportunity to manage and proactively prepare to handle the issue that could have ultimately avoided a crisis.

In order to understand how corporations respond to crises, this thesis first reviewed research on crisis communication from a process perspective. From that review, an examination of crisis characteristics and several crisis models revealed how organizational crises go through distinct phases, as well as the various defense, image restoration, and rhetorical strategies that organizations use during and post-crisis. After reviewing the crisis literature, this thesis then examined the Intel Pentium chip controversy in an attempt to analyze how the crisis transpired, how it

was managed and responded to, and the outcome of the crisis for those involved. In so doing, this thesis attempted to answer the following four research questions:

1. Using narrative criticism, how was the crisis presented to the public via the media?

2. Using narrative criticism, what impact did the Internet play in transforming consumer dissatisfaction into a serious public issue?

3. Using narrative criticism, what restoration strategies were successful in helping Intel maintain its credibility in the industry?

4. How should organizations address criticism that emanates from the Internet?

In the end, the Pentium chip crisis has had no long-term negative effects on those involved. Intel is still revered as the world's dominate computer chip-maker and consumers are now purchasing the Pentium 4 chips. The significance of the Intel Pentium chip crisis is contained within the lessons that can be learned from the actions and events that occurred. This chapter sets out to examine those lessons while answering the questions that guided this thesis.

Primary Crisis Narratives via the Media

Chapter IV analyzed the Intel crisis from a communication perspective using the narrative criticism method. The chapter answers question one of this thesis, which asks: Using narrative criticism, how was the crisis presented to the public via the media? Intel's initial narrative was to minimize the likelihood that average chip

users would ever encounter calculations errors. Due to this minimal risk, Intel only offered to replace chips for those users who could prove their use involved sophisticated mathematical work. Intel's initial narrative was developed in response to the *Techy Consumers* who had been responding to Professor Nicely's October 1994 post regarding the Pentium chip flaw. Intel's initial narrative can be summarized as follows: We created a better product than before. As we've seen from experience, no chip is ever perfect so we weren't surprised to find a few flaws. The floating point error won't happen often; therefore, it's nothing to worry about. We'll just fix it for our next release and not tell anyone about it.

The *Consumer Narrative*, conversely, was divided into two sub-groups; first, the *Techy Consumers* which is comprised of scientists and engineers whose work with computers goes beyond the fundamentals of software programs, e-mail, and the Internet. The second group is the *General Consumers*; this group is comprised of all general users, those who do not fit within the *Techy Consumer* group. At times, the sub-groups are referred to jointly as *Computer Users*.

The *Techy Consumer's* narrative was one of anger. Intel's policy of replacing flawed Pentium chips on a case-by-case basis had angered this group of consumers who were typically understanding of technology's flaws. Intel appeared to be playing unfairly. The *Techy Consumers* wanted everyone to be treated equally and held to the same standards. They believed and communicated that Intel was acting paternalistically by deciding which *Techy Consumer's* work was more

sophisticated and warranted a new chip. To top it all off, Intel did not have a set standard of measurement to determine which chips warranted replacement.

The *General Consumer's* narrative was one of skepticism and intolerance. After learning that Intel had only come forward about the flaw following Professor Nicely's Internet post, *General Consumers* were left to wonder what else Intel might have to hide. Intel had invested a significant amount of money in marketing the Pentium chip to the *General Consumer* and now those consumers were questioning the company and its credibility. *General Consumers* also became intolerant with Intel. Intel's replacement policy was not the standard consumers were accustomed to; typically a flawed product was recalled without question; now *Computer Users* had to prove they were worthy of a new Pentium chip.

Intel's paternalistic stance was negatively impacting both the *Techy* and *General Consumer* narratives. Intel's replacement policy was essentially communicating to *Techy Consumers* that Intel had the power and authority to decide who and when to provide replacement chips. As for the *General Consumer,* Intel's paternalistic stance and narrative attempted to continually define when *General Consumers* should worry about the flaw. Intel believed that *General Consumers* need not worry at all because the company knew how minimal the risk was and *General Consumers* should trust Intel's projections. Additionally, Intel's late disclosure of the flaw added to its paternalistic stance. After all, Intel did not think *General Consumers* needed to know because the flaw would never affect

them. Finally, the paternalistic stance was also a veil, causing consumers to wonder what else Intel might be hiding.

As the crisis progressed, Intel moved through the various stages of crisis as outlined by Fink (1986). The *prodromal* state is the warning stage; this occurred for Intel with the Internet postings in response to Nicely's post. The *acute* state is otherwise known as the "point of no return" (where some damage has been done); this began with the first traditional media coverage of the Pentium chip flaw in *The New York Times*. The *chronic* stage, also known as the clean-up phase, is where damage from the crisis is still being managed, but a company or business is trying to resume some type of normalcy. Intel was entering this stage prior to IBM's announcement that it would stop shipping computers which had the Pentium chip. *Crisis resolution* is where things finally return to "normal." This stage began after Intel first apologized and then acknowledged the folly of its attempt to require consumers to prove their need for a replacement chip and instead announced its "no questions asked" policy. While Fink's model is designed to assess what is occurring to an organization as it progresses through the various stages of a crisis, it is interesting to couple the Fink model with narrative criticism to examine what occurred to Intel's narrative as well as the competing narratives at each of the respective stages.

Essentially, Intel's narrative was constant from the *Prodromal Stage* through the *Chronic Stage*. The company minimized the potential that flaw would affect the average user and it trivialized consumer concerns by only offering to replace

Pentium chips for those users who qualified. The *Techy Consumer's* narrative evolved as the crisis moved through the stages from an understanding that technology is often flawed, to anger, to demanding new chips. *The General Consumer's* narrative also evolved as the crisis progressed through the stages from being unaware of the flaw, to skepticism as to the accuracy of Intel's projections of how often the flaw occurs, then to anger about the replacement policy, to finally demanding new chips. It is at the crisis resolution stage that the *Techy Consumer*, *General Consumer*, and Intel narratives became one voice. Table 1 diagrams the evolution of the three narratives.

Over the next two months, the crisis continued to gain media coverage. As the crisis progressed, the combined *Computer User* influence and narrative became evident as lawsuits were filed, Intel became the butt of many jokes, and the company's fourth-quarter profits fell. *Computer Users* expected more from Intel than a wishy-washy return policy; they wanted new chips with no questions asked. It is my opinion that the media perpetuated the Intel Pentium chip problem into a crisis. However, it was Intel's naive approach to consumer public relations that continued to propel the crisis into the spotlight weeks beyond necessity. Media found in the Intel and *Computer User* statements a narrative tailor-made for "consumer beware" front-page coverage.

Table 1

Intel Consumer Targets Narrative Evolution

	Prodromal Stage	**Acute Stage**	**Chronic Stage**	**Crisis Resolution Stage**
	Internet Postings	First Media Coverage	Continued Media IBM's Announcement	No-Questions-Asked Policy Announced
Intel Narrative	Minimized potential for flaw. Dismissive of concerns.	Minimized potential for flaw. Trivialized consumers' concerns.	Minimized potential for flaw. Trivialized consumers' concerns.	Continues to minimize and trivialize, but offers new policy to consumers.
General Consumer Narrative	Unaware	Skeptical that the flaw would happen as infrequently as Intel stated. Angry Intel didn't disclose flaw, won't replace chips.	Confused about what to believe. How often could a mathematical error occur? Angry Intel won't respond like other consumer product companies and offer recall out of the gate.	Relieved, but irritated it took so long. Want new chips.
Techy Consumer Narrative	Understand technology flaws, want some type of fix. Miffed.	Angry that replacement policy is exclusive.	Beyond crisis. Waiting to see how Intel responds.	Want new chips.

Adapted from Crisis Phases by Fink, 1986.

The Role of the Internet

In answering Question Two, this thesis asks: Using narrative criticism, what impact did the Internet play in transforming consumer dissatisfaction into a serious public issue? In short, the Intel Pentium chip crisis appears to be one of the first crises to have initiated over the Internet.

Public awareness of the Pentium chip flaw began on the Internet with a posted message from Dr. Thomas Nicely, Professor of Mathematics at Lynchberg College in Lynchberg, Virginia. The message described in detail Nicely's research into the mathematical errors encountered when using the Pentium chip. Nicely encouraged others to run their own tests using his source code to verify the flaw. This post was significant because it was the "trigger event" of the Intel crisis. Without the Internet, Nicely would not have had such a venue in which to communicate his findings or request others to verify his results that would ultimately lead to a public forum.

The Internet was the conference room of the *Techy Consumer's* community. Those *Techies* who were up to Nicely's challenge posted their results in the virtual "conference room" of instant information for others to see. The Internet provided a forum for *Techies* to chat in various newsgroups about the flaw and to develop strategies for coping, fixing, or gaining replacement chips. The Internet also became the war room, where *Techies* who encountered or challenged Intel's return policy told stories of battle. The Pentium chip crisis was born on the Internet and became a serious public issue because of the medium. The banter about the Pentium chip flaw

had been occurring for weeks on the Internet prior to mainstream media coverage. Approximately 130,000 computer users visited the comp.sys.intel newsgroup in autumn 1994, with approximately 1,000 of them commenting about the Pentium chip flaw (Ziegler & Sandberg, 1994, p. B3).

It is safe to say that the Intel Pentium chip flaw would not have evolved into a crisis situation without the Internet. The Internet is a powerful medium because it provides a forum of communication that includes response and feedback, and a vehicle by which individuals who would otherwise never meet have an opportunity to do so due to their common interests. In 1994, companies, even including computer technology oriented companies such as Intel, were not prepared to harness the power of this new communications tool, nor were they prepared for the damage it could cause. If the Internet had not been available for Professor Nicely to post his results and gain responses, other people may not have caught wind of the potential Pentium chip flaw. Additionally, Andy Grove (or a colleague posing as Andy Grove) would not have rushed to give his opinion, nor would his opinion ever be likely to appear in its full context in traditional media editorial. As the crisis continued, Pentium chip users turned to the Internet as a source of information and as a place to share stories about their personal experiences of attempting to replace their Pentium chips through Intel. Overall, the Internet propelled the Pentium chip flaw from a private, technological debate for those who possessed "true knowledge" into a serious public issue that was adjudicated in the public marketplace of ideas by *Techy* and *General Consumers* alike. It was because of the Internet discussions that

the traditional media discovered the issue and it was also the Internet that provided a forum for dissatisfied customers to keep the crisis alive.

Restoration Strategies

One purpose of this study was to use narrative criticism as a means to determine what restoration strategies were successful in helping Intel to maintain or restore its credibility in the industry and with the general public. As studied by Benoit and Brinson (1994), restoration strategies are used by organizations to restore their images once they undergo a threat to their reputation, whether it is pre-crisis, during, or post-crisis. Intel utilized four strategies to restore its image with consumers: (1) taking responsibility by disclosing the flaw; (2) minimization by repeatedly arguing that the average user would be unaffected; (3) corrective action, first with an "as-needed" product return policy, then a "no questions asked" policy, and finally the new disclosure standards; and (4) mortification through Intel's two apologies: first on the Internet; and then in the print advertisement.

According to Hearit (1999), the use of mortification is effective due to the fact that it is fulfilling public expectations while completing the "cycle of charge, guilt, and restoration" (p. 297). Intel used its apology in two instances. First was with Grove's Internet post, where he apologized for the anxiety the flaw had caused and then announced the paternalistic replacement policy of "prove you need it and we'll consider your request." The second use of apology followed IBM's allegation that the Pentium error would not occur once every 27,000 years but once every 24

days for the average user. Given the consumer doubt that IBM's announcement created, Intel had no other choice but to apologize for its previous policy and to institute a "no questions asked" return policy. This announcement, unlike a semi-private Internet post, was published in *The New York Times* and *The Wall Street Journal.* Once the new return policy and the apology were in place, the crisis was over, for the narrative of the story had nowhere else to go. Upon the announcement of the new policy—in spite of the considerable costs it would incur—Intel's stock price rose more than $3 a share, proving that consumers were satisfied and the narrative was complete. The Intel story finally presented a "conclusion" that ended the story.

Even though Intel implemented several restoration strategies and apologies during the crisis, I am not convinced that it was the effect of any of these which enabled Intel to maintain its credibility. Ultimately, Intel provided consumers with what they demanded—new, flawless Pentium chips. Perhaps this case was like all product flaws that do not harm, but instead inconvenience or simply anger; once the problem has been resolved it is quickly forgotten. As one of the few companies providing microprocessors, Intel still offers a product consumers demand and have a difficult time finding elsewhere.

Organizations and the Internet

Since the occurrence of Intel Pentium chip crisis in 1994, the Internet has become more than a forum for *Techy Consumers* or a marketing tool for companies.

As predicted, the Internet is ultimately becoming the "information superhighway" for those who have access to it. The Intel Pentium chip crisis provides organizations with a case study in what *not* to do in a crisis. More importantly, this thesis has raised a larger question: How should organizations address criticism that emanates from the Internet?

One of the primary purposes of this study was to provide a model of reference for organizations that may also face crises that stem from the Internet. Overall, it seems that the basics of crisis communication theory apply: listen, understand, and then respond. However, valuable lessons beyond these commonly held ideas can be learned from the Intel Pentium chip crisis. First, identity on the Internet is not a given and fakery is often the norm. Consequently, tremendous care must be taken to make sure information is credible and verifiable. Second, the Internet is a powerful medium and as such it provides organizations a vehicle for early warning signs that issues are arising. Companies should use boundary-spanners to access the information that is becoming available about their products on the Internet—be it good or ill. By doing so, they will find they are ultimately using the Internet as a benchmark, instead of just another place to disseminate marketing messages. Companies should also walk away from the Pentium chip crisis knowing that using the Internet as a communications forum can backfire, as it did for Grove.

In the end, the Intel Pentium chip crisis seriously impacted technological matters in two significant areas: (1) it demonstrated the maturity of the Internet as a viable communication medium, and (2) it propelled the industry to adopt new

computer industry standards for communicating "bugs" or flaws. First, it served the purpose of positioning the Internet as a viable communications medium. Organizations will have to monitor the Internet carefully and be prepared to respond to both legitimate and illegitimate criticism at a moment's notice (Ross, 1995). Second, the Pentium chip crisis resulted in new industry standards. Carlton and Yoder (1994) summarized the overall impact of Intel's new return policy: "More broadly, Intel's move to institute a no-questions-asked return policy, set a new and perhaps costly standard for corporations that sell complex computer gear and software" (p. B1). As a result of the Pentium chip crisis, Intel now publishes all known product issues on its website and provides the information under each product name (support.intel.com). Although the intended audience for this information is Intel-direct customers or manufacturers such as Dell, Intel makes the information available to anyone who accesses its website. Instead of hiding its mistakes, Intel has gone to the opposite extreme, "errata" disclosure ("errata" is the Latin word for "mistake," disclosing all known errors). For example, on Intel's website under the support section for software development of the Intel® JPEG library, there is an Errata section which describes a known problem and offers a solution to work around it. Occasionally, posted errors may affect the average consumer and media will publicize the flaw, but nothing has matched the severity of the Pentium chip to date. As a result, other technology companies such as Microsoft are also using errata disclosure.

Narrative Criticism and Crises

Narratives order and present a view by describing a situation that involves characters, actions, and settings that change over time. They are told in a logical order in a continuum that is unproblematic (Mitchell, 1980). The value of narrative is its ability to help make sense of reality (Mitchell). Accordingly, I have examined the Intel Pentium chip crisis as a narrative, a story being told through the media. As a critic using narrative theory, I established my own criteria by which to examine the Intel crisis narrative. The criteria included the examination of the characters, the dialog, the media, the messages, and the effect of the multiple narratives that were discovered.

After examining the merits of the Intel crisis, it was helpful to dissect the crisis as a narrative. By doing so, I was able to gain a better understanding of the significance of what had been said and by whom. I also was able to view a crisis as a "story" unfolding through the media. The narrative perspective provided insight into the different messages and how they were presented via the media.

Rhetorical criticism searches for the purpose of specific rhetoric and attempts to determine if it was successful in meeting that purpose. When reviewing Intel's rhetoric during the crisis, one can initially conclude that Intel failed in its attempts to prevent a national product replacement effort. However, when looking at the potential impact the crisis could have had on the organization's ability to thrive or its financial stability, Intel's final narrative may be viewed as successful, if

for no other reason than it completed the "story" and got the company's name out of the media.

On the flip side is the consumer's narrative, which served the purpose of getting replacement chips without questions asked. The consumer's goal was achieved, and therefore could be interpreted as successful in meeting its purpose. Further, the amount of time it took to achieve its purpose, in combination with the number of media needed to provoke Intel into the "no questions asked" policy demonstrates the power and influence words can have, ultimately forcing a company to issue a two billion dollar recall.

Overall, Intel's story demonstrates how difficult it is for technology companies with their socially constructed technological rationalities to successfully communicate within the non-technical marketplace. Intel's story accentuates a marketing communication fundamental of tailoring the message to be congruent with the target audience mindset.

Conclusion

In the end, Intel's paternalistic stance was unable to persuade consumers through technical rationality that the Pentium chip flaw was nothing to worry about. And although no one brought their computers back, Intel was forced to listen to the consumer narrative and respond to its demands. As the saying goes, "the squeaky wheel gets the grease." Had Intel responded to the consumer narrative initially and

stopped trying to force its narrative, perhaps the amount of negative publicity could have been minimized. So too could the duration of the entire crisis.

It is not that the consumer is always right, but when a company finds a product flaw, appears to be hiding it, minimizes the potential impact it could have, and then trivializes customers' demands regarding the product flaw, then the company is propelling itself toward an unnecessary crisis. The Intel Pentium chip crisis is paradigmatic of how technology issues are enacted, and warns against assuming that the technology is always right, and not the user.

By undertaking this criticism, some lessons have been learned which can impact the effectiveness of communication by organizations who find themselves within *self-perpetuated* crises. First, be honest. Intel looked guilty from the beginning because its paternalistic stance made it appear to have attempted to hide the flaw. Second, realize that communicating "the facts" is appropriate, but it does not reduce emotional fear. Intel continued to repeat the fact that the flaw would not affect the average user, but users did not care. There was an emotional fear attached to the possibility that the flaw could unknowingly impact mathematical calculations. Third, consumers are not willing to use products that put them at risk without it being their own choice (e.g., smoking cigarettes is a health risk, but consumers choose to smoke, whereas exposure to lead paint is also a health risk, but not a consumer's choice).

This study is one of the first examining crisis management as a narrative. Using the narrative method of criticism as a means for determining the strength and

weaknesses of the messages being communicated from multiple publics by the media during crises is a valid method for analyzing successful ways to approach crises. Ultimately, further study using the narrative criticism method as a means to analyze crises in the media could create new crisis models and provide a guide for organizations on how to handle specific crisis situations.

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