Factors and Effects of Information Credibility

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ABSTRACT
Website success hinges on how credible the consumers consider the information on the website. Unless consumers believe the website's information is credible, they are not likely to be willing to act on the advice and will not develop loyalty to the website. This paper reports on how individual differences and initial website impressions affect perceptions of information credibility of an unfamiliar advice website. Results confirm that several individual difference variables and initial impression variables (perceived reputation, perceived website quality, and willingness to explore the website) play an important role in developing information credibility of an unfamiliar website, with first impressions and individual differences playing equivalent roles. The study also confirms the import of information credibility by demonstrating it positively influences perceived usefulness, perceived site risk, willingness to act on website advice, and perceived consumer loyalty toward the website.

Categories and Subject Descriptors
K.4.4 [Electronic Commerce]

General Terms
Management, Measurement, Verification

Keywords
Credibility, reputation, site quality, perceived usefulness, perceived risk, loyalty, willingness to follow advice

1. INTRODUCTION
Firms with an existing brick-and-mortar reputation and high credibility with consumers, such as Kiplinger, Keen, AAA Motor Club, MetLife, Better Business Bureau, Virgin, FedEx, and Forbes can leverage their reputations to provide similar services on the Web [1, 60]. However, firms without pre-existing credibility may have difficulty enticing customers to not only come and see their advice website, but to believe the advice enough to follow it [13, 62, 65]. This study addresses information credibility issues for advice firms with no pre-existing reputation.

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Information credibility has been seen as one of several "key information problems" as far back as the 1980s [27:32].

The difficulty of creating online information credibility raises the question this research pursues: *what are the factors that build consumer-perceived information credibility in an unfamiliar, advice website?* Information credibility is defined as the extent to which one perceives the website information to be believable [17, 58, 64]. Other dimensions of credibility have been pursued, such as safety, depth, and expertise [30, 47, 57], but are not examined in this research because believability appears to be the core of the credibility construct [37, 64], as will be argued below.

The above research question is important because, to our knowledge, little empirical research has addressed the factors of advice website information credibility directly. Significant research has been done on building trust in website vendors or stores [e.g., 22, 29]; but trust in a Web vendor is not the same as website information credibility. E-commerce trust research focuses on trust in the people behind the website, while credibility research should focus on the believability of the information the website provides. Some research has been published about computer credibility [15, 64], however, it addresses the broader arena of credibility of computers or computer products [17] rather than the specific website information credibility focus of this study.

Other researchers have studied credibility in ways that differ from this study. First, information quality researchers have occasionally included information credibility as an aspect of quality [38]. However, these studies have not studied the antecedents of information credibility as this one does. Second, communication researchers have studied *source credibility*, but have primarily used it as an independent variable predicting persuasion [12, 52]. Communication scholars have studied website information credibility [e.g., 14, 30, 47], but have primarily done so to compare credibility of Web information with credibility of other information sources like television and newspapers, not to understand credibility's factors and effects. In fact, one credibility research review paper cites very few studies examining credibility antecedents [52]. Recognizing the lack of Web credibility studies, communication researchers Flanagin and Metzger [14] have called for research on credibility factors.

Information credibility is a key to the success of Web advice providers. Unless the consumer feels the information provided is credible, the consumer will probably not return to the website or become loyal to it [54]. For example, research has found credibility to affect brand extension acceptance [53]. Thus, building information credibility is vital to advice website success. While the importance of information credibility seems obvious, empirical evidence of its e-commerce worth is underdeveloped.

Therefore, this study not only examines its antecedents but also documents the importance of information credibility by modeling its influence on consumer willingness to follow website advice and consumer loyalty. Willingness to follow the advice goes beyond an espousal of credibility because it shows the vendor has influenced a consumer to be willing to take action. Websites are only successful to the extent that they influence consumers to take the next step and engage the vendor's product or service. Travel websites must get consumers to book, not just look. Consumer product websites thrive when consumers make purchases, not just window shop. For an advice website, consumer willingness to follow advice is arguably just as important a step towards action as willingness to purchase is for a consumer product website. To be effective, information credibility should also affect perceived loyalty to the website, indicating that the consumer is developing a good relationship with the website. If credibility strongly predicts willingness to follow website advice and perceived loyalty to the website, this demonstrates the importance of website information credibility. We also link information credibility to the IS literature by relating it to TAM's (Technology Acceptance Model) [11] perceived usefulness construct.

2. THEORETICAL DEVELOPMENT

2.1 Model Overview

In the long-term, credibility is best formed by sampling and testing a website's advice to see how well it works over time. For example, a financial investment website provides advice that may result in either a poor or a good financial return. One takes the website's advice and observes the results. However, when a consumer first encounters a website, first-hand observational evidence of advice credibility is not available. It is important to know how credibility forms as the consumer first encounters the website, because these first impressions form a consumer mindset about the website that has future implications. Because of the need to study how a consumer builds perceived credibility from the start, we focus on two promising types of factors (see Figure 1): individual dispositions of the consumer and consumer first impressions of the website before the consumer uses the website. The model suggests that information credibility fully mediates the effects of both individual dispositions and initial impressions on willingness to follow website advice and perceived loyalty. Mediation is justified later.

Initial impressions and individual differences are key to initial information credibility because hard evidence of credibility can only be obtained over time. Just as with research on trust [2, 28, 49], initial cues and signals are important to the early development of information credibility. Communication studies have found this to be true, per Giffin [24]. Initial impressions may or may not change in the future, but they have a powerful effect on future beliefs because of the human tendency to propel current beliefs into the future [4]. Here, we study the effects of dispositions and introductory stage consumer website impressions on exploratory stage perceived information credibility. Fogg [15] suggests that credibility sometimes arises because people use assumptions and stereotypes about the type of people behind a website, such as used car salespeople. A design website called "webcredible" [44: 2] suggests that we usually spend only a "short amount of time…on websites so we rely on initial judgements." Thus, some of the factors we pursue (later in this section) relate to early impressions of the website that should produce credibility.

Individual differences should also be key. In early trust formation, disposition has been found to be important [20, 40, 49]. This should also be true of credibility because people differ in how skeptical and risk-averse they are towards websites and because naivete about the credibility of websites is diminishing [5]. Thus, we also justify several dispositional antecedents of initial website credibility.

In order to set the study's context, we define two very early periods of consumer activity: the introductory stage, in which consumers only have second-hand information about a website, and the subsequent exploratory stage, in which consumers interact with the website for the first time to see what it is like [40]. In both stages, consumers can form impressions about the website, but the introductory stage is when the consumer is the most vulnerable and easiest to influence.

We should also note that information credibility differs from trust, in that: 1) Credibility is about believability, while trust is about dependability [64]. 2) Information credibility has the website *information* as its object, while trust typically has the website *vendor* as its object. 3) Credibility and trust have different etymological roots. While credibility and credible are from the Latin *credere* (to believe) and its derivative, *credibilis*, trust is from the Old Norse word *traust*, meaning confidence. Because their roots differ, their basic meanings differ fundamentally. The root of credibility is about believing and believability. 4) Per the dictionary, modern usage shows credible is narrowly defined as someone/something that is believable, plausible, or capable of being believed. Trust has multiple meanings, including reliance or dependence on, or confidence in, another person or thing [39]. Later, we offer empirical evidence showing that trust and credibility are distinct. In spite of the relatively narrow dictionary definitions of credibility, scholars have given credibility a wide number of dimensions. Yet McCroskey and Young [37] have argued persuasively that the core dimensions of credibility are few. Building on their view, we focus on credibility's core sense of believability found in everyday (i.e., dictionary) English usage of the term.

In spite of the above credibility and trust distinctions, it is clear they are related. For example, believing a Web vendor's information is credible constitutes one reason to trust the vendor. If one trusts the Web vendor, one has some basis to believe its information is credible. Because these concepts are distinct but related, knowledge about trust can help us understand the nature of the antecedents of credibility.

2.2. Effects of Dispositions on Credibility

This study defines *suspicion of humanity* as the assumption that general people are not reliable and well-intentioned. Defined in this way, suspicion of humanity is conceptually the mirror opposite of faith in humanity, which means the assumption that general other people are reliable and well-intentioned [42].

Credibility is defined above as how believable information is [15]. Suspicion of humanity should affect information credibility because one with high suspicion of humanity is likely to hold high standards regarding what is credible and what is not. By contrast, one with low suspicion of humanity will accept someone or

something as credible on meager evidence. Therefore, how suspicious one is of people generally should negatively affect how credible one thinks website information is.

H1: Suspicion of humanity will negatively influence exploratory stage perceived information credibility of an unfamiliar advice website.

Risk propensity means a personal tendency to take risks [59]. Sitkin and Weingart [59] found that risk propensity affected risk perceptions about a scenario. Believing in the credibility of an unfamiliar information source introduces specific risks because the information may not be correct and may therefore lead to unintended consequences. For example, believing in the credibility of health information on a website could lead to the risk of worsening health because the information one acts upon may not be true [13, 65]. Thus, risk propensity should affect credibility because credibility is a risk-laden perception. The more one tends to be willing to take risks, the more one should believe in the credibility of information from unfamiliar sources.

H2: Risk propensity will positively influence exploratory stage perceived information credibility of an unfamiliar advice website.

By faith in technology – general, we mean positive expectations of the attributes of general technology. Faith in technology is like the dispositional "faith in humanity" trust construct of McKnight et al. [42]. The difference is that general technology is the object of the faith instead of general people. Faith in technology is a new area of IS research, although it has been researched in other fields, such as computer science and psychology [(e.g., 33, 45]. Faith in technology is different from faith in people because technology has neither volition nor motives. In this study, faith in technology focuses on the attribute of the functionality of the technology. Faith in general technology probably affects information credibility. For example, those who have low beliefs about the functionality of technology may not think technology-delivered medical advice is credible, even when they would accept the identical medical advice directly from a physician. Faith in technology may also influence website information credibility because the website is a technology interface. If one has faith in technology in general, one should have faith in a specific website technology.

H3: Faith in technology – general will positively influence exploratory stage perceived information credibility of an unfamiliar advice website.

2.3. Effects of Initial Consumer Perceptions

First impressions can initially be powerful indicators that the website is credible because people tend to rely on first impressions when no other information is available [24, 63]. This is consonant with Marketing and Communications research that found perceived credibility is based more on emotional feelings than on rational logic [56] and is influenced by cues and appearance [24]. Although many first impressions could be studied, this section proposes that three specific first impressions are factors of information credibility: willingness to explore the website, perceived website reputation, and perceived website quality. Each of these first impressions refers to perceptions about the website formed during the Introductory stage of a consumer's experience (before seeing the website) that are proposed to affect perceived credibility measured during the exploratory stage (on first seeing and using the website).

An introductory stage willingness to explore the website will predict exploratory stage information credibility. Willingness to try out or further investigate a product or service is important because it makes a consumer more likely to buy or use the product or service. For example, car salespeople try to get consumers to take a test drive to see if they like the vehicle, knowing this brings the consumers one step closer to a purchase. A test drive might give the consumer a visceral experience that produces an "I want this car!" feeling. If one is unwilling to take a test drive, one is not serious about the car, and is not likely to take the larger step of making a purchase. Similarly, if one is not willing to explore a website there is an implication that one is less likely to believe in its advice. If a consumer is willing to explore a website, this indicates that the website is at least attractive enough to be investigated further. If one is willing to explore the website, further evidence of its credibility is more likely be uncovered.

H4: Introductory stage willingness to explore a website will positively influence exploratory stage perceived information credibility of an unfamiliar advice website.

Second-hand reputation has often been studied as a factor of trust [10, 29]. Hoxmeier [26] found consumer-perceived vendor credibility and reputation to be significantly correlated. Ba and Pavlou [2] found that feedback mechanisms establish the kind of auction participant reputation that builds what they called credibility trust. Tseng and Fogg [64] suggest good reputation improves credibility.

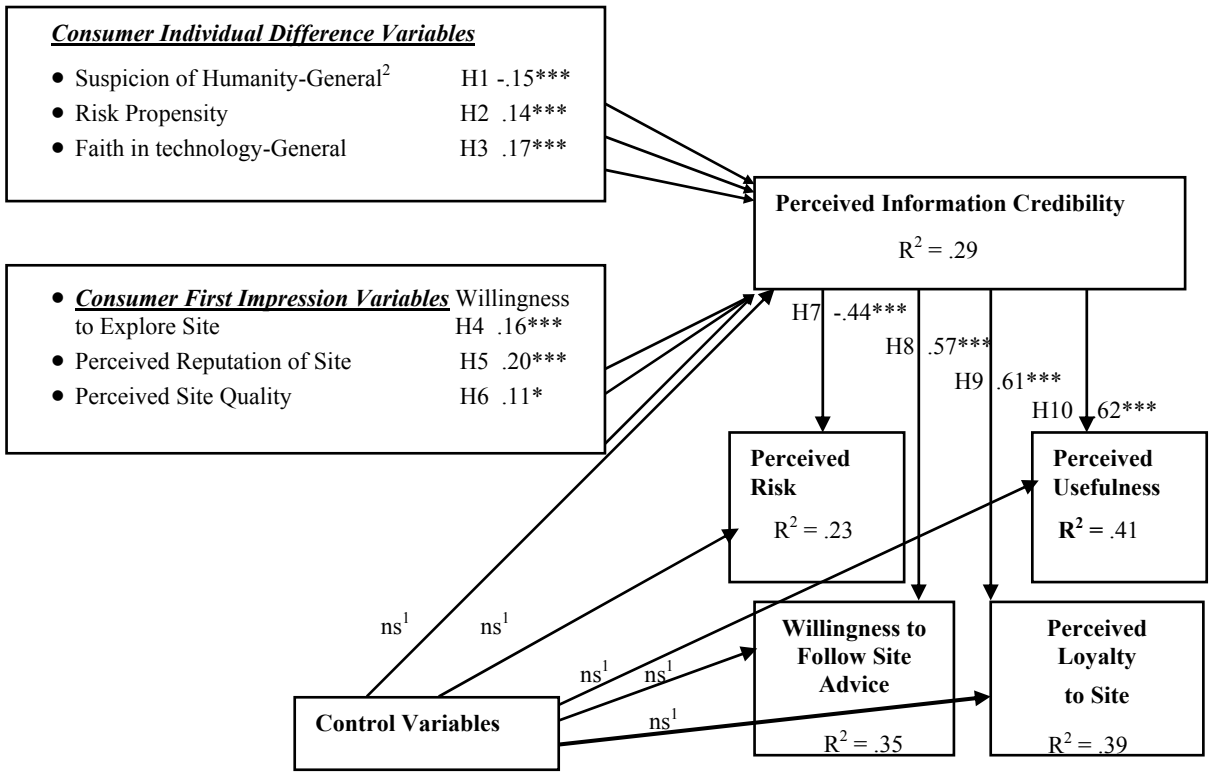
H5: Introductory stage perceived reputation will positively influence exploratory stage perceived information credibility of an unfamiliar advice website.

Quality or professionalism of the website's design, also called website quality, should influence credibility, as found by [17]. Marketing research found a similar result—that interaction quality is an important factor of the belief that a salesperson has high expertise [34]. By analogy, perceived quality when interacting with the website should produce higher information credibility beliefs. Before one has used or seen the website, one projects an image of website quality, based on whatever one knows about the website at the time. This projected image should influence later credibility beliefs.

H6: Introductory stage perceived website quality will positively influence exploratory stage perceived information credibility of an unfamiliar advice website.

2.4 The Effects of Credibility

Empirical evidence shows risk is often a factor in willingness to use an e-commerce website. Jarvenpaa et al. [29] found perceived risk was a strong predictor of willingness to buy from a web store. Hence, perceived risk is an important variable that needs to be predicted. [29] found trust predicted perceived risk well. Credibility should also predict perceived website risk. We define perceived risk as a belief that outcomes related to the website are uncertain. Credibility should relate negatively to perceived risk because knowing that the website's advice is credible means there is little risk involved in using the advice.



Notes: [1] None of the entered control variables (age, gender, education, time spent Web transacting, structural assurance, situational normality) were significant in predicting the dependent variables except:

a. education, which was only significant in predicting perceived loyalty (beta = -0.09; $p<0.05$) and

b. gender, which was only significant in predicting perceived risk (beta=0.11; $p<.01$).

[2] The proposed first-and second-order structure was shown to be appropriate as follows:

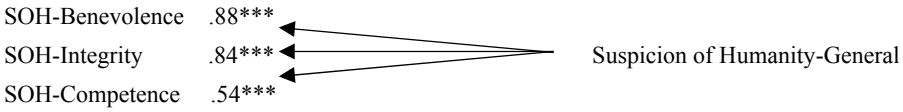


Figure 1. Research Model

H6: Perceived information credibility will positively influence perceived risk regarding an unfamiliar website's advice.

Empirical evidence shows that trust predicts willingness to follow website advice [41]. Like trust, information credibility is probably an important predictor of future actions of the Web consumer. If a consumer believes the website's advice is credible, the main reason not to follow the advice is gone. Willingness to follow website advice means that one intends to act on the advice the website provides. This concept is similar to the persuasion construct communications research uses. Only credible advice will be valued enough for the consumer to act on the advice. One who believes the advice is not credible will probably not be willing to take the risk of acting on the advice. Communications research shows that source credibility persuades the listener [52].

H8: Perceived information credibility will positively influence willingness to follow an unfamiliar website's advice.

We draw the loyalty construct from the marketing literature, where it is used as a key indicator of long-term success with a customer [19, 25, 54]. Perceived consumer loyalty means the extent to which one feels good enough about a website to recommend it to others and to continue consulting that website's advice. Loyalty to a website is considered important because loyal customers return to the website and continue to do business with the website, making the website a more viable, ongoing enterprise [8]. Loyalty is also important because of the high costs of

attracting new online customers and the differential profitability loyal customers generate [55]. Loyal customers are more likely to recommend the website to others [55]. Loyalty can arise from several factors, such as satisfaction in the website and the cost of switching to another website [21].

IS researchers have already confirmed a relationship from trust to loyalty in ERP relationships [21]. Credibility should also predict loyalty. Advice that is considered credible should be valuable enough to set up perceptions of loyalty to the website. In the initial timeframe, credibility should be associated with perceived customer loyalty. The more one believes the website information is credible in the exploratory phase, the more one will perceive loyalty to the website. On the other hand, if the website is not believed to have credible information, there is less reason to return to the website or to develop loyalty to it.

H9: Perceived information credibility will positively influence loyalty to an unfamiliar website.

Perceived usefulness has to do with outcome expectations. Applied to website advice, only a website offering advice that is true and correct will be useful. If one obtains advice from a website that is not correct, the advice may backfire and produce negative outcomes. If one considers the advice credible, then the website will also be deemed useful. If the advice is not considered credible, the consumer will feel the website is not useful. Thus, credibility should predict perceived usefulness.

H10: Perceived information credibility will positively influence perceived usefulness of an unfamiliar website.

Figure 1 depicts credibility fully mediating the effects of its factors on willingness to follow advice and perceived loyalty. It is possible that several of the factors might influence the dependent variables. Disposition to trust has been found to be correlated with similar variables like willingness to purchase [23]. Pavlou [48] found that reputation had a direct impact on intention to transact. However, information credibility is very central to the question of risk of acting on the website's advice. If the advice is credible, one will act upon it. If not, one will not be willing to act on the advice because it will be considered too risky. Credibility is also central to loyalty. Without credibility of the information, loyalty to the website cannot develop. Credibility is also central to perceived usefulness – unless the information is credible the website will not be considered useful.

This is similar to how, in TAM research, perceived usefulness tends to be predictive of intention to use and often mediates other model predictors that might otherwise predict intention to use. Similarly, in attitude research, those attitudes relevant to behaviors tend to be correlated with those behaviors [32]. A predictor correlated with a dependent variable tends to mediate other variables' effects.

H11: Perceived information credibility will fully mediate the influence of the independent variables on perceived risk, willingness to follow an unfamiliar website's advice, perceived loyalty to the website, and perceived usefulness of the website.

The above hypotheses present and justify the research model. The next sections present the methods the study uses, the results of the study, and the study implications.

3. METHODOLOGY AND RESULTS

3.1. Subjects and Procedures

571 students from a large U.S. university participated in the study, producing 504 usable responses (88%). Respondents were motivated to participate using extra credit in their computer literacy course, amounting to 2% of the total course points possible. The average respondent age was twenty. Fifty-nine percent were female. Although university students do not represent all Web users, they represent a group likely to use the Web [46], making student samples interesting and appropriate for studies of beliefs and intentions such as the study reported here. Descriptive statistics of study measures are shown in Table 1. All items were measured using a one to seven point Likert scale with anchors of Strongly Disagree to Strongly Agree, except risk propensity, which used the anchors Low Tendency and High Tendency, and risk perception, which used likelihood scales (e.g., Very Likely to Very Unlikely).

Data gathering took place in three rounds in order to provide a test that examines how the factors work over time. In time one, the dispositional and control variables were measured. In time two (introductory stage, before the website is seen), the first impression variables were measured. In time three (exploratory stage, after the website is seen), the five dependent variables were measured. Times two and three data were gathered during a single session conducted two weeks after time one.

To represent the Introductory stage, the subjects were given a scenario to solve – that during hot July weather their air conditioner became inoperable and their landlord had not fixed it after repeated requests over five days. They were then told about a website offering free legal advice that might help them solve the problem. At this stage, they were told the website offers free advice on various legal issues and that they must now decide whether or not, given the scenario described, they would visit the website to learn about their legal rights to deal with the landlord. After receiving this information, respondents answered first impression construct items – willingness to explore website, perceived reputation of the website, and perceived website quality.

Next, to represent the Exploratory stage, the subjects were taken to the legal advice website, a website created by the researchers to look like an actual website for finding free legal advice. Overall, subjects felt the website worked very well technically (5.4 / 7.0) and was simple to navigate (5.9 / 7.0). Subjects were asked to locate and read the legal information needed to solve the air conditioner scenario. Respondents chose whether to use the search function or to scan the topics list to find relevant legal advice. After respondents found and read the legal advice, the exploratory stage dependent variables were measured).

The study used an online questionnaire to collect data for all constructs. Activity began when subjects were sent an email from their course instructor, who was not a researcher on the study. The email contained a link to the study website. The major focus of the content in the email message concerned the expected completion date and credit for doing the activity. Subjects participated in the study with no prior knowledge of the Web vendor, constructs, or study focus.

In order to increase response variance, we gave a reputation treatment to a randomly selected subsample of half the subjects. The treatment was given at the beginning of the introductory phase as the subjects read the air conditioner scenario, but before the introductory phase questionnaire. The treatment consisted of a sentence inserted in the middle of the Scenario stating that the website "is run by one of the top 50 law firms in the U.S." As a manipulation check for this treatment, subjects were asked at the end of the Introductory phase questionnaire if they had read such a statement as quoted above in the Scenario. 67% answered the question correctly. We also did a means difference test on the reputation variable, splitting the sample by whether respondents received or did not receive the treatment. Those receiving the treatment averaged 4.8 on perceived reputation, while those who did not averaged 4.2, a difference found to be significant ($F = 37.2$; $p<0.001$.

Demographic items included gender, age, education level, and time spent per week transacting on the Web. These were used as control variables in the study, anticipating that they might affect credibility or willingness to follow website advice [14, 30]. Because structural assurance and situational normality have been used in past Web studies [e.g., 22], they were also included as control variables.

3.2. Construct Measures

The reputation, website quality, willingness to follow advice, trust in technology, and willingness to explore scales were adapted from [40, 41, 43]. Because good credibility scales are hard to find [15], the credibility scale was created new to represent the believability aspect of credibility; two items were pilot tested before this study, resulting in a Cronbach's alpha of 0.91. Two more items were then created. Risk propensity items were adapted from [59] and perceived risk from [29]. The loyalty items were adapted from [21], and the perceived usefulness items from [11].

The suspicion of humanity scales consisted of three items each related to the benevolence, integrity, and competence of others, following [40]. Suspicion of humanity was treated as a second-order construct in the model, using the molecular approach outlined in [7]. The molecular (as opposed to molar) modeling method was chosen because the benevolence, integrity, and competence beliefs are component parts (similar to indicators) of these constructs. The molecular method treats the subconstructs as reflective rather than formative items of suspicion of humanity, just as the items of the subconstruct are treated as reflective. This was done because dispositional trust subconstructs have been found to be distinct, but related, factors, and the individual subconstruct items are highly correlated [40]. A first- and second-order breakdown was needed because faith (and suspicion) in humanity components have been found to be highly discriminant, such that they are reflective of three separate subconstructs [40]. The second-order factor was modeled by employing the indicators used for the first-order factors, based on the [35] and [61] approaches. Using the same number of items to measure each first order construct works best when using PLS [61].

3.3. Measurement Model, Validity Analysis

The research model was analyzed using Partial Least Squares (PLS), a structural equation modeling method. PLS is frequently used for exploratory research, especially with complex models that consider causality [31]. Since no previous tests of this model have been done, this study matches the criteria for PLS use.

Table 1 Correlation of Latent Variables

	Variables	Mean	S. D.	1	2	3	4	5
1	Inf. Credib.	5.4	1.0	**.93**				
2	SOH-Bene.	4.6	1.1	.19	**.87**			
3	SOH –Inte.	5.3	1.2	.20	.60	**.86**		
4	SOH –Cp.	3.7	1.1	.02	.29	.19	**.88**	
5	Risk Prop.	3.0	1.3	.13	-.02	.06	-.14	**.86**
6	Tr. Tech.	5.4	1.0	.28	.01	.19	-.10	.03
7	Wil. to Ex.	5.1	1.4	.38	.10	.15	-.05	.07
8	Reputation	4.5	1.1	.39	.13	.11	.01	-.01
9	Site Quality	5.0	1.0	.38	.06	.11	-.13	.03
10	Wil. to Fol.	4.7	1.2	.58	.15	.13	-.04	.04
11	Loyalty	4.8	1.2	.62	.19	.18	-.03	.08
12	Usefulness	4.9	1.1	.63	.13	.12	.01	.03
13	Percd. Risk	3.3	1.2	-.45	-.06	-.08	.05	-.12
	AVE			.86	.75	.74	.77	.74

6	**.85**							
7	.19	**.92**						
8	.15	.50	**.93**					
9	.25	.59	.60	**.83**				
10	.15	.34	.37	.34	**.88**			
11	.22	.38	.36	.33	.68	**.92**		
12	.20	.36	.38	.35	.77	.77	**.90**	
13	-.15	-.31	-.29	-.26	-.55	-.52	-.53	**.92**
AVE	.73	.84	.86	.69	.78	.84	.81	.85

Note: The diagonal is the square root of the average variance extracted (AVE).

Because it emphasizes the links between constructs, PLS helps researchers identify the best among a number of possible factors. PLS analysis first tests the measurement model for validity and then the structural model.

We first performed an item culling step [9] sometimes used in PLS by running the measurement model and examining the outer model loadings. Ideally, loadings of the items on their construct should exceed 0.70, although a construct can still demonstrate acceptable construct validity if some items are somewhat below 0.70 as long as others are higher than 0.70 [7]. All items met this requirement except the first two items of risk propensity, which had very low loadings. These two items were eliminated for subsequent steps. Finding the other outer model loadings

acceptable also indicates they properly reflect their respective constructs.

In PLS, the measurement model is first analyzed to determine construct validity; then the structural model is analyzed to test hypotheses about relationships among constructs. The preferred way to test validity of second-order constructs like suspicion of humanity is at the first order construct level [61], so these constructs are shown in Table 1. PLS statistics in Table 1 provide evidence that the measurement model had acceptable convergent and discriminant validity as follows. The internal composite reliability (ICR) figures (similar to Cronbach's alpha—see [7] for ICR formula) indicate the internal consistency of each construct. These values exceeded the 0.70 cutoff recommended by [18], with the lowest at 0.85. Internal consistency reliability is a necessary, but not sufficient condition for establishing convergent validity. A further test of convergent validity specifies that the construct average variance extracted (AVE) must exceed the standard minimum level of 0.50 [6]. AVEs greater than 0.50 indicate that the items load well on the construct. Convergent validity was demonstrated according to this criterion, with the lowest AVE listed by PLS at 0.69.

Discriminant validity is evaluated by comparing latent variable correlations against the square root of the AVEs [18]. Referring to Table 1, for example, all latent variable correlations in row 5 – Risk Propensity and corresponding column 5 are less than the square root of the AVE (AVE square root =0.86) found at the intersection of row 5 and column 5. Since all latent correlations in any intersecting row and column were less than the corresponding AVE square root found at the row/column point of intersection, the constructs were judged discriminant. From these tests, we accepted the measurement model and proceeded to test the structural model.

3.4. Structural Model Analysis and Results

Partial least squares (PLS) structural equation modeling techniques were used to estimate the structural model, including a bootstrapping procedure with 200 resamples that provides t-statistics for significance of the links between variables. Since PLS does not produce model fit statistics, results are evaluated based on estimators of item loadings, path coefficients, and the percentage of variance explained in each dependent variable. Results are shown in Figure 1.

All the dispositions–suspicion of humanity, risk propensity, and faith in technology–were significant predictors of credibility, which supports H1, H2, and H3. The three first impressions variables were significantly related to information credibility, supporting H4, H5, and H6. These variables and the control variables explained 29% of the variance in information credibility. Given the longitudinal nature of the data, this is an adequate amount of explanatory power for the model. Only two of the control variables (education and gender) were significant in predicting any of the dependent variables (Figure 1 notes). Information credibility was a strong predictor of both willingness to follow website advice, perceived loyalty to the website, perceived website usefulness, and perceived website risk explaining 23-41% of their variance. Overall, Hypotheses 1-10 were supported. The lower part of Figure 1 shows that the reflective links from the second-order to the first-order factors were all strong and significant, supporting the proposed second-order structure of this part of the model. The credibility R^2 of 0.29 was explained almost equally by the first impression and individual difference variables.

Figure 1 depicted credibility as a mediator of the effects of the factors on the dependent variables. Baron and Kenny [3] suggests that full mediation takes place when: a) the independent variable affects the mediator; b) the independent variable affects the dependent variable; and c) the entered mediator affects the dependent variable while the independent variable does not. The existing structural model tests condition a), and the other aspects of mediation (H11) were tested by step-wise modeling (full results available from first author). First, to create a base case, we ran a model predicting the dependent variables with only the control variables as predictors. Only education was a significant predictor of willingness to follow advice (beta = -0.13*; R^2=.04) and only education and structural assurance predicted perceived loyalty (betas = -0.15** 0.12*; R^2=.03). Only gender predicted perceived risk (beta = .12**; R^2=.04). Nothing predicted usefulness (R^2=.04). The low R^2 values indicate the control variables provided almost no measureable influence on the research model.

In the second step, to test the Baron and Kenny condition b), the six independent variables were added as predictors of the dependent variables. The variance explained increased using these predictors (R^2=.21; R^2=.24; R^2=.16; R^2=.23, respectively), and none of the controls were now significant predictors.

In the third step, testing Baron and Kenny condition c), the mediator, information credibility, was added as a predictor of the dependent variables. Credibility was very significant (beta = 0.50***) in predicting willingness to follow website advice, and of the independent variables, only reputation remained significant in this model (beta = 0.11*), but its significance decreased from $p<.001$ to $p<.05$. The R^2 increased from 0.21 to 0.38. Hence, to the extent that conditions a) and b) were also met, information credibility fully mediated the influence of the other five variables, mostly supporting H11. Credibility was also very significant in predicting perceived loyalty (beta = 0.51***; R^2=.42). Only willingness to explore (beta = .14**) and education (beta = -.08*) remained significant predictors. Similarly, credibility strongly predicted perceived usefulness (beta = .54**; R^2=.44), leaving relatively weaker the predictive salience of reputation and willingness to explore (beta = .10* for each), along with education (beta = -.10*). Similar results were found for predicting perceived risk. The findings partially support H11 and find credibility is by far the strongest factor in the model, mediating most other factors.

4. DISCUSSION

4.1 General Discussion of Results

Overall, the model received support, with several interesting exceptions for future research. The results establish several variables important for building information credibility (suspicion of humanity, risk propensity, faith in technology, willingness to explore, reputation, and website quality). The findings also highlight the importance of information credibility in predicting perceived loyalty, willingness to follow website advice, perceived usefulness and perceived risk—arguably four constructs key to advice website success.

To validate the unique nature of the information credibility construct, we decided to correlate it to trusting beliefs. We measured trusting beliefs using the eleven-item McKnight et al. [40] scale. ICR reliability for this scale was .94 and the AVE was .73. Trusting beliefs correlated with credibility at r= 0.73. Since the square roots of the two AVEs were .85 and .93, these two constructs are distinct per PLS standards [6].

4.2 Future Research Implications

The results indicate several fruitful avenues for future research. First, the moderate R^2s indicate that additional factors should be identified to predict credibility. We suggest the following individual user attributes as credibility factors: personal innovativeness, perceived web risk, and computer self-efficacy. The credibility literature suggests other factors; for example, information completeness was found to affect information credibility in medical advice websites [12]. Providing citations, author credentials, brick-and-mortar location, contact information, quick help request response, or displaying website awards or reviews of website contents may also raise credibility [16]. [64] suggests user expertise and understanding as possible factors. Other general personality traits should also be assessed such as introversion/extraversion, optimism/pessimism, nurturance/ hostility, or ambitious/submissiveness.

Second, this research showed that credibility is empirically distinct from trusting beliefs. Hence, the study contributes by clearly distinguishing trust from credibility. This has not always been done, which has hurt credibility research [64]. The results show credibility is distinct from trusting beliefs and that they should not be conflated in research.

Other factors not studied here relate to how credibility develops *over time* and should be pursued. Familiarity with the website is one factor that should be researched, as it has been found to predict consumer trust [20]. Familiarity with the subject matter is also a factor [15]. Pezdek et al. [50] found that event familiarity produced higher scores in a content analysis rating. Related to familiarity, interaction quality is an important factor of the belief that a salesperson has high expertise [34]. Ease of use could build credibility after the user has a chance to try out the website [16, 17]. Other possible factors include the links a website has to other credible or reputable websites [47], or citing authority for the advice [24]. Others have pointed out that the accuracy or correctness of information provided is an obvious, but still under-researched factor of information credibility [15].

Just as the factors of credibility need more empirical research, so the outcomes of credibility need to be studied beyond what this study has done. Additional dependent variables that credibility should predict are suggested in [17] as willingness to: register with the website using real personal information, fill out surveys, contribute content to a community, download software, purchase (including use of a credit card), and bookmark/return to the website often. This study took the strategy of focusing on credibility as a unitary construct. Future studies could build on this study by considering other dimensions of information credibility, such as those Fogg and associates discuss [17].

4.3 Study Limitations

The results are generalizable to American university undergraduate students and not to all Web users. Online consumers tend to be better educated and younger than most consumers. American undergraduate students comprise a group important to Web vendors. A second limitation is that this study may suffer from common method variance. To test the extent of this problem, a Harman one-factor test was conducted [51]. This involves creating a principal components factor analysis with all the model constructs (controls excluded) to see if one factor explains the majority of variance. The result was that 14 factors with eigenvalues greater than 1.0 resulted, accounting for 73.6 percent of the total variance. The first factor only explained 23% of the variance. Together with the relatively low correlations in Table 1, this result indicates common method variance is not a serious issue for this data set.

5. CONCLUSION

This study tests a model of the factors of initial Website information credibility. This topic is important because of the dearth of research on the factors of website advice credibility and because credibility builds consumer loyalty and willingness to act on the advice. The study contributes by showing that initial website information credibility can be built without experiential factors. The study provides evidence that three first impressions of the website – trusting beliefs, perceived reputation, and willingness to explore the website – build initial information credibility. The study also found that trust is built through three general dispositions: suspicion of humanity, trust in general technology, and risk propensity. The importance of information credibility was also established by showing that it has strong effects on consumer perceived risk, perceived usefulness, willingness to follow website advice, and consumer perceived loyalty to the website. Additional research is needed to confirm and expand these findings.

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