

# **Does Familiarity Breed Contempt or Trust? A Case Study of a Gas Pipeline Awareness Campaign among School Safety Officers**

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Organizational trust has been defined by Shockley-Zalabak, Ellis, and Cesaria (2000) as an “organization's willingness, based on its culture and communication behaviors in relationships and transactions, to be appropriately vulnerable if it believes that another individual, group or organization is competent, open and honest, concerned, reliable, and identified with common goals, norms and values” (p. 8). Approximately one in every 20 schools is located within a quarter mile of a transmission pipeline (pipelines that transport energy products, such as oil or natural gas, from one region to another). This makes them vulnerable to the possible consequences of a pipeline accident. In order for pipelines to continue to operate in these communities, there must be a certain amount of trust with pipeline companies that no harm will come to the schools.

This paper will explore the trust relationship between schools and one energy pipeline company in order to gain more understanding about the measurable connection between awareness and trust. By using a pre-test/post-test survey around a safety awareness campaign, this study examines whether increased voluntary transparency of this vulnerability engenders more trust or creates more concern and contempt. In particular, does increasing school awareness of safety measures and the possible risks of close proximity to a pipeline enhance trust with the company sharing that information?

## **Background on Pipeline Industry**

More than two million miles of pipelines, mostly underground, crisscross the United States transporting energy products such as natural gas, propane and diesel fuel to homes and businesses every day. Transportation Safety Board statistics show that pipelines are the safest way to transport these products, but while serious pipeline incidents are very rare, when they occur, they can cause injury, death, damage to property and negative environmental impact.

Congress enacted The Pipeline Safety Act of 2002 to assure that individuals living and working near pipelines are notified regarding the location of pipelines, the signs of a potential pipeline leak and recommended response actions. Provisions of the law require pipeline operators to communicate a defined set of messages to various publics on a specified timeframe. The law also requires pipeline companies to measure the effectiveness of their public awareness efforts and to demonstrate continuous improvement.

Schools near pipeline facilities are one of the publics impacted by the law. According to the Smalley Foundation, one in every 20 schools in the United States is located within a quarter mile of a pipeline. As new schools are built in previously rural and fast-developing suburban areas, the number of schools near pipelines will increase.

Natural gas pipeline operators classify schools as “High Consequence Areas” requiring more frequent communication and additional messages. To comply with the Pipeline Safety Act, they must communicate pipeline awareness and safety messages annually with schools located

near their facilities and must measure the effectiveness of their efforts. When compared with other homes and businesses located near their facilities, most pipeline operators consider schools to be a more vulnerable location if a pipeline incident were to occur given the issues involved in evacuating a school and the potential for increased media attention. Anecdotal evidence from pipeline field personnel who interact with schools near their operations indicates that schools near pipelines often have limited knowledge about the pipeline's existence and many do not have specific procedures in place to respond to a pipeline emergency.

Industry efforts to communicate pipeline safety messages with publics have historically focused on one-way, push communication. Consequently, industry research has ignored relationship measures such as trust. As progressive pipeline operators utilize communication vehicles that enable two-way dialog with publics, the importance of fostering and measuring relationships, trust and transparency will increase.

The research study referenced in this report was designed to help a large transmission and gathering pipeline company create an effective communication campaign to reach schools near their operations. The campaign included pre- and post-surveys to establish baseline metrics including trust and measure the impact of the overall campaign.

### **Literature Review on Trust**

Trust is a valuable social lubricant that enables parties to communicate and interact with one another. As Tschannen-Moran and Hoy (2000) have identified, it "is fundamental to functioning in our complex and interdependent society" (p. 549). In particular, trust is needed for any kind of interdependent relationship.

As organizations strive to build working relationships with key stakeholders, trust is a central component of that effort. Bruning and Ledingham (2000) have reported that the organization-public relationship (OPR) indicators of "trust, openness, involvement, investment, and commitment impact the ways in which organization-public relationships are initiated, developed, and maintained" (p. 162). In particular, regression analysis has shown that the dimension of trust is the strongest predictor of consumer satisfaction.

This is likely the reason why Hon and Grunig (1999) included trust as one of four variables used to measure relationships. In the development of their instrument, Hon and Grunig identified trust as an essential component of satisfactory relationships between organizations and their stakeholders and defined it as "one party's level of confidence in and willingness to open oneself to the other party" (p. 2). They then identified three dimensions to trust: integrity, or the belief that an organization is fair and just; dependability, or the belief that an organization will do what it says it will do; and competence, or the belief that the organization has the ability to do what it says it will do.

Research on interpersonal relationships recognizes interdependence and the risk of vulnerability as important considerations to trust (Fischman, 2003). This appears to extend to organizational relationships as well. In an IABC funded study to measure organizational trust, Shockley-Zalabak, Ellis, and Cesaria (2000) defined organizational trust as "The organization's willingness, based on its culture and communication behaviors in relationships and transactions, to be appropriately vulnerable if it believes that another individual, group or organization is competent, open and honest, concerned, reliable, and identified with common goals, norms and values" (p. 8).

Before one party entrusts another with that vulnerability, it often evaluates the trustworthiness of the other party. Rousseau et al. (1988) described trust as the willingness to

accept this vulnerability “based upon positive expectations of the intentions or behavior of another” (p. 35). According to Morrow et al. (2004) that includes the belief that another will not act to exploit one’s vulnerabilities” (p. 50).

After a fairly thorough review of the trust literature, Mayer, Davis and Schoorman (1995) three critical elements of being trusted: ability, benevolence, and integrity. Similarly, in the organizational behavior literature, trust has been defined as a collective judgment of one group that another group will be honest, meet commitments, and will not take advantage of others (Bradach & Eccles, 1989; Cummings & Bromily, 1996). In his review of the trust literature, Rawlins (2007) borrowed heavily from the definition developed by Tschannen-Moran & Hoy (2000) for the following multidimensional definition of trust:

Trust is one party’s willingness—shown by intention and behavior—to be vulnerable to another party based on confidence developed cognitively and affectively that the latter party is (a) benevolent, (b) reliable, (c) competent, (d) honest, and (e) open.

For the purposes of this paper, we will be using this definition for trust, with particular emphasis on the attributes of competence, reliability and benevolence.

Trust functions as a way of reducing uncertainty (Holmes & Rempel, 1989; Luhmann, 1979). For organizations, trust is necessary for cooperation and communication, and the foundation for productive relationships (Tschannen-Moran & Hoy 2000, p. 55). According to Govier (1992), distrust impedes the communication that could overcome it, so that “suspiciousness builds on itself and our negative beliefs about the other tend in the worst case toward immunity to refutation by evidence” (p. 52). Accordingly, when those in authority engage in self-disclosure and show benevolent motives they are more likely to be trusted by those dependent on that authority (Gabarro, 1978; Lazerlere & Huston, 1980)

## **Risk Communication and Trust**

### *Defining risk & risk communication*

There is a rich body of literature pertaining to risk communication, which has increasingly included trust as part of its analysis of the practice (McComas, 2006). Risk has been defined by Stern and Fineberg (1996) as the “things, forces, or circumstances that pose danger to people or to what they value” (p. 215). Meanwhile, risk communication has been defined as “a purposeful exchange of information and opinion among individuals, groups, or organizations regarding health or environmental hazards” (Lundgren, 1994, as quoted in Trettin & Musham, 2000, p. 410). According to Calman (2002) the primary purpose for risk communication is to “provide the individual or community with sufficient information to make choices about the consequences of the risk and thereby assist in deciding which action or actions, if any, are to be taken” (p. 166).

While effectively and honestly informing publics “about the risk factors associated with a wide range of natural hazards and human activities” (Menon & Goh, 2004, p. 376), effective risk communication requires more than just one-way communication. According to Trettin and Musham (2000), the contemporary approach also requires stimulating interest in these risks and involving citizens in the decision-making. To be effective, risk communication must be interactive and aim for partnerships, according to Renz (1992). Simplistic attempts to use outdated one-way systems that do not permit the community to provide feedback and make aware its own information needs “can increase the outrage and decrease the community’s trust of

the agency” (Sly, 2000, p. 154). Perhaps the need for an expanded definition lead Heath, Seshadri and Lee (1998) to rely upon the definition provided by National Research Council: “An interactive process of exchange of information and opinion . . . [that] involves multiple messages about the nature of risk and other messages, not strictly about risk, that express concerns, opinions, or reactions to risk messages or to legal and institutional arrangements for risk management” (as found in Heath et al., 1998, p. 36).

In focus groups conducted by Trettin and Musham (2000) residents’ attitudes toward risk were shaped by a number of factors:

- “perception of economic costs or benefits associated with particular facilities (and concern about whether those costs or benefits were equitably distributed)”
- “sense of community involvement or lack of involvement in decision-making policy at facilities”
- “satisfaction or lack of satisfaction with access to information about facilities”
- “trust or lack of trust in how hazardous facilities were managed”
- “beliefs about health risks”
- “knowledge of science and technology” (p. 415)

Risk communication efforts must address these concerns in order to alleviate anxiety and fears related to the potential risk.

#### *Issues with Risk Communication*

A critical component to effective risk communication is overcoming the anxiety, angst, outrage, and dread of citizens who face potential risks related to human or natural made hazards. Early research in risk communication focused on the efforts to increase awareness and understanding of risk among possibly affected groups. Previous research indicates that simply increasing the frequency of messages and repetition does not effectively overcome the risk perception gap between authorities and the publics affected by the risk. This may be explained in large part by more recent research that recognizes that publics, especially made up of laypersons, do not evaluate risk based on factual information alone. There is a difference between how risk is perceived by experts and non-experts. Experts determine risk using a formula that calculates probability by magnitude. After reviewing the writing of Slovic, Fischhoff, and Lichtenstein (1982, 1987; Slovic, 1987), Heath et al. (1998) summarized that “lay risk perceptions are determined by factors other than statistical estimates, such as dramatic media presentations, controllability, catastrophic potential, equity, uncertainty, and threat to future generations” (p. 40). The public often perceives risk from a more affective and less rational approach. As McComas (2006) reported:

In describing what they term the affect heuristic, Slovic and colleagues (2004) explained that people base their risk judgments not only on what they think about the risk but also on what they feel about it. If people have positive feelings about an activity, they tend to judge the risks as lower than if they have negative feelings about the activity and vice versa. Feelings also can override analytical reasoning. (p. 78)

To illustrate this heuristic, McComas (2006) used the example of the summer of 2001, dubbed the “Summer of the Shark” by Time magazine, when several shark attacks created a panic among beach tourists although there were fewer attacks in 2001 than in 2000. In fact, the experts noted that people were more at risk driving to the beaches than from a shark attack. Nonetheless, the use of statistics and reason didn’t calm the irrational fear of vacationers around the country. This led McComas to conclude that “public perceptions of risk frequently do not align with scientific assessments” (p. 78).

The mass media can amplify the perception of risk, but research shows that this is more likely to have a “third-person effect” of leading people to believe in a societal level of risk that is more likely to affect others than themselves (af Wahlberg & Sjoberg, 200; Tyler & Cook, 1984; Morton & Duck, 2001). While mass media play an important role in alerting people of risks, research has shown that people more often rely on interpersonal channels to assess their personal risks (Petts & Neimeyer, 2004; Scherer & Cho, 2003).

For risk messages distributed through more interpersonal channels to have credibility with publics, the source of the messages must be trusted.

### *Defining Trust in Risk Communications Literature*

Much like the general trust literature, there are varying definitions and concepts applied to the term “trust” in the risk communications literature. Some definitions are very broad; some are more constraining. Some are similar to the definitions provided previously in this paper, and some provide an insightful perspective on different levels of trust.

Many of the concepts of trust outlined in the previous section are found in definitions of trust in the risk communication literature. Concepts such as vulnerability, evaluation of trustworthiness of the other party, and characteristics such as competence, integrity, and benevolence are found in many definitions. In their book, *Trust in Cooperative Risk Management*, the editors define trust as “the willingness, in expectation of beneficial outcomes, to make oneself vulnerable to another based on a judgment of similarity of intentions or values” (Siegrist, Earle & Gutscher, 2007).

Calman (2002) borrowed from a definition developed by Hupcey et al. (2001) to write the following: “Trust emerges from the identification of a need that cannot be met without the assistance of another and some assessment of the risk involved in relying on the other to meet this need. Trust is a willing dependency on another’s actions, but is limited to the area of need and is subject to overt and covert testing. The outcome of trust is an evaluation of the congruence between expectations of the trusted person and actions” (p. 166). This definition adds the concepts related to the interdependent nature of trust and includes the evaluative nature of trust; meaning that it is a cognitive exercise and not merely an affective condition.

The definition provided by Heath et al. (1998) most closely approximates the definitions from the organizational trust literature: “Trust consists of judgment that a source is competent, unbiased, honest, lacks a hidden agenda, and is genuinely concerned about the welfare of the people affected by it” (p. 40). This definition relies heavily on the trustworthy characteristics found in interpersonal and organizational trust literature and also considers trust as a rational judgment.

McComas (2006) has identified trust as the most prominent recent development in risk communication, in particular the elaboration of “social trust” (Cvetkovich & Lofstedt, 1999; Earle & Cvetkovich, 1995; Lofstedt, 2005). Although the definition of social trust also varies, the general understanding is that it differs from interpersonal trust. The social trust process leads

to citizens choosing to trust or rely on risk management institutions as unknown entities rather than specific, and known, individuals. It could be described as an individual to institutional level of trust. This is similar to the concepts of trust in organizational communication, which asks how people feel about their trust of larger organizations such as corporations and government. According to McComas (2006), research suggests that “social trust in risk management is based, in part, on perceived shared values, which are learned via stories or narratives that institutions tell (Earle & Cvetkovich, 1995, 1999).

Drawing upon the distinction that social trust differs from interpersonal trust, in such that social trust doesn't mean trust that is placed in specific individuals based on the perceived presence or absence of certain traits (which is aligned with source credibility by some in this school of thought; Earle & Cvetkovich, 1995), Trettin and Musham (2000) defined public trust as “uncritical acceptance” that would allow another party “to take action without fear of the consequences” (p. 411). This limiting definition of trust is more closely aligned with Rotter's (1967) research on personality and cognitive traits of trusting individuals. Rotter defined trust as “an expectancy held by an individual or a group that the word, promise, verbal or written statement of another individual or group can be relied upon” (p. 651). Using demographics and sociometrics, Rotter measured different levels of trusting behavior. He distinguished between high, medium, and low trustors. Certain individuals approach gullibility when they have high trusting traits and low discernment of the other party. When trust is described in these terms, it is easier to agree with the conclusion of Trettin and Musham (2000) that trust may not be a realistic or necessary goal. Instead, they argued for a skeptical and watchful audience that demands credibility from the risk management institutions. They define credibility as a state of being believable, trustworthy and reliable. The conclusion is based on a different operationalization of the terms trust and credibility than found in other trust literature. When a definition of trust includes the rational judgment of citizens to calculate whether another entity is worthy of their trust, the recommendation of not needing trust in risk communication is less logical.

Credibility is defined as the state of being “believable, trustworthy, reliable.” Believability is based on one's perception that the credible person or institution possesses expertise and knowledge. Trustworthiness implies that the credible person or institution provides an emotional basis for faith and confidence. Reliability indicates that the credible person or institution is predictable, adheres to procedures, and shows fiduciary responsibility. Definitions similar to this one for the relationship between trust and credibility have been proposed by risk communicators and social psychologists (Frewer, Howard, Hedderley, & Shepherd, 1996; Kasperson & Golding, 1992; Peters et al., 1997).

### *Risk Communication and Trust*

The general erosion of public trust in institutions such as corporations and government is often cited as a major stumbling block to the success of risk communication programs. Calman (2002) advised that “if trust has been established, then the problems that arise will be easier to deal with” (p. 160). Sly (2000) reported that several case studies have shown that “the public scrutinizes the behaviour, the performance, and the process of the agency more closely than they do the risk estimates and other factual content in the messages themselves” (Sly, 2000, p. 155). This demonstrates the increased need for trust between these institutions and their publics, because the trustworthiness of the institution is just as important as, if not more so than, the quality of its messages.

However, as Trettin and Musham (2000) have argued, “most risk communication

programs fail to overcome the rampant public distrust that plagues most efforts (p. 411). Respondents in their focus groups recommended that institutions understand that publics demand something more than being asked to blindly trust them. Some pointed out that “risk communication would improve if institutions trusted the public more and provided information in ways they could understand” (p. 415).

Heath, Seshadri and Lee (1998) found that increased knowledge correlated positively with trust and perceived openness for persons living close to a chemical plant. Their study confirmed that “communication that dealt with resident’s cognitive involvement, dread, and uncertainty would improve perceptions openness and trust” (p. 35). A later study by Heath and Palenchar (2000) suggests that increased knowledge of emergency response measures gives people a greater sense of control. Accordingly, “this may translate into more trust for the industry” (p. 132). “Understanding emergency procedures may increase a person’s perceived ability to handle a crisis, if one occurs” (Heath & Abel, 1996a).

Knowledge as a condition for empowerment and involvement appears to increase trust and perceptions of openness and reduce “dread” among these publics. According to Heath et al. (1998), “feelings of dread intensify when people think the risk is involuntary, unfair, not under their control, and low in benefits” (p. 39). Citizens are much less accepting of risk based operations “if they think they are denied access to sources of information and are not told the whole story, but fed half-truths” (Covello, 1989; as quoted in Heath et al., 1998, p. 43). As Heath et al. (1998) explained:

Trust and openness are closely linked. To gain trust, communicators should be honest, frank, and open. Worst-case estimates should be identified, and industry spokespersons should give information to avoid suspicion that they have something to hide. However, Burton (1989; Heath & Abel, 1996b) stressed that mere quantity of information is not useful. (p. 132)

However, Heath and Palenchar (2000) also found that persons who believe they are at risk are more likely to be cognitively involved. “Cognitively involved persons acquire, pause to consider, and evaluate information. They are more likely to form or change attitudes through central cognitive message-driven routes (Petty & Cacioppo, 1984). Grunig’s (1989) situational theory reasons that when people recognize a problem, perceive low constraint, and have high involvement, they will seek and process information and become an active public. Cognitively involved people have more arguments to use when receiving and processing information about issues, and read more, watch more television, and are able to communicate more about the relevant issues (Heath & Douglas, 1990).” (41)

People with high levels of cognitive involvement are easier to inform about risk and emergency actions, but they also are inherently more distrusting. Heath and Palenchar (2000) found that people who are cognitively involved have a higher sense of risk and are less trusting of government and industry officials. The good news about this group is that it is more likely to become informed about the risk and the measures to take to reduce the negative effects of the potential hazard. The concern is that people who are more cognitively involved are also more likely to be more vigilant and less trusting. However, as proposed by Heath and Palenchar (2000), if this group is kept informed about the risk and the actions it can take to prevent and reduce harm, it gives the group more empowerment and control. This seems to increase the acceptance of the presence of the risk, but does it lead to increased trust?

## **Research Questions**

Based on the literature related to trust and risk communication, the following research questions were developed. The research questions are adapted to the specific case being measured in this study, namely the risk communication surrounding the operations of a transmission or gathering pipeline near schools.

*RQ<sub>1</sub>: Will levels of awareness of pipelines increase after the communications campaign?*

*RQ<sub>2</sub>: Do efforts to increase the awareness of pipelines result in increased levels of feeling informed and trust?*

*RQ<sub>3</sub>: Are respondents with greater knowledge of the pipeline more likely to trust the pipeline company?*

*RQ<sub>4</sub>: Are those living/working closest to the pipelines more aware, more informed, and more trusting?*

For the purposes of this research, awareness was defined by the following questions:

- Three dichotomous (yes/no) questions were asked to distinguish respondents that were aware and knowledgeable about the pipeline. These three questions were:
  - Prior to receiving this survey, were you aware that this pipeline company operates a gas transmission, liquid or gathering pipeline near your school?
  - Do you know where this pipeline operator's pipeline is physically located in relation to your school's buildings or athletic facilities?
  - Are you aware of the prevention measures that the pipeline operator takes to maintain safe pipeline operations?
- Two questions using a 7-point scale from strongly disagree (1) to strongly agree (7) were used to assess level of feeling informed.
  - I feel well informed regarding the pipeline operator's pipeline near our school.
  - This pipeline operator provides me with the information I need regarding its pipeline near my school.

Trust was measured with four questions using a 7-point scale from strongly disagree (1) to strongly agree (7) to assess level of feeling informed. The first question asked participants about the reliable safety of the pipeline operator, the second asked about the benevolent intentions of the pipeline operator, the third asked about the competence of the pipeline operator to keep pipelines safe, and the fourth question measured a behavioral predisposition to contact the pipeline operator if they had questions.

- I feel comfortable calling the pipeline operator whenever I have a question about their pipeline near my school.
- This pipeline company operates a safe pipeline near our school.



- I believe the pipeline operator is concerned about the safety and welfare of our students, staff and facilities.
- I feel confident about the pipeline operator's ability to keep its pipelines safe.

### **Methodology**

Cyera Strategies conducted phone interviews with school principals in Texas, Indiana and Illinois to assess the extent to which existing safety procedures included protocol for identifying and responding to a pipeline emergency. In addition, the interviews measured the principal's ability to influence safety protocol and implementation. Based on this assessment, the school principal or principal's designee responsible for school safety procedures was identified as the primary audience for communication materials from pipeline operators.

Prior to launching a formal campaign to communicate required messages with schools, Cyera Strategies developed an online survey tool to help the pipeline company establish baseline metrics for awareness, trust and preparedness at schools near their operations.

The online pre-test survey was conducted between October 15, 2008 and January 13, 2009. The subsequent online post-test survey was conducted March 5 – April 25, 2009. Both surveys targeted principals, or the principal's designee, responsible for safety at the school. An e-mail with a link to the online survey was sent to a distribution list that was created and verified by the pipeline company using Internet and phone research.

The school contact list includes schools located within approximately 3,000 feet of the company's pipeline operations and is subdivided into tiers based on risk criteria such as distance from pipeline, product transported and pipeline pressure. Tier 1 schools included those located within 300 feet of the pipeline or those within 660 feet of pipelines greater than or equal to eight inches in diameter or operated at a pressure greater than 500 pounds-force per square inch gauge (psig). Tier 2 schools include those located between 301- 660 feet of a pipeline greater than or equal to six inches in diameter and operated at a pressure between 100-500 psig. Tier 2 also includes schools located further than 660 feet of a pipeline when the pipeline nearby is a large diameter, high-pressure line or one that transports sour gas (H<sub>2</sub>S).

In the pre-test survey, a total of 140 schools received the survey invitation, and 41 completed the survey from both tiers for a response rate of 29.3%. Schools were offered a chance to win a \$250 American Express gift card in exchange for participation in the survey. In addition, two reminder e-mails were sent prior to the close of the survey and phone calls were made to prompt participation.

For the online post-test survey, the same 140 schools received the survey invitation via e-mail and in letter mailed to the school with instructions for completing the survey online. Fifty-five schools completed the survey from both tiers for a response rate of 39.3%. The same strategies to increase response rate were replicated. Of the 140 schools in tier 1 and tier 2, 16 participated in both surveys.

In the pre-test survey, 95 percent of survey respondents were principals or assistant principals and 85 percent of respondents identified themselves as the "person responsible for safety plans, procedures, training and drills" at their school. In the post-test, 78 percent identified themselves as principles or assistant principals and 81 percent as the person responsible for safety.

### **Results**

*Will levels of awareness of pipelines increase after the communications campaign?*

Prior to the communications campaign, 19 respondents in the pre-test survey (46.3%) were aware of the company operating a transmission pipeline near the school. Only 6 (14.6%) were aware of where the pipeline was located and 2 (4.9%) were aware of the prevention measures the company took to maintain a safe pipeline. Only 2 (4.9%) felt well informed of the pipeline, and 3 (7.3%) agreed that the company provided them with the information they need regarding the pipeline. Only 3 (7.3%) remembered receiving information from the pipeline company prior to the communications campaign.

After the campaign, a Chi-Square analysis indicated that all levels of awareness increased significantly, with 38 (69.1%) aware of the company operating a pipeline near the school (Chi-Square=5.04, df=1,  $p=.025$ ), 30 (54.5%) aware of the pipeline's location (Chi-Square=15.96, df=1,  $p<.001$ ), 24 (43.6%) aware of the prevention measures (Chi-Square=17.87, df=1,  $p<.001$ ), and 34 (61.8%) remembering receiving information from the pipeline company (Chi-Square=29.46, df=1,  $p<.001$ ). Additionally, they were more likely to feel well informed ( $n=25$ , 45.5%) and to agree that the company provided them with the information they needed ( $n=28$ , 50.1%).

These results would indicate that the communications campaign was significantly successful in increasing awareness of the pipeline, its proximity, and the safety measures used by the company. But, did this increase in awareness enhance the school officials' sense of trust toward the pipeline company?

*Do efforts to increase the awareness of pipelines result in increased levels of feeling informed and trust?*

Those who responded to the survey following the communications campaign were significantly more likely to feel well informed and were significantly more likely to show higher levels of trust. A t-test analysis between the two groups showed significant increases in respondents' feeling well informed, believing the company provides them with the information they need, comfort in calling the company, and believing the company operates a safe pipeline, cares about them and is able to keep the pipeline safe. See Table 1.

Only 16 of the schools participated in both the pre-test and post-test surveys. A paired t-test was conducted on the responses of these schools to evaluate the increase in the variables that used the dichotomous scale of agree and disagree following the campaign. The means increased significantly on each variable from the pre-test to the post-test:

- "I feel well-informed of the pipeline" increased from 2.25 to 5.12 ( $t = -5.12$ ,  $df = 15$ ,  $p. < .001$ );
- "The pipeline company provides me with the information I need" increased from 2.38 to 5.31 ( $t = -5.65$ ,  $df = 15$ ,  $p. < .001$ );
- "I feel comfortable calling the pipeline company" increased from 2.75 to 5.25 ( $t = -4.04$ ,  $df = 15$ ,  $p. = .001$ );
- "The pipeline company operates a safe pipeline" increased from 2.38 to 5.31 ( $t = -2.41$ ,  $df = 15$ ,  $p. = .029$ );
- and "I'm confident in the company's ability to keep the pipeline safe increased from 4.50 to 6.00 ( $t = -2.77$ ,  $df = 15$ ,  $p. = .014$ ).

**Table 1: Comparison of levels of being informed and trust between the pre-test and post-test respondents**

Variable	N	Mean	SD	t	df	P
I feel well informed regarding the pipeline operator's pipeline near our school						
Pre-Test	40	2.15	1.37	-5.47	94	.000
Post-Test	36	4.04	2.01			
This pipeline operator provides me with the information I need regarding its pipeline near my school						
Pre-Test	40	2.27	1.43	-5.65	94	.000
Post-Test	36	4.29	2.07			
I feel comfortable calling the pipeline company whenever I have a question about their pipeline near my school						
Pre-Test	40	3.02	1.60	-4.42	94	.000
Post-Test	36	4.65	1.89			
The pipeline company operates a safe pipeline near our school						
Pre-Test	40	4.37	1.54	-3.64	94	.001

Variable	N	Mean	SD	t	df	p	
I feel comfortable calling the pipeline company whenever I have a question about their pipeline near my school							
Pre-test	Aware	19	3.58	1.77	2.15	39	.038
	Not Aware	22	2.55	1.29			
Post-test	Aware	38	5.00	1.52	3.18	53	.004
	Not Aware	17	1.88	2.09			
Overall	Aware	57	4.67	1.78	4.81	94	.000
	Not Aware	39	2.92	1.72			
The pipeline company operates a safe pipeline near our							

school							
Pre-test	Aware	19	4.74	1.45	1.45	39	.156
	Not Aware	22	4.05	1.59			
Post-test	Aware	38	5.74	1.33	1.91	53	.062
	Not Aware	17	4.94	1.82			
Overall	Aware	57	5.40	1.37	3.05	94	.003
	Not Aware	39	4.44	1.73			
I believe the pipeline company is concerned about the safety and welfare of our students, staff, and facilities							
Pre-test	Aware						
	Not Aware	19	5.26	1.59	1.14	39	.262
Post-test	Aware	22	4.73	1.42			
	Not Aware	38	6.21	1.09	1.09	53	.279
Overall	Aware	17	5.88	.86			
	Not Aware	57	5.89	1.34	2.39	94	.019
		39	5.23	1.33			
I feel confident about the pipeline company's ability to keep its pipelines safe							
Pre-test	Aware	19	5.05	1.43	1.53	39	.135
	Not Aware	22	4.32	1.61			
Post-test	Aware	38	5.87	1.09	.48	53	.634
	Not Aware	17	5.71	1.31			
Overall	Aware	57	5.61	1.26	2.27	94	.025
	Not Aware	39	4.92	1.63			

Additionally, there are relatively strong positive and significant correlations between the levels of feeling informed and the levels of trust (Pearson's  $r$  ranged from .452 to .738,  $p < .001$ ). Those who feel well informed about the pipelines, and who believe that the company provides

sufficient information, are more likely to score significantly higher on the trust measures. The different measures of trust are also highly, and significantly, correlated with each other, suggesting a high positive relationship among these variables. See Table 3.

**Table 3: Pearson correlations between levels of awareness and measures of trust.**

		The pipeline company provides me with the information I need regarding its pipeline near my school.	I feel comfortable calling the pipeline company whenever I have a question about their pipeline near my school.	The pipeline company operates a safe pipeline near our school.	I believe the pipeline company is concerned about the safety and welfare of our students, staff and facilities.	I feel confident about the pipeline company's ability to keep its pipelines safe.
I feel well informed regarding the pipeline near our school.	Pearson's <i>r</i> Sig. (2-tailed) N	.941 .000 96	.746 .000 96	.520 .000 96	.471 .000 96	.468 .000 96
The pipeline company provides me with the information I need regarding its pipeline near my school.	Pearson's <i>r</i> Sig. (2-tailed) N		.786 .000 96	.533 .000 96	.479 .000 96	.452 .000 96
I feel comfortable calling the pipeline company whenever I have a question about their pipeline near my school.	Pearson's <i>r</i> Sig. (2-tailed) N			.547 .000 96	.507 .000 96	.518 .000 96
The pipeline company operates a safe pipeline near our school.	Pearson's <i>r</i> Sig. (2-tailed) N				.730 .000 96	.835 .000 96



Tier 1	61	5.79	1.32	1.54	94	.127
Tier 2	35	5.34	1.43			
I feel confident about the pipeline company's ability to keep its pipelines safe						
Tier 1	61	5.46	1.41	.92	94	.228
Tier 2	35	5.09	1.52			

A t-test was conducted to determine the difference between tiers on the scale questions measuring levels of feeling informed and trust. While the means to these questions were consistently higher for tier 1, none of them were significantly different (see Table 4). When comparisons between the tiers were tested in the pre-test and post-test responses, the same pattern occurred without any significant differences.

### Discussion and Conclusion

Considering the low levels of awareness and sense of being informed, one of the surprising results of the pre-test was the relatively high level of trust. This could possibly be explained by the literature in *irrational trust*. Weber, Malhotra and Murnighan (2005) proposed a model—called the motivated attributions model—explaining why individuals engage in acts of irrational trust. The model's central idea is that one party's trustworthiness correlates with the extent to which the other party feels dependent upon the first for particular outcomes they feel they can achieve through the relationship. When an individual feels dependent on another for certain expected outcomes, the individual may be less cautious than normal in the face of risk. When feelings of dependence are low, the process of reciprocal trusting actions indicative of the development of a trusting relationship may not begin at all. In addition, fears related to self-awareness (such as damaging their image through trusting acts) may hinder trustors in the trust development process. The motivated attributions model also predicts that impression management concerns will influence the probability of an initial trusting act occurring, as well as the kind of act employed (i.e. one that will reflect upon the trustor in a positive light) (Weber et al., 2005).

Murray, Holmes, & Griffin (1996) found that when people engage in acts of irrational trust, they often construct idealized images of the other party to deal with the social risks and fears of exploitation inherent in a trusting relationship. This research points to a negative relationship between a party's "rational" assessments and their feelings of dependence. In addition, the increased dependence on a party causes individuals to place greater focus on attributes that support a positive view of the party, thus promoting the (sometimes irrational) perception that the party is trustworthy (Weber et al., 2005; Fine & Holyfield, 1996; Ruscher & Fiske, 1990). Weber et al. (2005) proposed five additional consequences of dependency increases. Potential trustors will "a) engage in less information search to assess a potential counterpart's trustworthiness; (b) be more likely to evaluate ambiguous information about the



counterpart positively; (c) exaggerate the likelihood that the trusted party will reciprocate; (d) be more likely to engage in initial acts of trust; and (e) be more likely to trust precipitously” (p. 87).

Nonetheless, the results of the post-test also indicated that increased awareness and knowledge of the pipelines correlated with increased trust. This result provides additional support for the findings of Heath et al. (1998) that increased knowledge is correlated with trust and perceived openness. While, such increased knowledge among school principles is likely to increase their cognitive involvement and raise concerns about the potential risk of the nearby pipelines, the trusting variables increased significantly. This provides support for previous hypotheses that giving information provides the stakeholders with more autonomy, empowerment, and control through open and honest communications. Those who were the most knowledgeable were also the most likely to trust the pipeline company.

This would suggest that companies engaged in risk related operations should make more efforts to inform community members of those risks. While this increases awareness and cognitive involvement about the risk, this is apparently offset by the sense of openness and concern that leads to trusting relationships.

Of course, there are obvious limitations to this study, which include the limited number of responses in a one case scenario. This makes the generalizability of the results limited. Additionally, only 16 schools participated in both the pre-test and post-test surveys, which gave very little statistical power for the paired t-tests. Therefore, the direct measure of the effect of the communications campaign is limited.

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