

# Mediating Effects of Perceived Risk and Usefulness between Online Information Credibility and Intention to Use

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## 〈 Abstract 〉

Using the theory of attribution, this study investigates the determinants of controllability and explores underlying dimensions of online information credibility, and then investigates if the credibility of online information influences the users' intention to use the online information for evaluating or judging the involved products. Moreover, as a research attempt to investigate the impacts of online information credibility, this study examines whether the main effect of perceived online information credibility on the intention of using online information to make a decision of purchase is mediated by both perceived risk and perceived usefulness.

A total of 287 survey forms were collected from online consumers. We examined reliability by exploring internal consistency of the multiple item scales in the overall sample. Convergent and discriminant validity were also examined for evidence of construct validity. Then, PLS technique was employed to test the research model.

As a result of analyzing data from a dataset of 287 responses via PLS technique, it is found that (1) both sources (controllability and stability) of perceived credibility are significantly associated with both perceived risk and perceived usefulness, and (2) perceived risk as well as perceived usefulness partially mediate the link between the two sources of credibility and intention to use.

The findings of this study also suggest that the two dimensions of online information credibility influence information recipient's intention to use. Moreover, the online information including descriptions about controllability and stability can trigger potential consumers to perceive risk about consumption of the informed products and services. Therefore, providing online information with highly described controllability and stability can increase not only the credibility of the online information itself, but also the intention to use the online information through perceived risk and usefulness.

Key Words : Theory of attribution, eWOM, Online review, Credibility, Perceived risk, PLS (Partial Least Square) technique

## I. Introduction

Previous research on information credibility of online information has been conducted in a variety of directions. Many IS literature (e.g. McKinney et al., 2002) views information credibility as a part of information quality, in that the credibility of information provided by sellers in the Business-to-Customer environment is a key dimension in evaluating information quality for making better decisions, judgments, and outcomes. But such IS literature has not paid attention to the credibility and quality of information provided by a consumer in the context of Customer-to-Customer information exchange (Goldsmith and Horowitz, 2006). Another research stream has examined trust in e-business transactions (Gefen et al., 2003) in terms of how to increase Web site credibility by means of formulating users' trust toward the Web site itself. However, this research stream has not explicitly discuss credibility resulting from information posted on Web sites (Hsu et al., 2012). The other prior studies that investigated information credibility (Flanagin and Metzger, 2000) has focused relatively more on the factors influencing the user's perceived Web site quality, not the impact of information credibility on intention to use the presented information in the environment of Customer-to-Customer Web site. Thus, these studies have placed the research of interest on revealing the antecedents that create credibility perceived by consumers in online transactions.

Drawing upon the previous literature, this

study seeks to investigate the effects of information credibility generated by a consumer (sender) on other consumers (receiver) in the context of customer-to-customer e-business. In addition, this study examines how information credibility influences consumer attitudes and behaviors. Although consumers are exposed to the same online message and then perceive similar degrees of information credibility, the process that individuals use to manage the posted information for further evaluation varies from one to another, especially if one's perception of the posted online information fluctuates with perceived risks, usefulness, or situational contexts. Therefore, we may be able to explain why individuals show different responses to common information from external sources.

## II. Theoretical Background

### 1. Theory of attribution and its application

Employing the theory of attribution, this study explains the effects of credibility resulting from information, primarily concentrating on the online messages posted by individual consumers. This theory is chosen for particular reasons. First, it relates directly to the causal inference process so that attribution theory helps the research examine how an individual deduces or understands online information posted by other consumers. Second, this study needs to investigate one's

causal inference process in terms of online information credibility. Thus, the theory of attribution can provide a theoretical basis to explore the underlying constructs of online information credibility. Specifically, this study uses the theory to investigate what dimensions and which process a consumer evaluates the credibility of online information.

According to attribution theory, individuals have a natural tendency to understand and explain the underlying causes of their surroundings (Heider, 1958). By specifying Heider (1958)'s two-dimensional causal relationship, Weiner (1985) develops the model of three-dimension causality. In his work (1985), he suggested that individuals recognize or attribute the expected level of success or

failure in targeted behaviors to controllability, stability, and locus of control, thereby the consequences of such attribution processes influence their behavioral outcomes. Employing the theory of attribution as a theoretical foundation, much research has investigated individuals' causal inference process which is triggered by presented events or information (See <Table 1>).

Taken as a whole, attribution theory has been extensively used to provide a convincing theoretical perspective for understanding causal perceptions and their influence on behaviors within various research fields (See <Table 1>). However, prior studies have paid little research attention in applying attribution theory to explore online information credibility.

<Table 1> Research Fields and Prior Using Attribution Theory

Research Field	Literature	Subject of Attributional Inference	Related Variables	Key Results
Marketing/ Advertising	Lacznik et al., 2001	Word-of-Mouth Communications	Brand Evaluation	Causal attribution is positively associated with brand evaluation
	Freling & Dacin (2010) Gotlieb & Sarel (1991) Zang & Buda (1999)	Advertising Claims/ Messages	Brand Evaluation Purchase Intention Willingness to Purchase	Attribution influenced by ad has a significant impact on evaluations of the advertised brand.
Consumer Behavior	Folkes et al. (1987) Swanson & Kelley (2001)	Firm/Product/Service Success or Failure	Word-of-Mouth/Re purchase Intentions, Satisfaction	Attributions (stability, locus, controllability) lead to differential intentions in consumer behaviors.
Management/ Organizational Science	Brockner & Guare (1983)	Work Performance	Self-Esteem, Depression, Ability, Effort, Luck, Task Difficulty	Task performance can be improved when employees attributed their prior failure to the difficulty of the task.
	Bettman & Weitz (1983)	C o r p o r a t e Performance	Financial Performance	Negative performance was attributed more to external, unstable, and uncontrollable causes than was positive performance.
International Management	Cort et al. (2007)	Internationalization of firms	Expectation of Success, International Success	Causal factors influence the expectation of success, which in turn results in international success.

Interestingly, only few studies (e.g., Grewal, 1994; Zhang and Buda, 1999) have shed a highlight on source credibility (e.g. the message sender or communicator), not information credibility, by employing attribution theory.

To extend the perspective of attribution theory to the field of online information, this study focuses more on exploring the underlying dimensions, stability and controllability in online information credibility. Therefore, this study posits that the different degree of credibility among individuals toward online information may be caused by two different dimensions which differ in the consequences of individual subjects' online information processing.

In fact, attribution theory concentrates more on causes than effects (Schwarzer, 1994). However, as summarized in <Table 1>, many previous studies in a variety of disciplines have utilized it to investigate the impacts of attributional process by linking the dimensions of attributions to both emotions and behaviors (Dasborough et al., 2011). Some studies examined attributional explanation of consumer's information processing (Mizerski, 1982), or consumer's risk perception (Grewal et al., 2004) by extending and integrating the works of attribution theory with other critical dimensions from consumer belief and attitude.

In this paper, attribution theory is applied to explore the underlying dimensions of online information credibility within the context of e-business. Going one step further, we seek to investigate the influence of these underlying

attributional dimensions in information credibility on other critical constructs such as perceived risk and usefulness representing consumer's cognitive state. This study attempts to understand how an individual deliberates online information credibility in terms of causal inference and its effects on perceived risk and usefulness in formulating attitude in e-business context.

### III. Hypotheses and Research Model

#### 1. The Effect of Perceived Risk on Intention to Use

This study examines the process by which individual receivers use the credible online information for further attitude change, decision-making, and consumption behaviors. Therefore, because the exposure to online information involves individual and informal information processing, it is necessary to investigate how well an individual understands, and how much control they have over, the posted online message. The direct link between information credibility and intention to use the information can be addressed from much of the work in TRA (Theory of reasoned action; Fishbein and Ajzen, 1975) and TAM (Technology Acceptance Model; Davis 1989, Davis et al. 1989). However, it is necessary to investigate more constructs than just usefulness and ease of use for the

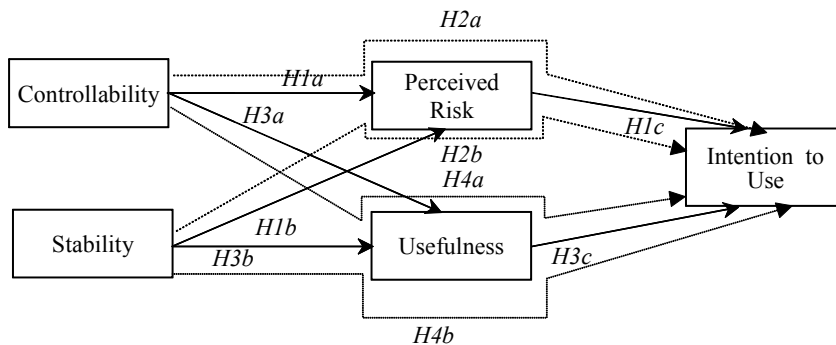
purpose of this study. One of the most important possible characteristics determining the degree to which information is used depends on how much the posted online information reduces uncertainty and minimizes undesirable outcomes about a targeted behavior. According to risk theory, perceived risk can be defined as the individual judgment of the likelihood that a consequent loss could occur and the seriousness of its likely consequences, suggesting that perceived risk will negatively affect the intention of performing a risky behavior (Sitkin and Pablo, 1992). Put simply, if the receiver believes the information, there should be direct influence on risk perception. Especially in the online information processing context, the receiver may understand and control the online

information when he/she employs it to reduce the perceived risk from purchase and consumption of products or services reputed by a sender. Therefore, this study posits the following hypotheses to examine the relationship between information credibility and perceived risk of a particular product or service.

H1a: Controllability of online information is negatively associated with perceived risk in making a better decision of purchase.

H1b: Stability of online information is negatively associated with perceived risk in making a better decision of purchase.

H1c: Perceived risk is negatively associated with intention to use the online information.



<Figure 1> Research Model

The extent to which people believe the presented information directly determines the degree to which they intend to use it for further decision-making processes. If the credible information containing a warning message, it is first internalized by the receiver of the information (perceived risk), and then

the extent of internalization influences receiver's reaction (intention to use) to the perceived risk. For example, when the purpose of the online message is to inform about negative consequences and calls for caution when purchasing or consuming about a particular product or service, this can lead to

greater perceived risk when the message is credible than when it is determined as less credible. This, in turn, may lead to greater intention to use the presented information in a further decision of actual purchase or consumption. The following hypothesis is proposed.

H2a: The perceived risk mediates the impact of controllability in information credibility on intention to use the online information.

H2b: The perceived risk mediates the impact of stability in information credibility on intention to use the online information.

## 2. The Effect of Usefulness on Intention to Use

IS (Information Systems) researchers have intensively investigated how to develop determinant factors of IT usage. Adopting the link belief-attitude-intention-behavior of TRA, TAM seeks to predict the user's behavior based on two specific behavioral beliefs: perceived ease of use and perceived usefulness, which determine an individual's behavior intention to use an IT (Davis et al., 1989). TAM has not only been extended to being applicable in diverse types of IS (Venkatesh et al., 2000), but is also used to analyze an individual's behavior such as information use on the internet. Recognizing the purpose of this study which is to investigate how people process the credible information presented on Web sites, this study leaves out the construct of attitude from the original TAM model;

instead focusing on the direct impact of credible information on a reader's perception of usefulness for better decision-makings, and on the mediation effect of usefulness between credible information and intention to use. From the definition of TAM, this study defines usefulness as "the extent to which a reader expects to achieve better outcomes and decision making by using the presented information in the context of purchase and consumption decision point" The construct usefulness, rather than a static or general factor, is dependent on the user's perception about psychological and physical benefit which they expect to obtain by using the presented information when making a decision of purchase or consumption. According to Venkatesh et al's study (2007), the perception of usefulness includes multi-dimensional constructs such as relative advantage (Moore and Benbasat, 1991), extrinsic motivation (Davis et al., 1992), and outcome expectations (Compeau et al., 1999). Moreover, McKinney et al. (2002) suggest that usefulness of information can be measured with informative, valuable, instrumental scales. Therefore, when the presented information is perceived as credible, the individual is likely to find it useful in obtaining better decisions and judgments, because the presented information is knowledgeable, worthy, and helpful in saving decision-making time and assessing the uncertain purchase performance. Credible information will positively affect the perceived usefulness of the online information. In contrary, unreliable information is more likely

to impair the perception of usefulness. Therefore, a hypothesis is proposed to examine the relationship between credible information and perceived usefulness for better decision-making.

H3a: Controllability of the online information is positively associated with perceived usefulness in making a better decision of purchase.

H3b: Stability of the online information is positively associated with perceived usefulness in making a better decision of purchase.

H3c: Usefulness is positively associated with intention to use the online information.

Although previous studies investigating the direct impact of information quality in terms of information credibility found a positive relationship between information quality and information use (Low and Mohr, 2001), this study posits that perceived usefulness mediates the link between information credibility and intention to use, since this study assumes that individuals will disregard the credible information when it is perceived as not useful in making better decision and judgments. For example, individual consumers may perceive the presented information as credible because the information provides seemingly-objective content in terms of the stability and controllability of information, but the consumer is unlikely to use the online information if the information is perceived useless in making decision, thereby the receiver immediately discards the information and look for other

information that can be better used for decision-making. Most consumers probably prefer credible information, but information credibility must be equipped with usefulness, otherwise, there is no need and use for a consumer to seek information.

Consumers search indirect knowledge and opinions for making better decisions voluntarily. The more credible the online information is perceived, the higher usefulness is recognized, so that a consumer expect to use the presented credible and useful online information for better performance. To examine the mediating effect of usefulness between information credibility and intention to use, this study proposes the following hypothesis.

H4a: Usefulness of online information mediates the impact of controllability in information credibility on intention to use the online information.

H4b: Usefulness of online information mediates the impact of stability in information credibility on intention to use the online information.

This study is finally able to organize the research model shown in <Figure 1>. As discussed earlier, this study explores online information credibility from the theoretical perspective of attribution theory and its effects on consumer perception by relating it to other related conceptual frameworks such as risk/benefit perception and TAM. Attribution theory is used to investigate causal inference process about the information credibility, while

risk/benefit perception and TAM is employed to explain the role of usefulness in mediating the impact of information credibility on intention to use the information.

## IV. Analysis and Results

### 1. Measures

Modifying Swanson and Kelley (2001)'s items, this study examined controllability with four items measuring the extent to which subjects perceive that the causes of the problems described in the online message could have been controlled by the responsible party. Stability is also assessed with four items to measure how much subjects perceive that the causes of the problems described in the online message are likely either to change (unstable) over time or to remain the same (stable). The perceived risk measures developed by Hassan et al. (2006) and Jarvenpaa et al. (2000) were adopted for this study. The subjects were asked to select a corresponding number based on adjectives of semantic differential measures that best characterizes their decision of purchasing a relevant product (significant opportunity / significant risk; high potential for gain / high potential for loss; very positive situation / very negative; very unlikely / very likely) on a 7-point Likert scale. Usefulness was measured with four items which were developed by modifying Davis et al. (1989)'s items for perceived usefulness. Usefulness items were

measured on a scale of 1 (strongly disagree) to 7 (strongly agree). The dependent variable, Intention to use the online information, was measured with three items was adopted from Taylor & Todd (1995)'s instruments.

### 2. Data

The study collected data through two steps. First, an initial questionnaire was developed by adopting or adapting survey items measured in prior literature and then these survey items were translated into Korean by two professional translators who were not aware of the objective of the study. With this questionnaire translated into Korean, a pilot survey was conducted with 30 graduate students at a university in South Korea to obtain feedback. The comments and suggestions from this pilot test were used to develop the final questionnaire. Next, this refined questionnaire was administered to 300 students (Undergraduate= 182, Graduate=128) enrolled at the same university (on a volunteer basis). To collect data, participants were invited to a college computing room equipped the internet service. Before questionnaires were distributed, all participants were instructed to visit e-commerce websites where they could gain online information, reviews, or comments posted by other online consumers about the products or services (e.g. travel packages, airline tickets, movies, music concerts and so on) that they were likely to buy online in the near future. They were given twenty minutes to search and read the online information, and



then they were asked to answer the questionnaire survey. In <Table 2>, the demographic characteristics related to online shopping experience of samples are described.

<Table 2> Demographic Descriptions of Sample

Category		Frequency	Percentage(%)
Gender	Male	155	54.0
	Female	132	46.0
Age	Less than 20	2	0.7
	21-30	152	53.0
	31-40	124	43.2
	41-50	6	2.1
	Higher than	3	1.0
Internet Use per Week	Less than 1 hour	11	3.8
	Between 1-3 hours	33	11.5
	Between 3-5 hours	52	18.1
	Between 5-10 hours	137	47.7
	More than 10 hours	54	18.8
Online Purchase Experience for the Last Year	Never	15	5.2
	Less than 10 times	63	22.0
	Between 11-20 times	116	40.4
	Between 21-30 times	87	30.3
	More than 31 times	6	2.1
Paid money on Online Purchase for the Last Month	Less than ₩50,000(Equivalent to \$50)	29	10.1
	₩50,000-₩100,000(Equivalent to \$50-\$100)	80	27.9
	₩100,000-₩200,000(Equivalent to \$100-\$200)	130	45.3
	₩200,000-₩300,000(Equivalent to \$200-\$300)	35	12.2
	More than ₩300,000(Equivalent to More than \$300)	13	4.5
Total		287	100.0%

### 3. Reliability and Validity

Employing confirmatory factor analysis (CFR), this study examined the reliability and validities of the measurements. First, reliability of the measured scales was assessed using Cronbach's Alpha and composite reliability, which are an indication of the internal consistency of the items measuring the same construct. As presented in <Table 3>, all of the coefficients for Cronbach's alpha (ranged from .833 to .911) and composite reliability (ranged from .888 to .944) are above 0.7,

typically considered as an acceptable level (Hair, 1998).

To ascertain convergent validity, average variance extracted (AVE) (Barclay et al., 1995; Hu et al., 2004) and factor loadings were examined. As a rule of thumb, the item loading should exceed 0.70 of its corresponding construct to satisfy convergent validity (Barclay et al., 1995). As shown in <Table 3>, the loading of each item, ranging from .812 to .929, meets this criterion. In addition, <Table 4> shows that the AVE score for each construct is above 0.5, a recommended

benchmark (Hu et al., 2004), indicating that most variances in the constructs were captured by the indicators rather than denoting measurement errors.

To assess discriminant validity, factor analysis results, the relationship between correlations among constructs, and the square root of AVEs (Chin, 1998; Fornell and Larcker, 1981) are examined. As shown in <Table 3>, the factor analysis results of this study meet

the criterion for discriminant validity. In <Table 4>, the square roots of all the AVEs (the numbers in bold on the diagonal) are greater than the correlations among constructs (the off-diagonal numbers), indicating that more variance is shared between the construct and its indicators than with other constructs, thus showing good discriminant validity. Overall, the psychometric properties of the measures were more than adequate.

<Table 3> Cross-loadings, Composite Reliability, and Cronbach's alpha

	1	2	3	4	5	Composite Reliability	Cronbach's alpha
Controllability1	0.829	0.187	0.378	0.260	0.434	0.921	0.889
Controllability2	0.835	0.170	0.411	0.265	0.399		
Controllability3	0.896	0.249	0.553	0.372	0.429		
Controllability4	0.888	0.264	0.603	0.392	0.452		
Stability1	0.150	0.764	0.262	0.362	0.323	0.888	0.833
Stability2	0.291	0.884	0.297	0.459	0.380		
Stability3	0.265	0.925	0.310	0.482	0.479		
Stability4	0.187	0.897	0.288	0.508	0.436		
Risk1	0.506	0.268	0.901	0.385	0.450	0.931	0.901
Risk2	0.498	0.337	0.897	0.399	0.487		
Risk3	0.566	0.295	0.929	0.418	0.462		
Risk4	0.550	0.314	0.922	0.429	0.464		
Usefulness1	0.360	0.503	0.429	0.951	0.500	0.925	0.879
Usefulness2	0.325	0.505	0.376	0.926	0.471		
Usefulness3	0.331	0.480	0.349	0.894	0.421		
Usefulness4	0.389	0.427	0.476	0.878	0.497		
Intention1	0.448	0.427	0.480	0.488	0.923	0.944	0.911
Intention2	0.477	0.433	0.455	0.534	0.941		
Intention3	0.453	0.444	0.484	0.412	0.913		

<Table 4> Correlations of Latent Variables and AVEs

	1	2	3	4	5	AVE
1. Controllability	<b>0.862</b>					0.744
2. Stability	0.260	<b>0.870</b>				0.756
3. Risk	0.581	0.333	<b>0.912</b>			0.832
4. Usefulness	0.385	0.525	0.447	<b>0.913</b>		0.833
5. Intention to Use	0.496	0.469	0.510	0.518	<b>0.926</b>	0.857

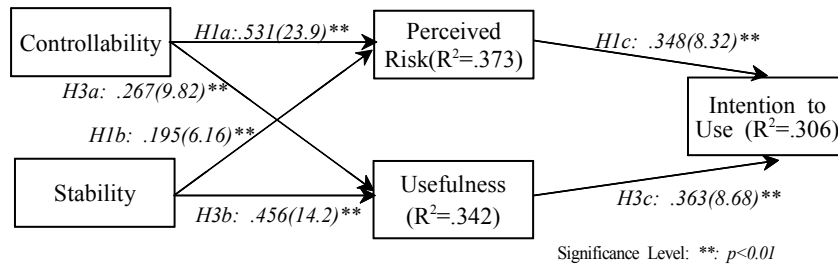
\* Note: Boldface number on the diagonal are the square root of the AVE values

### 4. Testing Hypotheses

To test hypotheses via a path analysis, this study employed PLS (Partial Least Square) which estimates the magnitude of the linkages among constructs (Asher, 1983; Kline, 2005). The PLS generates path coefficients that are similar to regression coefficients in regression analysis. Using SmartPLS 2.0 (Ringle et al., 2005) software, this study employed a repetitive bootstrapping procedure (1,000 re-sampling iterations) to calculate a *t*-value on each path coefficient. As a result, the significance of the hypothesis is assessed by a one-tail *t*-test distribution with d.f.=999 ( $p < 0.05$  requires  $t\text{-value} > 1.645$ ;  $p < 0.01$  requires

$t\text{-value} > 2.338$ ).

As shown in <Figure 2>, the hypotheses regarding the direct relationships, H1a ( $b=.531$ ;  $t=23.9$ ,  $p < 0.01$ ), H1b ( $b=.195$ ;  $t=6.16$ ,  $p < 0.01$ ), H3a ( $b=.267$ ;  $t=9.82$ ,  $p < 0.01$ ), and H3b ( $b=.456$ ;  $t=14.2$ ,  $p < 0.01$ ) are supported. The variance explained by controllability and stability in terms of  $R^2$  is 0.373 for perceived risk and is 0.342 for usefulness. In addition, H1c (perceived risk - intention to use,  $b=.348$ ;  $t=8.32$ ,  $p < 0.01$ ) and H3c (usefulness-Intention to use,  $b=.363$ ;  $t=8.68$ ,  $p < 0.01$ ) are found to be significant. The variance explained by perceived risk and usefulness in terms of  $R^2$  is 0.366 for intention to use.



<Figure 2> Testing Results of the Research Model

To test the mediation effects of perceived risk and usefulness in the relationship, this study followed a technique suggested by Baron and Kenny (1986) and Holmbeck (1997). First, the direct effect of the independent variable on the dependent variable was estimated. Second, the full model containing a mediator was also estimated. Then, parameter estimates from the direct model were compared to those from the full model, in

order to determine whether perceived risk and usefulness has a significant mediating effect in the corresponding relationship.

The direct link between controllability and intention to use was significant ( $b=.496$ ;  $t=19.5$ ,  $p < 0.01$ ). When perceived risk was included in the model, the link between them decreased, but was still significant ( $b=.303$ ;  $t=7.7$ ,  $p < 0.01$ ), while the association between controllability and perceived risk was significant ( $b=.575$ ;

$t=26.5$ ,  $p<0.01$ ), and the relationship between perceived risk and intention to use was also significant ( $b=.337$   $t=7.8$ ,  $p<0.01$ ). This result suggests that perceived risk partially mediates the relationship between controllability and intention to use online information. With this empirical result, H2a is partially supported. H4a hypothesizes the mediation effect of usefulness on the relationship between controllability and intention to use. The direct impact of controllability on intention to use is decreased when usefulness is included in the full model (from  $b=.496$ ;  $t=19.5$ ,  $p<0.01$  to  $b=.349$ ;  $t=12.1$ ,  $p<0.01$ ), but is still significant. The other links [(controllability and usefulness,  $b=.380$ ;  $t=14.9$ ,  $p<0.01$ ), (usefulness and intention to use, [( $b=.388$ ;  $t=11.4$ ,  $p<0.01$ )] in the full model are also significant, indicating that H4a is also partially supported.

H2b postulates the mediation effect of perceived risk between stability and the intention to use. The direct relationship between stability and intention to use was significant ( $b=.473$ ;  $t=14.4$ ,  $p<0.01$ ). This direct link became decreased ( $b=.338$ ;  $t=5.01$ ,  $p<0.01$ ), but significant, when perceived risk was modeled as a mediator (see Figure 6). In addition, the links between stability and perceived risk ( $b=.334$ ;  $t=5.34$ ,  $p<0.01$ ) as well as between perceived risk and intention to use were also significant ( $b=.399$ ;  $t=4.84$ ,  $p<0.01$ ). This result suggests a partial mediation effect of perceived risk on the link between stability and intention to use, indicating a partial support on H2b. To test H4b, the mediation effect of usefulness on the relationship

between stability and intention to use was analyzed. When usefulness was included as a mediator between stability and intention to use, the relationship between stability and intention to use became weaker (from  $b=.473$ ;  $t=14.4$ ,  $p<0.01$  to  $b=.273$ ;  $t=3.86$ ,  $p<0.01$ ), while the link between stability and usefulness ( $b=.526$ ;  $t=9.57$ ,  $p<0.01$ ) as well as between usefulness and intention to use ( $b=.376$ ;  $t=4.84$ ,  $p<0.01$ ) were significant. The strength of the effect of stability on intention to use was reduced, but still significant, therefore it is concluded that usefulness has a partial mediation effect between stability and intention to use.

## V. Discussion and Conclusion

### 1. Summary of findings

This study examined the effect of online credibility on intention to use mediated by perceived risk and usefulness in order to understand whether controllability and stability described in the online information influences a consumer's intention to use the online information in purchasing behavior in the future. Results of testing results are summarized in <Table 5>. As theorized, controllability and stability were significantly related to intention to use the online information. In other words, the more clearly explained controllability and stability in the online information or arguments, the more likely the recipients tend to use the online

information when they purchase the products or services in the future.

It is found that perceived risk played as a partial mediator between both two sources of information credibility (controllability and stability) and intention to use the online information. In the presence of this mediator, controllability and stability were partially significant antecedents of intention to use. Besides, it is found that usefulness partially mediated the relationship between controllability/stability and intention to use. The findings of this research demonstrate that two dimensions of online information credibility are significant antecedent of intention to use and that perceived risk/usefulness partially mediates the

effect of controllability/stability on intention to use. The most important finding was to identify variables that potentially mediate the effect of the two dimensions in online information credibility on intention to use. Those interventions found to influence the mediating variable can be used to increase the possibility of using the online information for actual purchase behavior without solely relying on information credibility, thus enhancing predictive power. Therefore, the findings of this study provide a solution to identify more credible online information posted by consumers and to improve the possibility of using the online information for an actual purchase.

<Table 5> Results of Testing Hypotheses

	Hypothesized Relationship	Path Coefficient	t-value	Result
H1a	Controllability → Perceived Risk	.531***	23.9	Supported
H1b	Stability → Perceived Risk	.196***	6.16	Supported
H1c	Perceived Risk → Intention to Use	.348***	8.32	Supported
H2a	Controllability → Perceived Risk → Intention to Use			Partially Supported
H2b	Stability → Perceived Risk → Intention to Use			Partially Supported
H3a	Controllability → Usefulness	.267***	9.82	Supported
H3b	Stability → Usefulness	.456***	14.2	Supported
H3c	Usefulness → Intention to Use	.363***	8.68	Supported
H4a	Controllability → Usefulness → Intention to Use			Partially Supported
H4b	Stability → Usefulness → Intention to Use			Partially Supported

## 2. Implications

This study has theoretical implications for the nature of online information credibility by employing attribution theory and other

conceptual works from related disciplines. Prior research provides a parsimonious representation of the key constructs in individuals' process of determining online information credibility with strong predictive power.

However, it does not fully explain why individuals show different level of credibility and responses for the same online information from Web sites. Recognizing the lack of this issue, this study is one of the first to extend attribution theory's application to understand how individuals use causal ascription to examine online information credibility. Based on a sound theoretical perspective of attribution theory, the research demonstrates that individuals assess the underlying dimensions of online information credibility as they deal with the online information posted by others. The findings of this study suggest that an online information receiver is likely to assess information credibility with attributional dimensions. This research result suggests that attribution theory can be successfully applied to explore and identify controllability and stability as the underlying dimensions of online information credibility within the context of e-business.

Secondly, beyond showing how an individual evaluates online information credibility in e-business context, this research examines the effects of online information credibility on perceived risk, usefulness, and intention to use the online information. As Weiner (1985) argues, prior studies employing attribution theory could have enhanced their theoretical contributions by attributional dimensions with other individual beliefs, emotions, and behaviors. Associating the underlying dimensions of attributional logic with other conceptual frameworks derived from related disciplines, this research extends the utilization and

applicability of attribution theory to the area of online information credibility. The research findings in this paper suggest that attributional perspective on online information credibility would greatly improve our understanding of what and how online information credibility influences individuals' cognitive state and intension. Understandably, this result can offer a more granulated picture of the relationship between attributional ascription of online information and its effects on online consumers.

Further, unlike prior literature focusing only on the direct effect of information credibility in e-business context, this research investigates both direct and indirect, mediating effects of it on online consumers' intention through perceived risk and perceived usefulness. The findings reported that providing online information with highly described controllability and stability can increase not only online information credibility, but also the intention to use the online information through perceived risk and usefulness. This could be a useful starting point for additional research to further investigate the link between attributional dimensions and individuals' perception and reaction, including other critical constructs in e-business context. By doing so, we can more clearly find the genuine role of and impacts of attributions in formulating online consumers' emotion and behavior.

In conclusion, this research indicates that (1) we can expand underlying dimensions of online information credibility, applying attribution theory, and (2) integration attributional

dimensions with critical factors derived from other related theoretical frameworks can improve our understandings of online information credibility's intrinsic effects on consumers. These theoretical implications provide a valuable first step to comprehend the true nature and scope of online information credibility.

From this research, a number of important practical implications can be drawn. First, the online information credibility instruments can be used for managers as an objective and powerful diagnostic tool to evaluate what and how online information can be perceived as credible. This is particularly important when managers pinpoint specific online information that needs more marketing attention. Second, this study suggests that PR or marketing managers may carefully deal with online information, comments, or reviews posted by online consumers. Since online consumer views can greatly affect consumers' decisions and purchase behavior, managers should take proper actions in online information. As proposed in this study, the comprehensive understanding of the causal inference for online information may help companies develop appropriate online strategies.

Further, more in consistent with previous research (Cheung et al., 2009; Lee et al., 2008), the research findings show that highly credible online information is more influential to online consumers. Ironically, the online reviews that include negative and harmful content to marketers, but logically credible to readers, may be greatly problematic. Moreover, managers

have no direct control not only to decide which and how the content of online information is published over the internet, but also to remove any or all content of it. It seems impossible to prevent all of the unhelpful online information to marketers from being exposed and distributed to online consumers. However, managers can, at least, attempt to minimize the number of audience who could be influenced by such inappropriate online information. One way to do is to consistently monitor consumers' reaction online and then taking adequate defensive measures.

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## Appendix

Construct	Definitions
<p><b>Controllability</b> Swanson &amp; Kelley (2001)</p>	<p>Controllability refers to the perception of a receiver that the causes of the problems described in the online message could have been controlled by the responsible party</p> <p>[Instruments]</p> <ul style="list-style-type: none"> <li>· Do you believe that a company could have prevented the causes of problems, as the opinions that a consumer posts on the Website?</li> <li>· Do you believe that a company could have put considerable amount of control over the concern, as the opinions that a consumer posts on the Website?</li> <li>· Do you believe that companies have done their best to control the cause of the problems, as the opinions that a consumer posts on the Website?</li> <li>· Overall, I believe that the company is responsible for controlling the causes of the problems, as the opinions that a consumer posts on the Website.</li> </ul>
<p><b>Stability</b> Swanson &amp; Kelley (2001)</p>	<p>Stability refers to the perception of a receiver that the causes of the problems described in the online message will either remain the same (stable) or are likely to change (unstable)</p> <p>[Instruments]</p> <ul style="list-style-type: none"> <li>· I believe that the same problem will occur again, as the opinions that a consumer posts on the Website?</li> <li>· I believe that the cause of the problem is likely to remain, as the opinions that a consumer posts on the Website?</li> <li>· I believe that the cause of the problem is likely to occur consistently, as the opinions that a consumer posts on the Website?</li> <li>· I believe that the cause of the problem is unlikely to be fixed in the near future, as the opinions that a consumer posts on the Website?</li> </ul>
<p><b>Perceived Risk</b> Hassan et al. (2006), Jarvenpaa et al., (2000)</p>	<ul style="list-style-type: none"> <li>· How would you characterize the decision of buying the product? (significant opportunity/significant risk)</li> <li>· How would you characterize the decision of buying? (high potential for gain/high potential for loss)</li> <li>· How would you characterize the decision of buying the product? (very positive situation/very negative situation)</li> <li>· What is the likelihood of your making a good bargain by following recommendation or warnings made by the online message sender? (very likely /very unlikely)</li> </ul>
<p><b>Usefulness</b> Davis et al. (1989)</p>	<ul style="list-style-type: none"> <li>· The presented online message enables me to assess the product more effectively.</li> <li>· The presented online message improves my ability to make a right decision of whether or not to purchase the product.</li> <li>· By reading the presented online message, I am able to evaluate the product in more productive way.</li> <li>· Overall, I would find the presented online message useful in my decision.</li> </ul>
<p><b>Intention to Use</b> Taylor and Todd (1995)</p>	<ul style="list-style-type: none"> <li>· I intend to use the presented online message for my decision of whether to buy or not the product.</li> <li>· I plan to use the presented online message for evaluating regarding product.</li> <li>· I intend to use the presented online message at every opportunity over time.</li> </ul>

## 요 약

### 온라인 정보의 신뢰성 및 정보 활용의도 사이의 지각된 위험과 유용성의 매개효과에 관한 연구

선중학\* · 윤중현\*\*

본 연구는 속성이론을 적용하여 온라인 정보의 신뢰성이 제품을 평가하거나 판단하기 위해 온라인 정보를 사용하는 사용자의 의도에 영향을 미치는 경우를 조사하였으며, 온라인 정보 신뢰성의 영향을 조사하기 위해 온라인 정보 신뢰성의 주요 효과가 지각된 위험과 유용성의 인식에 의해 매개되는지 여부를 검사하였다.

총 287의 온라인 소비자들로부터 수집된 샘플에서 여러 항목 척도의 내적 일관성을 탐색하여 안정성을 조사 하였으며, 구조의 유효성을 위해 수렴 및 판별 타당성을 조사 하였다. 연구 모델을 테스트하기 위해 PLS 기법이 사용되었으며, 응답 데이터 세트로부터 데이터를 분석 한 결과, (1) 지각된 신뢰성의 통제성과 안정성 모두 지각된 위험도 및 유용성을 인식하고 있다는 것을 알 수 있다 (2) 지각 된 위험 뿐만 아니라 유용성 인식은 부분적으로 신뢰성과 사용 의도의 두 소스 사이의 연결을 증재하고 있다.

본 연구 결과 온라인 정보 신뢰성의 두 가지 차원인 통제성과 안정성은 정보를 받는 사람의 이용의도에 영향을 미친다. 통제성 및 안정성에 대한 설명을 포함하는 온라인 정보는 소비자에게 제공된 제품 및 서비스에 대한 위험을 인지하게 할 수 있다. 따라서 높은 안정성 및 통제성을 설명하는 온라인 정보는 제공하는 온라인 정보 자체의 신뢰성을 향상시킬 뿐만 아니라 지각된 위험과 유용성을 통한 온라인 정보 활용의도를 증가시킬 수 있다.

핵심주제어 : 속성이론, 신뢰성, 지각된 위험, PLS기법

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