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The Mediation Model of Influence of Web site Performance on Needs for Crisis Communication in the Case of Toxic Milk Powder

Abstract

Most literatures concerning Internet public relations (PR) assumed that "the viewpoint of traditional PR could be applied to Internet PR." However, this assumption lacks empirical evidence and validity. This article is a case study on the crisis of toxic milk powder in 2008, for testing this assumption, an online experiment (N=402) was conducted. Research findings suggested that the effect of corporate web site performance on the needs for crisis communication was mediated by a set of mediators (i. e., OPR, crisis responsibility and self-efficacy), with OPR being the most critical in the model. The importance of relationship management in both traditional and Internet PR is made evident as a result of this research.

Key word: Mediation effect; crisis of toxic milk powder; organization-public relationship; web site performance; Internet PR; Internet crisis communication.

EL MODELO DE INFLUENCIA DE MEDIACIÓN DEL DESARROLLO DE LOS SITIOS WEB SOBRE LAS NECESIDADES DE COMUNICACIÓN DE CRISIS EN EL CASO DE LA LECHE EN POLVO TÓXICA

Resumen

La mayoría de textos con respecto a las relaciones públicas de Internet (RP) asumen que "el punto de vista de las RP tradicionales serían aplicables a las RP de internet". Sin embargo, esta suposición carece de evidencia empírica y validez. El presente artículo es el estudio de un caso sobre la crisis de la leche en polvo tóxica en el 2008, para verificar esta suposición, se condujo un experimento en línea (N=402). Los resultados de las investigaciones sugirieron que el efecto del desarrollo del sitio web corporativo en necesidades de comunicación de crisis fue filtrado por una serie de mediadores (es decir, ORP, responsabilidad ante crisis y autoeficacia), siendo ORP el más crítico en este modelo. Como resultado de esta investigación se ha hecho evidente la importancia de la gestión de relaciones las RR. PP. tradicional y de Internet

Palabras clave: Efecto de mediación, crisis de la leche en polvo tóxica, organización- relaciones públicas, desarrollo de los sitios web, RP del Internet, crisis de comunicación del Internet.

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1. Introduction

The rise of the Internet makes great influence on communication environment, and therefore the communication strategies of organizations face the phase of transforming (Sun, 2000). The Internet provides companies a platform for strategic talking, interaction, and shaping long-term relationship with its stakeholders (Kent & Taylor, 1998). Scholars had already regarded the Internet as one of crisis communication media, and so do their research approaches (e. g., Taylor & Kent, 2007; Perry, Taylor, & Doerfel, 2003), and some of them further examined the concept of traditional theories from this approach.

These studies preserved with their own argument. Some focused on either each web site design (e. g., interactivity) or media effect. However, those studies fell short on interpreting all crisis phases. Some were limited to enumerate principles for crisis communication or future application of the Internet but lacked theoretical basis. Now the question falls on whether viewpoint of traditional PR applies to Internet PR or not. Except for platform features (e. g., interactivity, immediacy, anonymity and trans-border; Sun, 2000), what is the value of web sites for organizations? In addition, little is known about ways organizations' web sites integrate different crisis phases to communicate, the way public percept and the appreciable criteria on Internet crisis communication.

Accordingly, this article is based on crisis of toxic milk powder (China milk scandal) in 2008, intending to integrate crisis phases to examine the relationship between web site design and crisis communication, and how do public percept it.

More specifically, the main purpose of this article is not to prove the excellent effect of organizations' web sites on building relationship and crisis communication, but to find out that if the perspective of traditional PR could extend to the Internet, and the way web site performance associated with crisis communication. Hence, current research focused on two questions: (1) What is the relationship between web site design and crisis communication messages on corporate web sites? (2) What is the influential mechanism of web site performance on needs for crisis communication?

In final part, this article discussed the common foundation of traditional PR and Internet PR by putting the current condition of web site performance and crisis communication on the Internet, and the perception of public together.

2. Context of Theory

2.1. Crisis of Toxic Milk Powder in Taiwan

Since Sep. 2008, the case of toxic milk powder had gone up to a crisis of global food safety from only a crisis of single milk powder manufacturer in China (the Sanlu group), arousing concern for people in Taiwan (should be noticed that the "crisis of toxic milk powder" which termed in this article only refer to the follow-up effect that spread to Taiwan).

This case could be divided into three stages: (1) Pre-Crisis (from Mar. to Sep. 12th): In this stage, none of media directly indicated the brand name of the corporation (the Sanlu group). People in Taiwan didn't perceive the threat of crisis; (2) During the Crisis (from Sep. 13th to mid-Oct.): There were massive news reports focusing on the crisis and responsibility attribution, arousing a high degree of concern regarding to food safety in Taiwan in this stage; (3) After the Crisis (after the late Oct.): Though the event wasn't yet over, the public were no longer frightened. In addition, media shifted their focus from responsibility accounting to the means of sequential management.

2.2. The Internet and Crisis Communication

The strategic and tactical purpose of crisis communication usually is reducing the harm to image of an organization; sometimes it even makes a more positive effect on organization's image compared to the image of the company before crisis (Wu, 2000, 2005). The Internet plays multiple roles in the process of crisis communication, and it may not only intensify the crisis, but also be a channel for communication. However, the viewpoint of Internet PR is in its infancy and slightly with a prototype (Wu, 2005).

2.2.1. From relationship building to crisis communication

Following the trend on the difference of central issue, previous researches regarding crisis communication could be divided into two ori-

entations, public relations approach underlines the overall strategies and principles of organizational crisis management, and rhetorical approach discusses the image management strategy organizations adopted (e. g., Huang, 2006; Wu, 2000, 2005).

Whatever approach was adopted, literatures mostly focused on the communication strategy between organizations and its stakeholders in crisis (Ulmer, 2001). And, from the perspective of crisis management, an organization should communicate to public continuously to minimize the potential crisis regardless of the stage of the crisis (Fearn-Banks, 2002; Taylor, Vasquez, & Doorley, 2003). The relationship between organizations and public would affect the crisis responsibility which was attributed to an organization (Benoit, 1997; Coombs & Holladay, 2001, 2002; Park & Len-Rios, 2004). The perspective which extend to pre-crisis relationship reflects that the gradual merging of two orientations (Witkemper & Pritchard, 2007), and points out the importance of relationship (e. g., Ulmer, 2001; Wu, 2000).

Coombs & Holladay (1996) also emphasized the importance of relationship and incorporated the concept of attribution theory in their study. They proposed an experiment to examine how type of crisis, organizational performance history and crisis response strategy associated with image of an organization in terms of attribution theory. They assumed that if organizational performance history is more negative (i. e., high frequencies of occurrence of similar crises), public will consider an organization having more responsibility for the crisis, resulting in more harmful negative influence. Research results supported this hypothesis. Coombs (1998) took organizational performance history further into two parts: (1) crisis history: the same concept to organizational performance history in Coombs & Holladay (1996); (2) relation history: the pre-crisis relationship between organizations and public.

Accordingly, Coombs & Holladay (2001) proposed a crisis situation model and indicated that crisis performance history would affect assessment for responsibility and image. Relative to crisis responsibility, the relationship between organizational performance history and assessment for image is much closer, and the explanatory power of relation history is

much stronger than crisis history. When the relationship between organizations and public is poor, public would evaluate the image more negatively, while neutral or good relationship makes no differences. If there were no existing data about relation history and crisis history, public would tend to predict a more positive relationship.

Since Coombs & Holladay (1996, 2001) integrated variables of situation identification, relationship management, crisis responsibility and image of organizations in crisis communication field, leading further research to identification and discussion for the relationship among those variables (e. g., Coombs & Holladay, 2002; Huang, 2006; Kim, 2008; Kang, Garciaruano, & Lin, 2008; Park & Len-Rios, 2008; Wu, 2005). Their model took the effect of relation history on crisis response strategy into account but lost sight of related variables (e. g., crisis communication strategy and practice; Wu, 2000). In fact, crisis response strategy could reduce the damage on image of an organization by adjusting public perception. Thus, this model was amended soon after by adding a variable of organization reputation (Coombs & Holladay, 2002). Moreover, Kang et al. (2008) found that if people have low relationship satisfaction, they tend to take actions that caused potential crisis (e. g., to transmit the rumors). Even on the Internet, the relationship between organizations and public is also a crucial interpretation variable to crisis communication.

Sun (2004) defined Internet PR as: "The features of the Internet built up a platform for individuals or organizations to interact and communicate with each other. And features can narrow the gap between corporations and public or take them into the corporate promotion content (p.3)." Kent, Taylor & White (2002) termed these functions or features as "web site design". As a result, this article defined the relationship built through the Internet as "the dialogic relationship between organizations and public which is based on the web site design organizations presented, including the content of dialogue and techniques of promoting dialogue".

When discussing crisis communication on the Internet, the relationship built through the Internet shouldn't be ignored. Without web site designs, organizations' sites will lose the possibility of building a relation-

ship with public. Since these web site designs are also the criteria for assessing web site performance (Schneider, Frechtling, Edgar, Carwley, & Goldstein, 2000), its composite measure could be a variable for estimating global web site performance.

The current study only took the influence of relation history (i. e., organization-public relationship) into account since the crisis of toxic milk powder happened for the first time. But how does the result of ordinary relationship built affect the effectiveness of crisis communication? Crisis responsibility seems to provide a reasonable explanation. When there is a crisis, public want to know the responsibility attribution (Fearn-Banks, 2002). If there was a better relationship between organizations and public, organizations may bear less responsibility. Note that crisis responsibility is a factor of subjective evaluation perceived by public; it doesn't matter whether an organization is actually responsible (Benoit, 1997).

In sum, the current research infers that the relationship between organizations and public and the crisis responsibility attribution would affect public's needs for crisis communication messages and organizational crisis response strategy, thereby affecting eventual effectiveness of crisis communication.

2.2.2. The relationship between the Internet and crisis communication

Previous researches mainly adopted two approaches brought up by Taylor & Kent (2007) when it comes to discussing the role of the Internet played: (1) The effectiveness of new media: This line of researches are case studies of how the Internet helps in crisis communication or conceptual studies of application and functional process of the Internet in organizational communication (e. g., Coombs, 1998b); (2) The interaction between new and traditional media: Another line of researches focus on how the Internet integrated or merged into traditional media (e. g., Caldiero & Taylor, 2005; Taylor & Perry, 2005; Perry et al., 2003). It implies that the interaction of between common foundation media integration should also be taken into accounting when it comes to discussing the role as a new media of the Internet.

Similar prerequisite could be found by reviewing the previous studies: Perspective of traditional PR could also be applied to Internet PR. Kent & Taylor (1998) implied that "relationship building is the foundation of public relations (p.324)," mentioning that scholars haven't examined the effectiveness of the Internet on building relationship between organizations and public. Sun (2004) also defined Internet PR as a process of using Internet features to interact with public for establishing relationship. They seemed to assume that both Internet and traditional PR have the same foundation, contributing to build up a relationship. Furthermore, Taylor & Kent (2007) claimed that "traditional media relations tactics can be adapted for use on the organization's Web site during and after a crisis (p.141)", seeing crisis communication on the Internet as simply a matter of the extension of traditional crisis communication.

Most researches on advantages in crisis communication and public relations were theoretical and exploratory studies, which focused mainly on future implications. In addition, those studies placed their emphasis on the characteristics of new media (e. g., Aspden & Katz, 2000; Taylor & Kent, 2007; Taylor, Kent, & White, 2001; Sun, 2004). The hypotheses were rarely be examined. Little is known about what the effect public relations strategy having and how crisis communication implementing through the Internet, and what theoretical basis it basing on. Huang (2001b) suggested that the core value of traditional PR is relationship. But is it also the same to Internet PR? It's still an outstanding issue.

The study of Caldiero & Taylor (2005) had found more specific evidence supporting the effect of crisis communication through the Internet. They found that integrating rate of full quotes was 12%, noting that "if an organization has a better than one in 10 chance of getting a quote that frames an issue appear in a news story, then it makes sense to issue a news release in a crisis (p.16)." However, their study was still based on a framework of Benoit's theory of image restoration (which is also the viewpoint of traditional public relations and crisis management).

Only if this assumption (i. e., relationship building is the common foundation of traditional PR and Internet PR) is true will the argument of previous studies have its foothold.

2.3. Research Hypotheses (Hs)

The "public" which termed in current study only refers to consumer, mainly based on two reasons: First, consumer is the primary public which organization's web sites communicate to (Esrock & Leichty, 2000; Sun, 2004), and thus subject (consumer) variables took an important role in crisis; Second, previous researches had discussed the roles other public played in Internet crisis communication, such as media or internal staff (Caldiero & Taylor, 2005; Hill & White, 2000; Perry et al., 2003), but less dealt with the perception of consumer for Internet crisis communication, let alone investigated the question that if crisis management through the Internet affect the consumer or not.

In this part, this article adopted the definition of public relations of Grunig & Hunt (1984), attribution theory of Weiner (1995) (as cited in Coombs, 1998a) and the concept of self-efficacy of Bandura (1982).

2.3.1. Web site performance

Generally speaking, the criteria to assess website are listed as follows, content, design and aesthetics, the disclosure of author, sponsor and builder, immediacy of information (including frequency of web site update and maintenance), copyright of information, ease for use, accessibility and availability (Schneider et al., 2000). According to Schneider et al., web site design is a criterion for measuring web site performance, consistent with Kent et al. (2002), while they provided the theoretical basis of criteria: theory of dialogue.

The essence of public relations is a dialogue, the confliction resolution and negotiation, not only the persuasion or media effect (Grunig & Hunt, 1984). The relationship between organizations and public can be developed and a crisis can be processed through web site design. The ultimate goal of building a site is to develop a fine dialogical relationship (Kent & Taylor, 1998).

According to previous category construction of web site design (e. g., Ha & James, 1998; Sun, 2004), most studies were based on five principles of Kent & Taylor (1998) listing as follows; A dialogue first involves attraction of interactions (i. e., usefulness of information); for developing relationship, must to interact (i. e., ease of interface); for growing rela-

tionship, must to dialogue (i. e., conservation of visitors); and for thriving relationship, must to occur maintenance and satisfactory interactions (i. e., generation of return visits and dialogic loops) (Taylor et al., 2001, p.268).

Except for these principles above-mentioned, credibility should be taken into consideration. Credibility is essential to the practice of public relations (Coombs & Holladay, 1996). Previous studies concerning CMC (computer-mediated communication) and interpersonal communication on the Internet have also found that all types of relationship involving trust (Taylor et al., 2001; Green, 2007; Riegelsberger, Sasse, & McCarthy, 2007).

Wu (2000) suggested that the relationship between organizations and public is crucial to crisis communication. The views of Kent & Taylor (1998) on the web site design also implied to the web site performance (which is also the composite measure of all web site designs) of an organization would influence the relationship between organizations and public.

2.3.2. Needs for crisis communication

The needs for crisis communication representing "the characteristic of information which public pay attention to during the crisis," were the factor of public perception. During a crisis, there are many characteristics of information which public valued, such as the usefulness or immediacy of crisis communication message. And these needs would change when changing the perception of public.

When browsing an organization's site, the public's needs for crisis communication would be affected by web site performance which public perceived during crisis because of the mediation of organization-public relationship (OPR), crisis responsibility and self-efficacy.

2.3.3. OPR

Grunig & Hunt (1984) defined public relations as "a relationship existing between organizations and its stakeholders" (i. e., OPR). The value of public relations is the long-term relationship developed between organizations and public, which is consistent with concepts of dialogic relationship of Kent et al. (2002). As a result, OPR will be affected by web site performance according to arguments of Kent et al.

However, there were many difficulties in measuring OPR (Plowman, 2007). There are no specific methods to measure a long-term relationship because previous methods only measured the output and outcome of relative short-term relationship. They can only give information about the effectiveness of particular public relations program (Hon & Grunig, 1999). When it comes to measuring overall effect of public relations for organizations, we need different tools and techniques.

Hon & Gruing (1999) proposed a quantitative scale for measuring OPR, identifying six features: (1) Trust: one party's confidence to open oneself to the other; (2) Control Mutuality: the degree of agreement of one party has the rightful power to affect the other; (3) Satisfaction: the degree of satisfaction of one party feels toward the other; (4) Commitment: the degree of feeling that relationship is worth spending energy to maintain and promote; (5) Exchange Relationship: one party gives the other benefits only because the other has provided in the past or is expected to do so in the future; (6) Communal Relationship: both parties provided benefits to the other because they are concerned for the welfare of the other (p.3). However, most scholars measured OPR only with the first four indicators (e. g., Huang, 2001a; Kang et al., 2008; Kim, 2008; Plowman, 2007). Grunig & Grunig (2001) also claimed that "four of these are especially important for measuring the quality of organization-public relationships (p.24)."

Kent et al. (2002) linked the concept of the Internet with the relationship through web site design, implying that web site design could affect OPR; Huang (2001b) also found that OPR could reduce conflicts, generating cooperation between organizations and public (which can minimize the damage of crisis). This article adopted methodology brought up by Huang (2001b), taking OPR as a mediator, which affected the needs for crisis communication and being influenced by corporate web site performance (Kent et al., 2002). Accordingly, researcher proposed the following hypothesis about OPR:

H1: OPR will mediate the effect of corporate web site performance on the needs for crisis communication.

2.3.4. Crisis responsibility

Crisis responsibility is an important factor in terms of discussing crisis communication. Based on Coombs (1998a), this article defined crisis responsibility as "the extent of an organization's responsibility for the crisis, which is an outcome of evaluation of public."

If public don't consider an organization is responsible for the crisis, its corporate image wouldn't be injured, and there is no needs for crisis communication (Benoit, 1997). On the other hand, if there is a fine relationship between organization and public, public would assume that organization should take less responsibility for the crisis (Coombs & Holladay, 2001). In other words, crisis responsibility is one of the key concepts to associate relationship building with crisis communication.

Coombs (1998a), Coombs & Holladay (1996, 2001) took attribution theory as an explanation tool, suggesting that public evaluate organization's crisis responsibility through its performance history. Kim (2008) also found that crisis responsibility has a significant negative influence on organizational reputation, and thereby affecting participants' potential supportive behaviors (i. e., "WOM intention").

The crisis of toxic milk powder was a different situation to previous studies: Its affected range was wide-spread, and many enterprises and consumers were suffering. Similar incidents haven't occurred before. Therefore, the influence of injured party (Park & Len-Rios, 2008) and crisis history (Coombs, 1998) will be smaller, and the influence of relation history will be larger. The "OPR" which termed in this article actually is equivalent to relation history and the dialogic relationship between organizations and public above-mentioned, being built through web site performance.

According to previous literature, researcher considered that web site performance will affect the perceived crisis responsibility, and the effect of web site performance on the needs for crisis communication is mediated by crisis responsibility:

H2: Crisis responsibility will mediate the effect of corporate web site performance on the needs for crisis communication.

YU-TING CHEN

2.3.5. Self-efficacy

According to Bandura (1982), self-efficacy is a perception of internal self-system, an evaluation of ability to complete specific performance, and would affect individual's choice or energy determined to invest in. Generally, those with high self-efficacy will be provoked to a greater capacity by obstacles.

Grunig's situational theory assumed that public's communication behaviors (i. e., information seeking and information processing) could be understood via their perception to environment, and could be identified as three independent variables: (1) Problem Recognition; (2) Constraint Recognition and (3) Level of Involvement (Grunig & Hunt, 1984). Among these variables, the concept of constraint recognition apparently has included the consideration of self-efficacy.

In theory of Grunig, self-efficacy as one of situational variables could be constructed through cognition related to issues, making influence on individual's behaviors. If attitude is formed by elaborate cognitive processes and is highly constructed, there is likelihood for lasting behavior change. When actions are specific and easy to implement, the cognitive change through communication is likely to provoke a short-term behavior change (Dozier & Ehling, 1992).

Grunig & Childers (1988) further revised situational theory, assuming that problem recognition, constraint recognition and level of involvement have both internal and external dimensions (as cited in Dozier & Ehling, 1992). Internal constraint recognition apparently is adverse of efficacy expectation and external constraint recognition is adverse of outcome expectation. That is, they measured self-efficacy of public by (1) efficacy expectation and (2) outcome expectation (which are critical factors in Bandura's self-efficacy theory).

In the study concerning mediation effect of perceived interactivity of Song & Bucy (2006), self-efficacy is a crucial moderate variable which affect sequential behaviors. Their results showed that objective interactivity and participant's self-efficacy have significant interaction effect on perceived interactivity. Regardless the case of low or high objective interactivity, as self-efficacy increased, perceived interactivity decreased.

The explanation of Song & Bucy is that those with high self-efficacy might experience a higher sense of interactivity before, thereby when they were given insufficient amount of objective interactivity, their perceived interactivity decreased.

Among domestic (Taiwan) researches, Lo, Li, Shih, & Yang (2005) adopted expectancy theory as a framework to discuss the Internet adoption and uses of public. They found that expectancy value is an important predictor to both adoption and uses. In fact, expectancy theory and self-efficacy theory have much in common, such as the concept of instrumentality and that expectancy are similar to efficacy expectation and outcome expectation.

Those studies mentioned above showed that self-efficacy is particular for interpreting individual behaviors. This article defined outcome expectation as "the belief to avoid damage caused by the crisis of toxic milk powder through the information from the Internet", and efficacy expectation as "the ability to acquire the information from the Internet". Due to the fact that interactions between environment, individual and behaviors, and self-efficacy is the most important regulatory mechanisms for influencing behaviors and also the cognitive motivation which promotes individual to behave, researcher considered that web site performance (environment factor) would affect the self-efficacy of consumer, thereby influencing the needs for crisis communication:

H3: Self-efficacy will mediate the effect of corporate web site performance on the needs for crisis communication.

3. Method

The experiment method has been widely used in crisis researches, especially during the time when researchers want to explore the perception of public (e. g., Coombs, 1998a; Coombs & Holladay, 1996, 2001; Kang et al., 2008; Kim, 2008; Park & Len-Rios, 2008). In order to test research hypothesizes, one-way (low vs. high web site performance) between subject design was conducted. And for investigating the effectiveness of experiment stimulus more clearly, researcher also identified related variables in previous studies.

3.1. Subjects

This research aimed at recruiting young participants that have high homogeneity in age and educational background in order to meet research needs and to increase internal validity. Researcher recruited voluntary online participants from Bulletin Board System (BBS) sites (Ptt and Ptt2, having enrollment of about 100 million people, which are the biggest two sites in Taiwan). The average age of BBS users were 24 years-old, who have considerable knowledge about the Internet. They are the biggest online group in Taiwan. Due to the fact that the crisis of toxic milk powder is an issue relevant to general public, would have less impact with the characteristics of BBS users.

Participants for three testing in this study were all voluntary response sample. There were 43 participants in first pretest (between subject design). They were mainly tested the manipulation of stimulus and internal-consistency reliability of questionnaire items, including OPR, crisis responsibility, needs for crisis communication and individual relevance ,etc.. There were 25 participants in second pretest (within subject design), being tested manipulation check and revised self-efficacy items.

Finally, the participants (N=402) in formal experiment, with no one ever participated in pretest, were randomly assigned and exposed to either low (n=209) or high (n=193) web site performance condition. The play-participants ranged in age from 15 to 53 years (M=23.97, SD=3.72).

3.2. Variables

The independent variable researcher manipulated is web site performance, including two conditions: high vs. low. The total score of high web site performance on six dimensions of web site design were higher than the low. For meeting actual condition and making experiment more realistic, researcher replicated pre-existing corporate sites as stimulus.

However, according to relationship management approach, existed reputation of an organization may affect stock value, employee's morale or related evaluation, etc. Organization reputation is formed by public and is affected by many factors, including service quality, economic performance and business strategies. Previous researches indicated that organization reputation would affect participants' attitude and evaluation of crisis responsibility for organizations (Kim, 2008; Lyon & Cameron, 2004), and OPR would affect organization reputation (Coombs & Holladay, 1996, 2002). As a result, researcher took organization reputation into control.

3.2.1. Organization reputation

Most studies measured organization reputation using 5-item scale from Coombs & Holladay (2002) or 10-item scale from Coombs & Holladay (1996). However, the definition of Fediuk, Buddenhage, Mason, & Botero (2008) were more integrative. They defined organization reputation as "a generalized, overall evaluation about an organization, the notion that these overall evaluations can be captured by collapsing image components across topics and stakeholders, and the addition of time to the definition (p.181)." Organization reputation provides the information about future performance and is developed over time. Accordingly, researcher developed 4-item scale, this scale ranged from 1 (strongly disagree) to 5 (strongly agree), the same to all other items, except for subject variables. Before visiting web site assigned, participants need to respond to this 4-item scale first.

3.2.2. Web site performance

According to previous studies (Ha & James, 1998; Kent et al., 2002; Taylor et al., 2001; Riegelsberger et al., 2007), current study measured web site performance with 6 indicators: (1) ease of interface; (2) usefulness of information; (3) two-way communication mechanism; (4) playfulness; (5) user information gathering and (6) credibility. After visiting sites, participants responded to this 6-item scale.

3.2.3. Mediators

Like previous researches (e. g., Huang, 2001a; Kang, Garciaruano, & Lin, 2008; Kim, 2008; Plowman, 2007), OPR was measured using a 4-item scale from Hon & Grunig (1999), including (1) trust; (2) control mutuality; (3) satisfaction and (4) commitment. This article adopted the version of Huang (2001a) and Plowman (2007), but aborted "favor and face" and "transparency" which is irrelevant to this case, and replaced the notion of "control mutuality" with "influence" (Plowman, 2007), for the reason that "influence" is more appropriate in this article.

Crisis responsibility was measured using 2-item scale from previous studies (Kim, 2008; Park & Len-Rios, 2008), asking if an organization is

YU- TING CHEN

responsible and the extent of an organization need to be blamed. And Self-efficacy was measured using 6-item scale regarding to the crisis of toxic milk powder. In this scale, 3-item was about outcome expectation, and other 3-item was about efficacy expectation.

3.2.4. Needs for crisis communication

The definition of needs for crisis communication is "the characteristic of information which public pay attention to during the crisis." According to previous studies (Sturges, 1994; Taylor & Kent, 2007) and observation in this case, researcher developed a 6-item scale: (1) the amount of crisis communication messages; (2) consistency, (3) immediacy, (4) significance, (5) usefulness and (6) credibility of crisis communication messages during the crisis.

3.2.5. Subject variables

Internet usage behavior, trust on web information and personal relevance were the critical variables in the Internet related researches (Aspden & Katz, 2000; Green, 2007), this article also included related variables in questionnaire.

Internet usage behavior measured using 3 indicators. Trust on web information means "the extent of trust on information from the Internet", including 9 indicators. Personal relevance were measured with 6-item about recognition from Kang et al. (2008), and researcher added 4 items on behavior and outcome. For the reason that this article adopted pre-existing corporate sites as stimulus, there could be an effect of prior knowledge of participants for stimulus. In order to partial out this influence, researcher measured browsing frequency with one item: "Before responding to this questionnaire, what is your daily browsing frequency of this corporate web site?" Answer ranged from 1 (never) to 6 (always). The following demographic information from participants was collected: sex, age, education and income, because they were also important predictors (Aspden & Katz, 2000; Lo et al., 2005).

3.3. Experiment Procedure

According to the result of second pretest, researcher adopted the corporate web site of Yakult (high) and Costco (low) in Taiwan as stimulus. And, in order to rule out the influence that Yakult's site communicated for the crisis but Costco's didn't, researcher removed the crisis communication message in Yakult's site.

Although the nationality and business category of corporation would affect crisis responsibility, researcher still didn't include into control. There were two reasons: (1) incompatible with research questions and (2) the difficulty of implementation.

The formal experiment was conducted from Apr. 2 to 13 2009 in Taiwan. Each participant was assigned to either Yakult's (high performance) or Costco's (low performance) site, and completed the questionnaire after browsing the site (browsing time was about 1 min average).

4. Results

4.1. Reliability Analysis and Manipulation Checks

The reliability analysis of overall items produced an acceptable internal consistency (the value of Cronbach's _ all above 0.70), see table 1.

To assess the effectiveness of experimental manipulations, a series of one-way analysis of variance (ANOVAs) were conducted. ANOVA showed that there were significant differences for web site performance between two groups, $F(1,400) = 123.97$, $p<0.001.$, and there were no significant differences for organization reputation, $F(1,400) = 0.31$, n. s.. As expected, the web site performance score of Yakult's site (M=3.67, SD=0.44) was significantly higher than Costco's (M=3.09, SD=0.58), and there were no differences in their organization reputation. Overall, the analysis of the manipulation check indicated the fact that the intended manipulations were successful (see table 2).

4.2. Test of Subject Variables

For ensuring the characteristics of participants from two groups were no differences, Chi-square test of independence and ANOVA were conducted. Results showed that there were no significant differences for subject variables between two groups, except for browsing frequency, $F(1,400) = 40.84$, $p<0.001$. The frequency of Costco's (M=2.11, SD=0.06) were higher than Yakult's (M=1.54, SD=0.06). While the distribution of browsing frequency of two groups was not the same, it should be due to the selection bias.

4.3. Test of Hs

To address Hs (which presented the mediation relationship between variables), a series of multiple regression analysis (steps of Baron and Kenny, 1986; as cited in Kenny, 2008) were conducted using web site performance as independent variable, OPR, self-efficacy and crisis responsibility as mediators and needs for crisis communication as dependent variable. In order to use bootstrapping which is a better approach for testing indirect effect, researcher adopted the SPSS macro of Preacher and Hayes (2008).

First, results showed that the model already has a significant total effect to be mediated in path C, B = 0.130, SEB = 0.050, _ = 0.128, p<0.05. Step 1 was supported.

Next, for path A, web site performance had a significant effect on OPR (B = 0.157, SEB = 0.046, _ = 0.167, p<0.001) and self-efficacy (B = 0.104, SEB = 0.050, _ = 0.104, p<0.05) in a positive direction, but not on crisis responsibility (B = -0.050, SEB = 0.083, _ = -0.030, n. s.). Step 2 was partly supported.

And for path B, when incorporating web site performance into regression model, results indicated that OPR (B = 0.185, SEB = 0.054, _ = 0.172, p<0.01) and self-efficacy (B = 0.383, SEB = 0.049, _ = 0.379, p<0.001) had a significant direct effect on needs for crisis communication in a positive direction, except for crisis responsibility (B = 0.052, SEB = 0.027, _ = 0.085, n. s.). Step 3 was partly supported.

Table 1: The Reliability Analysis of Variables

Variables	Item	Cronbach's α
Web site performance	6	0.82
Organization reputation	4	0.80
OPR	16	0.91
Crisis responsibility	2	0.80
Self-efficacy	6	0.70
Needs for crisis communication	6	0.84
Personal relevance	10	0.82
Trust on web information	9	0.73

Finally, for path C', there was no significant direct effect of web site performance on needs for crisis communication when mediators was controlled in regression model, B = 0.064, SEB = 0.045, _ = 0.063, n. s. Step 4 was supported. Results of steps were summarized in Table 3.

The bootstrapping results also indicated that the total indirect effect of global model was significant (see Table 4), showing that OPR, self-efficacy and crisis responsibility mediated the effect of web site performance on needs for crisis communication, B = 0.066, p<0.05. Among the mediation process, there were significant indirect effect of OPR (B = 0.029, p<0.05) and self-efficacy (B = 0.040, p<0.05), while crisis responsibility (B = -0.003, n. s.) wasn't significant.

In the multiple mediation model, a significant regression equation was found with adjusted R_ of 0.237, F(4,397) = 32.133, p<0.001. When taking mediators into model, the change with adjusted R_ (0.223) was significant (p<0.001). Furthermore, paths of mediation model were illustrated in Figure 1.

Table 2: Manipulation Checks

Variables	Low		High		ANOVA
	M	SD	M	SD	F (1,400)
Web site performance	3.09	0.58	3.67	0.44	123.97***
Organization reputation	3.74	0.65	3.77	0.57	0.31

Note. *p<0.05, **p<0.01, ***p<0.001 (two-tailed test).

Table 3: Result of Mediation Steps

|	B	SEB	B	criteria
Path C				
Web Site Performance	0.130*	0.050	0.128	Yes
Path A				
OPR	0.157***	0.046	0.167	Yes
Self-efficacy	0.104*	0.050	0.104	Yes
Crisis Responsibility	-0.050	0.083	-0.030	No
Path B				
OPR	0.185***	0.054	0.172	Yes
Self-efficacy	0.383***	0.049	0.379	Yes
Crisis Responsibility	0.052	0.027	0.085	No
Path C'				
Web Site Performance	0.064	0.045	0.063	Yes

Note. *p<0.05, **p<0.01, ***p<0.001 (two-tailed test).

Table 4: The Bootstrapping Result for Testing Mediation

	B Coefficients			BCa 95% CI	
	Data (B)	Boot (B)	Boot (SEB)	Lower	Upper
Total	0.066	0.066	0.026	0.020	0.126
OPR	0.029	0.029	0.014	0.010	0.068
Self-efficacy	0.040	0.040	0.020	0.007	0.084
Crisis Responsibility	-0.003	-0.002	0.005	-0.020	0.005

Note. BCa, Bias-corrected accelerated interval, N of Bootstrap Resamples=1,000.

Figure 1: The Paths of Mediation Model
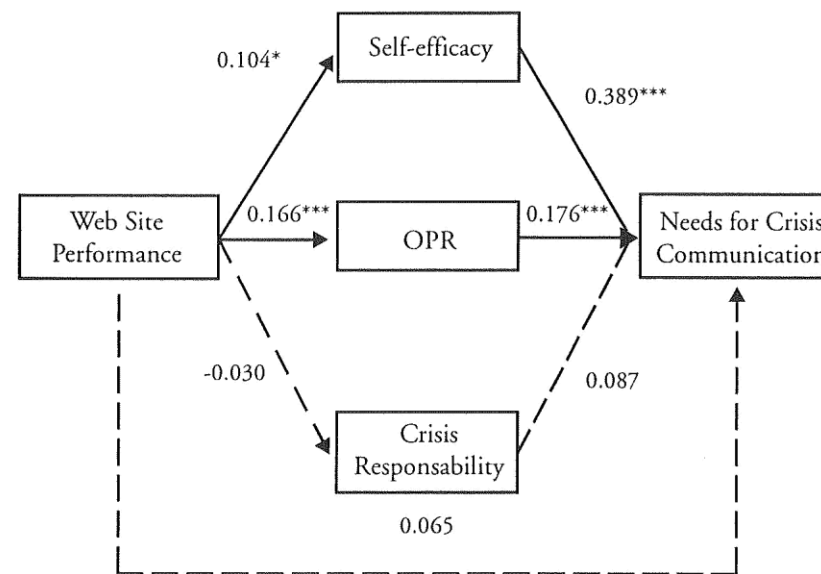
Note. Significant paths were in solid line, while no significant paths were in dotted line.

As expected, results supported hypothesize: influential mechanism of web site performance on needs for crisis communication is not simply direct effect but a mediation effect. Results indicated that H1 (OPR) and H3 (self-efficacy) were supported, while H2 (crisis responsibility) wasn't confirmed.

5. Discussion

Over the past two decades, Huang (2001b) suggested, the effect of public relations for organizations has always been one of the hot topics. Huang's study revealed the importance of relationship management. Previous studies concerning Internet PR were based on an assumption that seeing the Internet equivalent to one of traditional communication tools, however, merely examining its authenticity.

This article examined this assumption, supporting the argument of previous studies (Kent & Taylor, 1998; Taylor et al., 2001; Kent et al., 2002; Sun, 2004). The difference between traditional and new media on platform features or whose role as a communication tool is mainstream, relationship has always been the core value of communication and the important topic in public relations.

Research results indicated that Internet PR is helpful for organizations. When the web site performance of a corporation is good, its crisis responsibility would also be decreased. This article also provides the answer to questions of Hill & White (2000): What is the effect of the Internet PR? How to assess its effect? For organizations, the effect of Internet PR is building and maintaining good relationship, the same to traditional PR. Through the way of direct link with public, web site performance has a positive effect on OPR, and its measures could be the assessment indicator.

Note that corporations which have better web site performance shouldn't ignore the importance of crisis communication. Previous researches indicated that good OPR could decrease crisis responsibility for organizations and promote public's potential supportive behaviors (Kang et al., 2008; Ulmer, 2001), seemed to imply that corporations needn't to implement crisis communication and will have a good result. In this study,

good web site performance led to better participants' self-efficacy, thereby directly and indirectly increased participants' needs for crisis communication. Although there is less crisis responsibility, it doesn't mean that needs for crisis communication will also be less. If corporations couldn't satisfy the needs of public, there could be a negative effect on corporate image (Benoit, 1998; Fearn-Banks, 2002).

Since researcher adopted pre-existing sites as stimulus, there were some limitations to this study. The difference in business category between two stimulus sites could affect the outcome, and that the dependent variable couldn't be linked to crisis response strategy which is critical in rhetorical approach (e. g., theory of image restoration; Benoit, 1998; Coombs, 1998a).

However, in order to decrease public's uncertainty to stimulus and to more meet the actual condition, researcher still suggests that future study should use pre-existing sites as stimulus. In order to partial out the effect of prior knowledge, future researches could take it into control or discuss the relationship among prior knowledge, OPR, self-efficacy and crisis responsibility.

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