Shifting Factors and the Ineffectiveness of Third Party Assurance Seals: A Two-Stage Model of Initial Trust in a Web Business

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INTRODUCTION

An important barrier to the widespread diffusion of e-commerce among consumers is 'the fundamental lack of faith between most businesses and consumers on the Web today' (Hoffman *et al.* 1999). Consumers need to trust web vendors to fulfil their obligations and to keep consumer information private (Grandison and Sloman 2000). Without such trust, the progress of business-to-consumer (B2C) e-commerce will be slow. Indeed, a recent UCLA study found that fewer adults made online purchases in 2002 than in 2001 or 2000 (UCLA Internet Report 2003). As an indicator of online reluctance and caution, this study reported that 49% of purchasers used the web for more than two years before making their first purchase. Also, they found that barely half of Internet users trust most or all online information.

But what factors influence consumer trust in a web-based business, particularly during the initial stages when the consumer has not yet had direct interactions with the business but is considering whether or not to do so? Building trust during these very early stages is, of course, crucial to a vendor's success — unless the

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A b s t r a c t

Little empirical research has addressed how trust building occurs across the early stages of a consumer's web experience. This paper tests the effects of privacy assurance and industry endorsement seals, reputation advertising by a web business, disposition to trust, and structural assurance on consumer trust across two early stages: the introductory stage, in which a consumer has only second-hand information about the site, and the exploratory stage, when the consumer first visits the website.

The study found, first, that disposition to trust and structural assurance had a significant effect on trust in the web business in both the exploratory and introductory stages, showing that their effects did not erode over time. Second, reputation advertising was found to be an effective way to build trust. Third, counter to prevailing opinion and popular practice, neither a noticeable TRUSTe privacy seal nor a noticeable professional association seal had any significant impact on trust in the web business. When added to the other model variables during the exploratory stage, perception of site quality became the primary influence on trust, displacing some of the effects of disposition to trust and reputation advertising. This indicates that trust factors in the introductory stage differ somewhat from trust factors in the exploratory stage. Hence, these two stages require different strategies for building trust.

Keywords: trust, advertising, process model, assurance seals

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vendor can promote trust at this stage and persuade the consumer to take the step of interacting with the vendor, the vendor will have little chance to succeed. What can a vendor do, therefore, to promote such initial consumer trust?

Web businesses have taken many steps to promote initial consumer trust. These include: providing unconditional guarantees (e.g., Amazon); providing detailed explanations of their privacy policies (e.g., Travelocity); trying to capitalize on land-based brand reputations (e.g., Microsoft Expedia, Barnes and Noble); building brand recognition for their web-only businesses (e.g., Travelocity, Amazon); and building transference-based trust by associating themselves with already-trusted businesses (Stewart 2003).

The first objective of this study is to examine the effectiveness of three vendor strategies in promoting initial consumer trust in web-based businesses: a) placing a privacy assurance icon on the website (which certifies that the vendor has a viable privacy policy); b) putting an icon from an industry professional association on the website as an implicit endorsement; and c) advertising or promoting one's favourable reputation. While these are becoming common strategies, and the literature theorizes their effectiveness (e.g., Chen and Dhillon 2002, Fung and Lee 1999, McKnight and Chervany 2001–2, Shankar *et al.* 2002, Tan and Thoen 2000–1), there are no empirical studies examining whether they do, in fact, increase consumer trust. Rather, papers have tested whether noticing or paying attention to the seal affects trust — not the existence of the seal itself (Belanger *et al.* 2002, Kovar *et al.* 2000, Kimery and McCord 2002, Mauldin and Arunachalam 2003).

> Research Question 1: Do reputation advertising, the use of privacy icons, and the use of industry seals increase initial consumer trust in a Web-based business?

In addition, this study goes one step further and recognizes that consumers go through multiple stages in deciding whether or not to transact with a web-based business. At the very first stage, a consumer must choose whether or not to explore a site he/she may have heard about — we term this the introductory stage. At the next stage, once they decide to explore the site, they must then decide whether or not to transact with, or rely on, the web business — this is the exploratory stage. This distinction is important because factors that influence the consumer during the introductory stage may differ from those that influence the consumer at the exploratory stage. Trust theorists (e.g., Lewicki and Bunker 1996) have talked about how trust progresses through stages, implying that trust building is a complex task that requires different strategies at different stages (Luhmann 1979). No research has examined the progression of trust through the initial stages of the consumer — web business interaction, although Jarvenpaa and Leidner (1998) and Kanawattanachai and Yoo (2002) study trust progression in virtual teams.

> Research Question 2: Do the factors that influence consumer trust during the introductory stage (e.g., disposition to trust, structural assurance, seals, reputation advertising) stay the same or shift during the exploratory stage?

THEORETICAL MODEL

What is trust?

The term 'trust' is used to mean perceptions that the trustee has worthy attributes, along with a willingness to become vulnerable to that trustee (Rousseau *et al.* 1998). Hence, what we call 'trust' is a combination of *trusting beliefs*, defined as the belief that another has benevolent, competent, honest attributes (e.g., Bhattacherjee 2002, Jarvenpaa *et al.* 2000), and *trusting intention*, such as willingness to depend or rely on another in a situation, making oneself vulnerable to the other person (Currall and Judge 1995, Mayer *et al.* 1995).

Initial relationship stages for the e-consumer

Several trust theorists suggest that trust varies by stage of interaction between the trustor and trustee (e.g., Ba 2001, Lewicki and Bunker 1996). These stages vary in the extent of familiarity between the parties (Bigley and Pearce 1998), which means the extent to which the parties have credible, first-hand information about each other. Familiar parties have credible information about the other, often based on direct interaction, while unfamiliar parties don't. Trust between unfamiliar parties (initial trust) is formed through assumptions or quick inferences about the trustee from whatever information is available (Meyerson *et al.* 1996). After the first few interactions, as the parties gain familiarity with and information about each other, trust is increasingly based on the direct experience of the trustor with the trustee, and on the quality of the interactions between them (e.g., Blau 1964).

In the context of the Internet, a consumer and a web business would only be fully familiar after the consumer transacts with the business and analyses the results (e.g., whether the business fulfilled its obligations). Our focus in this paper is instead on the unfamiliar, initial stage of the relationship when the consumer and business have not had direct interactions. This is the domain of initial or 'swift' trust (Jarvenpaa and Leidner 1998, Meyerson *et al.* 1996). For a web-based business, it is important to create adequate initial consumer trust to induce consumers to use the site for the first time. The early portion of any relationship is when parties set the tone for future

interactions. First impressions are crucial. For example, social psychologists have shown that relationship opinions and beliefs formed early tend to continue into the future, perpetuated by belief-maintaining mechanisms (Berscheid and Graziano 1979, Boon and Holmes 1991). Unless the consumer forms positive beliefs and intentions towards a website during this initial period, the consumer will probably not be willing later to purchase from the site. Prior research has found links between trust in a web store and intentions to purchase from the web store (e.g., Jarvenpaa *et al.* 2000). Hence, developing initial trust is crucial.

Within this initial period, we distinguish between two stages: an *introductory* stage and an *exploratory* stage. During the *introductory* stage, users have not yet experienced a specific website and are still trying to assess the website and the web business based on second-hand information about what they offer. By second-hand, we mean nonexperiential information that would come from others, including from other websites or site searches. They hear what others say about the site and digest information they hear or advertisements they see. Thus, in the introductory stage, consumers have little or no first-hand information about the e-business, creating a stage characterized by unfamiliarity. The introductory stage ends when users first visit the site.

Users who decide to use the site enter the *exploratory* stage. Here, the user interacts with the website for the first time and begins to decide 'Shall I do business with this e-business?' In the exploratory stage, consumers have obtained some (though limited) first-hand, credible information, creating a stage characterized by limited familiarity. The exploratory stage includes deciding to transact business with the site and ends when actual e-business is transacted. Deciding to do business may include intent to purchase the product or to provide personal information to the vendor, both of which bear inherent risks for the consumer, such as misuse of personal information or nonfulfilment of the order. It may also include deciding to act on the information provided on the website, in the case of expert advice sites such as the legal advice site explored in this study. This too entails risk as the information/advice may be incorrect and inappropriate, resulting in adverse consequences for the consumer who acts on it.

Research model

The theoretical model is shown in Figure 1. It is proposed that the specific influences on trust will differ by stage. When the consumer is unfamiliar with the web business, as in the introductory stage, the consumer's level of trust will be largely influenced by their institution-based trust of the web environment, their dispositional trust, and their evaluation of any second hand and surrogate information they can gather about the business. As the consumer gains partial familiarity with the business, through an exploration of its website, the biggest influence on trust will be the directly experienced site features, such as ease of navigation and professional appearance, that influence perceived quality of the website, while the non-experiential factors that were important during the introductory stage will diminish in importance.

In Figure 1, at the left are factors of trust that are proposed to be significant during the introductory stage but less significant during the exploratory stage (dotted line arrows). Perceived site quality is a factor only at the exploratory stage, after respondents have seen and used the site. The control variables, Web experience, age, and gender, enter the model at both stages. The model is based on various studies. The links are first argued (H1–H5) and then the stage effects (H6). In this study's context, trust in a specific web business refers to potential consumer trust in a legal advice vendor that is unfamiliar or unknown, rather than one recognized by or familiar to the consumer.

Effects of disposition to trust

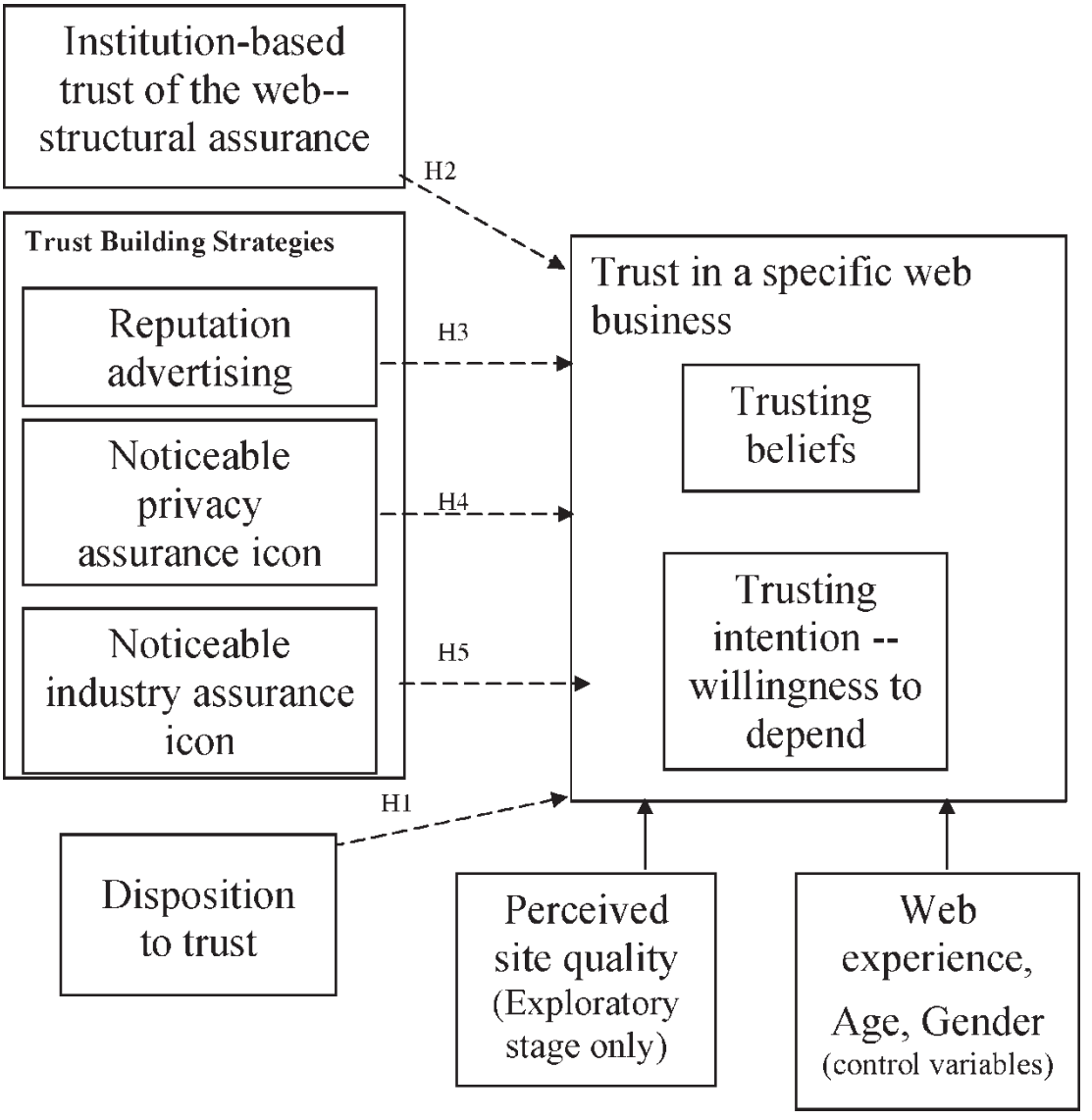
At the introductory stage (Figure 1), in the absence of specific experience, we expect that *disposition to trust*, a personality tendency (also called propensity to trust), will influence consumer trust in the web business (Gefen 2000, McKnight *et al.* 2002). Disposition to trust is the tendency to trust general others across various situations (for more detail, see McKnight and Chervany 2001–2, Rotter 1971). Disposition to trust has been argued to be an antecedent of trust in a specific person, especially in new relationships (Mayer *et al.* 1995). Essentially, the logic is that, in the absence of more specific knowledge of the vendor, individuals with a generally higher disposition to trust others will also have higher initial trust in the web business.

Disposition to trust seems especially salient in e-commerce relationships because these relationships are characterized by social distance, which limits the amount of information a consumer has about the vendor. Prior research has found that disposition to trust influences trust in a web vendor. For example, Lee and Turban's (2001) Internet shopping model included disposition to trust. Gefen (2000) found disposition to trust to be an important antecedent of trust in Amazon.com.

H1: Disposition to trust will positively influence consumer trust in a web business.

Effects of institution-based trust (structural assurance)

Institution-based trust refers to an individual's beliefs about the structural safety or favourability of the setting,



Notes: 1. Dashed lines are Introductory stage links proposed to weaken in the Exploratory stage.
2. Each proposed link is positive.
3. Based on the literature, trusting beliefs should lead to trusting intention, though this is not tested in the study.

Figure 1. Research model

in this case, the web itself (McKnight *et al.* 2002). Zucker (1986) and Shapiro (1987) said that structures such as contracts, guarantees and legal protections encourage trust by providing a safe operating environment. For example, structural assurance of the web, the institution-based trust construct measured here, means one believes protections exist (e.g., encryption and legal protections) that assure that web transactions can occur safely. Encryption, legal protections and technology safeguards prevent consumers from losing their personal identity or control over their personal information. Consumers who feel safe about the Internet in general are more likely to trust a specific web business (Gefen *et al.* 2003, McKnight and Chervany 2001–2) than those who feel the web is inherently unsafe or those who do not believe that appropriate protections exist. Thus, institution-based trust should also influence trust in a specific web business. Prior research supports this hypothesis. Pavlou (2002) found that institutional structures influenced trust in sellers in a B2B setting. Gefen *et al.* (2003) found that structural assurance affected consumer trust in an e-vendor.

H2: Institution-based trust (structural assurance) will positively influence consumer trust in a web business.

Effects of reputation advertising

We distinguish reputation advertising from reputation itself as an antecedent of trust. Reputation, which means assigning attributes to another person based on second-hand information about them, has long been known to influence trust (e.g., Dasgupta 1988, Luhmann 1979). Until one gets to know the other party well, reputation may be one of few reasons to trust. Existing brick-and-mortar businesses already have reputations, but new e-businesses don't. The latter can try to build reputation by providing positive information to potential customers through advertising that spreads by word-of-mouth. Reputation advertising means to convey to potential customers positive information about oneself. Reputation advertising is not too different from the concept of signalling, which builds reputation (Weigelt and Camerer 1988).

Reputation advertising may provide a boost to consumer trust because it may increase the consumer's beliefs about positive attributes and intentions of the web business. Other researchers also suggest that advertising is important, but have not empirically tested the idea. Ba and Pavlou (2002) talk about a vendor that advertised its reputation. They then apply this idea to online feedback for auction sites. Ratnasingham (1998) and McKnight and Chervany (2001–2) both propose that advertising may be important to building trust among e-commerce partners. However, no empirical evidence of the efficacy of reputation advertising exists in e-commerce research.

H3: Reputation advertising will positively influence consumer trust in a web business.

Effects of assurance seals

One popular trust building strategy is to display seals and icons representing third party endorsements. Putting a seal on the website should be influential because it is a credible, visual cue or signal (Tan and Thoen 2000–1). By putting a seal on the site, a web business attempts to signal that it is good because a third party is, in effect, endorsing it. Of course, the seal needs to be noticed to work (Kovar *et al.* 2000). Third party assurances may persuade a person that a particular site is safe because a third party endorser ensures the vendor will behave in ethical and competent ways (Cheskin *et al.* 1999, Palmer *et al.* 2000, Shankar *et al.* 2002). For example, a TRUST-e seal is designed to assure consumers that the website has a meaningful privacy policy that it follows (Benassi 1999). Most consumers simply want to know that the site has and follows a decent privacy policy (Hoffman *et al.* 1999) in order to feel safe transacting with the e-vendor. Similar seals include BBB On-Line™ and WEBTRUST™ (Kovar *et al.* 2000, Mauldin and Arunachalam 2002). Noticing WEBTRUST™ has been shown to be effective in building both positive consumer expectations about websites and intent to purchase online (Kovar *et al.* 2000). In this study, we examine the influence of a noticeable TRUST-e privacy seal.

H4: A noticeable TRUST-e privacy assurance seal will positively influence consumer trust in a web business.

Specialized web providers can also build trust through seals that indicate or signal endorsement by a reputable industry organization. While much has been proposed about privacy or security-related seals (see references supporting H4), we only found one paper that suggested that professional organization seals may build trust (McKnight *et al.* 2002). This may be especially applicable for sites that offer professional advice and information, such as the legal advice site that forms the experimental context for this study. For example, a medical site endorsed by the American Medical Association (AMA) or a legal site endorsed by the American Bar Association (ABA) might signal to the consumer that the provider fulfils certain standards of professional competence. Like the privacy seal or the hyperlink, an industry seal would work through transference of trust from the endorsing agency to the website (Stewart 2003). Like the privacy seal, the industry seal would have to be noticeable to have an effect.

H5: A noticeable industry seal will positively influence consumer trust in a web business.

Hypotheses 1 to 5 are proposed to work during both the introductory and exploratory stages. However, the next section argues that the salience of these factors will decrease from the introductory stage to the exploratory stage. This is important because taking time into account is a crucial but often overlooked way to build productive theory (Mitchell and James 2001).

Shifting effects of trust factors in the exploratory stage

Researchers have concluded that disposition to trust is most effective as an antecedent when the relationship is new (Johnson-George and Swap 1982, McKnight *et al.* 1998, Rotter 1971). This is because experience-based knowledge readily replaces tentative assumptions (Fazio and Zanna 1981). That is, specific knowledge about a web business should replace trust-related inferences one makes about the business from past experience with other people in general. It is proposed that when consumers have experienced a website (exploratory stage), individual disposition to trust will affect trust in the web business less than it did earlier (introductory stage). In the long term (i.e., after the consumer has gained transactional experience with the vendor), the

effects of disposition to trust will probably erode completely. However, as consumers move from the introductory to the exploratory phase, only a partial decrement is expected.

Similarly, institution-based trust will decrease in predictive salience because structural assurance of the web is at first a mental proxy for how safe an individual website is. The logic is that if the web overall is perceived to be safe, then a specific website is also likely to be perceived as safe. But even having made this connection, one seeks further specific evidence that the site is, in fact, safe. Once one has seen the site for a specific web business, one is likely to form opinions about the safety and security of that business based on site experience. Relying on site experience will decrease the influence of one's beliefs about the structural assurance of the overall web.

Since reputation advertising and third party endorsements are proxy indicators of trustworthiness (Cheskin *et al.* 1999) or perhaps ways of signalling good reputation (Weigelt and Camerer 1988), they will, by nature, be tentative trust bases. First impressions like reputation are subject to change, per McKnight *et al.* (1998), because facts about the web business gleaned by experience are considered more reliable than second-hand information (reputation) or third party endorsements. Therefore, their effects will be reduced in the exploratory stage by experience with the vendor's website. Specifically, the predictive strength of these factors will decrease in the exploratory stage.

H6a: During the exploratory stage, disposition to trust, structural assurance, privacy and industry seals, and reputation advertising will be less significant in their influence on trust in the web business than during the introductory stage (i.e., the level of their predictive link to trust in the web business will decrease).

What is proposed to replace (in part) these proxy indicators in predicting trust in the web business is perceived site quality, which refers to the attractiveness and usability of the website (Cheskin *et al.* 1999). Several have specified site quality of one type or another as a way to build trust in the website (Belanger *et al.* 2002, Fung and Lee 1999, Shneiderman 2000). Fogg and associates have included many site design aspects as part of their site credibility guidelines (see http://www.webcredibility.org/guidelines/index.html). McKnight *et al.* (2002) found site quality predicted both trusting beliefs and trusting intentions. Site quality will replace proxy indicators of trustworthiness because seeing the site is the consumer's first solid indicator of how good the web business really is. Proxy indicators are built on assumptions that can quickly be replaced by facts, which people seek in order to reduce uncertainty caused by trusting another based on limited information (Luhmann 1979). People are most convinced by solid evidence. Therefore, once the consumer sees the site, perceived site quality will become the strongest trust factor and will partially displace disposition to trust, structural assurance, and the trust building strategies (Figure 1) as predictors of trust.

H6b: Perceived site quality will have the strongest and most significant influence on consumer trust in the web business during the exploratory stage.

METHODOLOGY

Because of the many influences on trust in a website, isolating the influence of a few factors like assurance seals requires a controlled setting. The specific setting chosen is a site that provides legal advice. Much of the existing research has been in the consumer products environment (e.g., Kovar *et al.* 2000, Mauldin and Arunachalam 2002), but a growing number of sites exist that offer advice to consumers in such sensitive fields as law and medicine. This issue has received little research attention so far (exception: McKnight *et al.* 2002). Further, the level of trust becomes particularly important when the transaction entails significant risk to the consumer.

Study procedure

The study was conducted on the web. The 343 subjects were students drawn from courses taught at three large US universities. University students represent a group similar to web users, who are younger and better educated than the average (Kovar *et al.* 2000, OECD 1998). Students have been shown to make decisions that approximate decisions the general population would make in information processing related decision tasks (Ashton and Kramer 1980).

Sample demographics are shown in Table 1. The sample is a bit more female than male and reflects significant web experience. University students often become avid web users because of the opportunity to download music, shop for bargains, and access distant friends.

The study was conducted in five phases in one respondent session with all subjects experiencing the *introductory* (T1) and *exploratory* phases (T2). First, the subjects were asked to complete a questionnaire designed to measure their disposition to trust, web experience, and

Table 1. Demographics of sample

Total responses	*343*	
Gender (%)	Female: 54	Male: 46
Age	Mean: 20.8	Std. Dev.: 4.0
Years of College	Mean: 2.5	Std. Dev.: 1.1
Years of Web Experience	Mean: 4.0	Std. Dev.: 0.90

structural assurance towards the web. Questionnaire items were either adapted or taken directly from McKnight *et al.* (2002). The structural assurance, disposition to trust-benevolence/integrity, site quality, and exploratory phase (T2) trusting beliefs and trusting intention items were adopted from McKnight *et al.* (2002). Because we projected that respondents would be less confident responding about beliefs and intentions before seeing the website (T1), the practical difficulty exists of asking a respondent to report on a belief before that belief is formulated in a solid way. Hence, we modified these items for T1 in order to reflect the tentative nature of trusting beliefs and intentions at this stage (see Appendix), using terms like 'probably' or 'likely'. This reflects the context of the study — a new-to-the-respondent web business — and the nature of what is termed 'swift trust' in the literature — trust that forms before parties have even met (Jarvenpaa and Leidner 1998, Meyerson *et al.* 1996). In this way, respondents would feel more comfortable answering sensitive trust-related questions by having the questions themselves reflect the tentative nature of the respondents' initial trust.

Web experience was a calculated composite measure, based on the length of time the subject had used the web multiplied by the average frequency of use of the web for four activities. The activities were from the McKnight *et al.* (2002) general web experience scale: reading web newspapers, accessing newsgroups, seeking product information, and web shopping. Thus, the web experience construct reflected duration and intensity of use. Web experience was used as a control variable, along with age and gender.

Second, as part of the *introductory stage* (T1), subjects were presented with a legal situation that is familiar to many students. As in McKnight *et al.* (2002), they were told that they have a malfunctioning air-conditioner in their apartment but, after repeated calls to the landlord, the air-conditioner has not been fixed. They are, therefore, faced with the possibility of having to take legal action. Subjects were informed that a friend tells them about an advertisement for a website that addresses common legal issues. A combination of reputation advertising and assurance icon treatments were included as part of the verbal description of the legal advice website. The reputation advertising treatment consisted of a favourable statement (the website was run by a law firm rated among the top 50 in the nation) or no statement. For the assurance icons, subjects were told the site either had seals from TRUST-e or ATLA (Association of Trial Lawyers of America) or were told nothing about seals.

Third, subjects filled out a questionnaire about their inclination to further explore the described website to learn their legal rights in the situation presented. Their levels of two types of introductory stage trust were measured — trusting beliefs and trusting intention (see Figure 1).

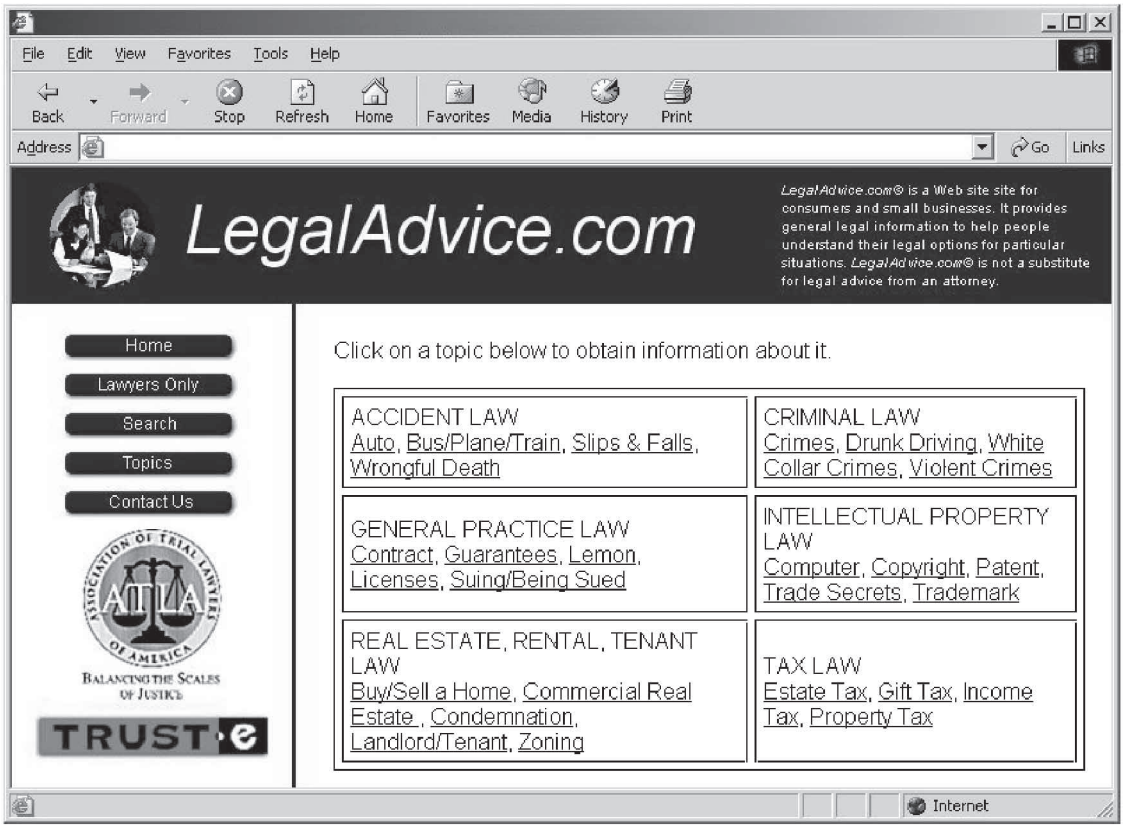
Fourth, to address the *exploratory stage* (T2), the subjects were taken to the legal advice website — developed specifically for this study — to investigate their legal rights in the described scenario (see Figure 2). They were asked to find the legal answer to the scenario question about the air conditioner issue. As the subjects traversed the site, those who were told of icons in the introductory stage saw the corresponding assurance icons on the website in the exploratory stage, either TRUST-e or ATLA. The icons were sized to be noticeable (as specified by H4 and H5). They were larger than the menu buttons above them (Figure 2) and, as a result of using a frame-based interface design, were visible on each screen visited while exploring the website.

The treatments randomly administered during the introductory (T1) and exploratory (T2) stages are shown in Table 2. Between 53 and 62 subjects populated each treatment cell. Treatment variables were created by coding a score of two for cases in which a particular treatment existed and a score of one where the treatment did not exist. This method was used because the intent was not to study experimental treatments in isolation, but to create variables for each treatment such that the effects of the treatments can be tested simultaneously with the effects of dispositional trust and structural assurance.

After finding the information needed to solve the air conditioning problem, subjects completed another questionnaire about their inclination to trust the web-based business. The trusting beliefs chosen were those most commonly used in the literature: benevolence, competence and integrity (e.g., Jarvenpaa *et al.* 2000, Mayer *et al.* 1995). Subjects did not actually complete a transaction with the business. This means that this study represents and provides implications about only those stages of the relationship that take place before any transactional commitments are made.

CFA analysis

The data were analysed with structural equation modelling techniques using LISREL 8.3. All data analyses were done at the item level using maximum likelihood estimation. That is, the items were treated as reflective manifest variables and the constructs were treated as latent variables reflective of the manifest variables. The results of the CFA for measured variables are shown in Table 3, with fit statistics shown as recommended by Hu and Bentler (1999). The model fit was adequate, with CFI = 0.94, NNFI = 0.93, and RMSEA 0.052. As evidence that the items load on their construct (Gefen *et al.* 2000), Table 3 shows that each item estimate was large and significant, with the lowest item estimate (among all the estimates) 0.70 with a T-statistic of 9.36 ($p < 0.001$). Next, we compared each item loading to twice the value of its standard error (Anderson and Gerbing 1988). Indicating adequate convergent validity,



Note: Although both assurance icons are shown above, only one or the other was displayed to a consumer, based on the treatments in Table 2.

Figure 2. Experimental site screen shot

Table 2. Treatments

Treatment group no.	*Introductory phase treatment(s) (second-hand information) [T1]*	*Exploratory phase treatment(s) (seals, site quality experienced) [T2]*
1	Hi reputation advertising	
2	No reputation advertising	
3	Hi reputation advertising / TRUST-e	TRUST-e
4	No reputation advertising / TRUST-e	TRUST-e
5	Hi reputation advertising / ATLA	ATLA
6	No reputation advertising / ATLA	ATLA

each loading was more than double its standard error. As evidence of discriminant validity, we used a constrained analysis method, setting the correlation between one pair of latent variables to 1.0 while rerunning the model. Discriminant validity is evidenced if the chi-square difference between the constrained and unconstrained models is significant (Anderson and Gerbing 1988). We found that all forced-correlation models passed this test, with chi-square differences from 214 to 1,249. Thus, the CFA results indicate the model has acceptable properties for structural testing.

Results — Structural models

We ran four separate models — one for each dependent trust variable at time one and time two. The structural path coefficients from LISREL may be interpreted like standardized regression coefficients, so they are referred to as beta (β) values. The p-values next to the beta value indicate the beta's statistical significance. Results across the LISREL models are shown in Table 4. The first two columns of each set of three are model runs used to test H1 toH5 and H6a. The third column in each set (labelled 'Explor. Stage + Site Qual') is a model run used to test H6b.

H1, H2 and H3 were supported by the four applicable model runs. Disposition to trust, structural assurance, and reputation advertising affected each type of trust during both stages. H4 and H5 were not supported, as neither the TRUST-e privacy seal nor the ATLA professional association seal were significant in any equation. In fact, at T2, these seals had a small negative effect, which was almost significant for ATLA in the exploratory stage (T-statistics were – 1.43 and – 1.00 for predicting trusting beliefs and trusting intention). None of the control variables were significant.

H6a said the factors would decrease in predictive strength from T1 to T2. We tested H6a by conducting a

Table 3. Confirmatory factor analysis results and correlation matrix

		Lowest item estimate	*T-stat of lowest est.*	*1*	*2*	*3*	*4*	*5*	*6*	*7*
1	Disposition to trust	0.70	9.36	1.0						
2	Structural Assurance	1.26	19.38	0.26	1.0					
3	Trusting Beliefs-T1	0.85	14.33	0.29	0.21	1.0				
4	Trusting Beliefs-T2	0.93	18.30	0.26	0.20	0.62	1.0			
5	Trusting Intention-T1	1.26	19.20	0.20	0.22	0.70	0.51	1.0		
6	Trusting Intention-T2	1.08	15.45	0.22	0.23	0.48	0.84	0.60	1.0	
7	Site Quality-T2	0.86	10.43	0.16	0.09	0.41	0.68	0.16	0.45	1.0
Fit	Chi-Square	df	P-value	RMSEA	CFI	NNFI	Stdzd.RMR			
Stats	1637	851	0.0000	0.052	0.94	0.93	0.054			

Table 4. Hypothesis testing results

	Model run					
	Trusting beliefs			*Trusting intention*		
	H1–5, 6a tests		*H6b test*	*H1–5, 6a tests*		*H6b test*
	Intro. stage	*Explor. stage*	*Explor. stage+ site qual*	*Intro. stage*	*Explor. stage*	*Explor. stage + site qual*
Hypothesis / Linkage Tested	β/p-value	β/p-value	β/p-value	β/p-value	β/p-value	β/p-value
H1: Disp. to trust → Trust in web business	0.25***	0.20***	0.10*	0.16**	0.15**	0.10*
H2: Structural Assurance → Trust in w. Bus.	0.13*	0.15**	0.11**	0.20***	0.19**	0.15**
H3: Reputation Advertising → Tr in w. Bus.	0.13*	0.14*	0.08*	0.17**	0.12*	0.09ns
H4: Privacy Icon → Trust in web business	0.03ns	–0.01ns	–0.08ns	0.05ns	–0.04ns	–0.06ns
H5: Industry Seal → Trust in web business	0.03ns	–0.03ns	–0.10ns	–0.01ns	–0.07ns	–0.08ns
Control: Web experience → Tr in web Bus.	–0.01ns	–0.13ns	–0.04ns	0.03ns	–0.02ns	0.03ns
Control: Age → Trust in web business	0.06ns	0.03ns	0.03ns	–0.01ns	0.03ns	0.02ns
Control: Gender → Trust in web business	0.03ns	0.07ns	0.03ns	0.04ns	0.01ns	–0.02ns
H6b: Site Quality → Trust in web business	NA	NA	0.68***	NA	NA	0.40***
Trust in web business R^2	0.13	0.12	0.56	0.13	0.10	0.25

p-value codes: *** $p < 0.001$ [$t > 3.090$] ** $p < 0.01$ [$t > 2.326$] * $p < 0.05$ [$t > 1.645$] ns = not significant

Notes: β refers to a path coefficient.
Gender Coding: Female = 1 Male = 2.

nested models test in LISREL 8.3. In a nested models test, the chi-square and degrees of freedom of a hypothesized model are used in a chi-square difference test against a model in which one or more paths between the same observed and latent variables are added or removed (Anderson and Gerbing 1988). Chin and Todd (1995) demonstrated the use of a chi-square difference test for comparing competing structural equation models. A nested-model test is a valid method of assessing differences in models, and is similar to a Chow test in regression. For example, we used nested models to test the decrease in beta value (T1 to T2) for the link from disposition to trust. The two competing models consisted of the hypothesized model (Figure 1) with either a link from dispositional trust to trusting beliefs at T1, or a link from dispositional trust to trusting beliefs at T2. Even though Table 4 shows that the beta for dispositional trust decreased from 0.25 to 0.20, the chi-square difference test was not significant. This was also true for structural assurance and for reputation advertising. Thus, H6a was not supported — no significant drop occurred from the beta values at T1 to those at T2. Since the TRUST-e and ATLA seals had no effect, H6a could not be tested for them.

H6b was tested by adding site quality to the T2 equations to determine whether it was the most important and significant variable in the equation. Note that respondents rated the site 5.3 out of 7.0 for site quality. As predicted in H6b, perceived site quality had the largest and most significant positive influence on both trusting beliefs ($\beta = 0.68$ $p < 0.001$) and trusting intention ($\beta = 0.40$ $p < 0.001$) in the exploratory stage. The R^2 also became much larger in the exploratory stage once perceived site quality was added to the equation. As might be expected, adding site quality to the equation reduced the magnitude of the values for disposition to trust and reputation advertising (comparing the 2nd–3rd and 5th–6th columns in Table 4). Using the nested-model approach and a chi-square difference test, we found that the addition of site quality was significant ($t = 11.9$).

DISCUSSION

This study contributes to the e-commerce literature by testing how trust works during the earliest stages of B2C interaction. The study shows that, as hypothesized, both dispositional trust and institution-based trust are important factors that relate initially to trust in an e-business. This finding is consistent across all six model tests, indicating that dispositional and institutional trust have important influence on consumer trust in the e-business across trust types (trusting beliefs and trusting intention) and both before and after one sees the website. Thus, individual beliefs both about other people and about the Internet make a difference.

Beyond these findings, the study focused on two dimensions: the efficacy of reputation advertising and third party assurance icons, such as TRUST-e, in building initial consumer trust in a web business; and changes in the influence of various trust factors between the introductory and the exploratory stages.

Assurance icons versus reputation advertising

The assurance icons, which are signalling devices, had little effect on the level of consumer trust in the web vendor. This is not inconsistent with Mauldin and Arunachalam's (2002) finding. Some of the results may be because the assurance seals in this study did not address security directly. Security is often seen by consumers as a more important issue than privacy (Belanger *et al.* 2002). When asked which web issue is most important, respondents in our study chose security 1.6 to 1 over privacy. As per Belanger *et al.* (2002), neither privacy nor security issues are as important to consumers as convenience, ease of use, and site cosmetics, which are similar in concept to perceived site quality.

It is probable that our study gave the icons ample opportunity to work because the subjects noticed them due to their size, prominent placement, and visibility throughout the web experience. In the exploratory stage, 83% correctly said they saw the TRUST-e seal and 83% correctly said they saw the ATLA seal. By contrast, Kovar *et al.* (2000) found that only 56% of subjects noticed the WEBTRUST™ seal. Lala *et al.* (2002) found that only 42% correctly identified that they had seen the WEBTRUST™ seal. The size and placement of our seals made them more noticeable, but still did not improve their trust-building effectiveness over seals in other studies.

The reason may be that many who saw the seal did not know what it signalled. This was especially true of the TRUST-e seal, based on the follow-up question asked, 'If the TRUST-e logo was on the site, or had been on the site, what would this suggest to you, if anything?' Many simply said they didn't know or that it meant nothing, and a large number also gave answers that were negative toward the site, such as that the vendor was only trying to make it appear that the site guarded users' privacy, whether it did or not. Lala *et al.*'s (2002) finding that the WEBTRUST™ seal worked better than the BBB On-Line™ seal suggests that only certain seals (i.e., those with high levels of quality information) are helpful, which may help explain why TRUST-e was not effective. Mauldin and Arunachalam (2002) found that people were not really looking for third-party assurances. If this is so, giving them information they didn't seek may raise more suspicions than it solves, since out-of-norm events can lower trust or cause distrust (Garfinkel 1963). This may help explain the negative coefficients for ATLA and TRUST-e in our findings.

Part of the reason for the negative results for the ATLA seal may be because the ATLA is either not well known or is perceived negatively because of broader perceptions about the legal profession. It may either be that trial lawyers are not highly trusted or that the ATLA is not trusted. On average, respondents had confidence in attorneys at 4.4 on a 7-point scale, which was below the 4.8 average for trusting belief in the web business. This needs further research, as symbols only convey trust when the organization represented by the symbol is trusted (Grandison and Sloman 2000).

The reputation advertising treatment worked well, even though it was given only in the introductory stage and not repeated in the exploratory stage, as the icons were. The significant results for reputation advertising agree with past research that has shown *perceived* reputation to be a powerful predictor of trust (e.g., Jarvenpaa *et al.* 2000). Second-hand reputation advertising appears to provide credibility for the site that is difficult to achieve with third party endorsements.

Stages of the B2C relationship

Contrary to our expectations, proceeding from the introductory stage, where the consumer had only

second-hand information about the web business, to the exploratory stage, with first-hand experience on the website, did not significantly alter the salience of the effects of disposition to trust, reputation advertising, and structural assurance. This contradicts literature that posits that trust factors at the beginning of a relationship differ from trust factors later on (Jarvenpaa *et al.* 2000, Mayer *et al.* 1995, McKnight *et al.* 1998, Meyerson *et al.* 1996). However, we believe this conclusion should be viewed as tentative, in part because the passage of time from the introductory to the exploratory stage may not have been long enough to create and detect an erosion of the effects of these variables on trust in the web vendor.

On the other hand, the test of H6b shows that factors may shift over a short timeframe if much more solid evidence about the trustee is found. McKnight *et al.* (1998) suggest that some of the initial bases of trust could deteriorate over a short time period as new and less speculative, first-hand information becomes available. This study's findings lend some support to their proposal, in that when site quality perception enters the equation, it becomes the most significant factor predicting trust in the vendor.

The information given about LegalAdvice.com during the introductory stage was indirect — from a friend who saw an ad in the newspaper. Therefore, first hand impressions about the quality of the website in the exploratory stage would replace assumptions based on indirect information in the introductory stage. After all, 'seeing is believing' (so too is interacting), and when one doubts a second hand report, one is often told, 'come see for yourself' or 'how about a test drive'? The strong explanatory strength of perceived site quality confirms the power of seeing the site first hand. This study echoes Mauldin and Arunachalam's (2002) finding that website design ratings (similar to site quality) were much more powerful predictors of intent to purchase online than either assurance symbols or 'comfort' with the Internet (a variable similar to structural assurance). The finding that site quality was a strong predictor is not new. Fung and Lee (1999), Fogg and Tseng (1999), and Cheskin (1999) proposed this and it has been found true in empirical research (Mauldin and Arunachalam 2002). However, this study provides psychological reasons why this is the case.

Limitations of the study

Several cautions about the study should be noted. First, because of the sample used, the results may not generalize to all potential Internet customers, only to young, US university students. The kind of site (legal advice) and the particular task also represent bounds to the generalizability of the study. Using a site that sells consumer products, for example, may give somewhat different results. Second, the study did not measure or observe actual behaviours, which would be desirable for future research. Trust-related behaviours such as providing personal information to, or buying from, a vendor are likely to be predicted by trusting intentions, as has been found with other phenomena (Ajzen and Fishbein 1980); however, this is a question for empirical testing. Third, the study was conducted in one session that lasted about 35 minutes. The lack of the passage of significant time makes it hard to claim that causality is shown. Nonetheless, the study adequately represents two early stages in the consumer—B2C vendor relationship. Our results may have been different if the time period between stages was longer. Additional work needs to be done to represent how the relationship would unfold over a period of time that included transactions with a web vendor. The use of student subjects is also a limitation of the study, in that they sometimes have a tendency to be more cooperative than would a non-student. However, as outlined earlier, students are a viable group of e-commerce users and, to address reality issues, we had them pursue an understandable task to which students can easily relate because it was tailored to them. The reputation advertising treatment could have been interpreted to refer to size instead of quality of the firm, so this should be better clarified in future research. We also believe our stage findings to be preliminary and need to be tested again to confirm them. Finally, the use of dual treatments like reputation advertising and the ATLA seal introduce the possibility of complexity that a simpler treatment would not have. On the positive side, having both a seal and a reputation advertising treatment (or not) is what may well be experienced in practice, making ours a relevant set of treatments.

Implications for practice

A major implication of this study is that trust factors can shift over time. This study found that a website's quality effects dwarfed those of disposition to trust, institution-based trust, and reputation advertising when consumers advanced from the introductory stage to the exploratory stage. Thus, web vendors need to be concerned about different sets of trust antecedents at different stages of the initial interaction with potential customers. Before users see the site, dispositional and institutional trust and reputation advertising are important. After they see the site, site quality becomes more important.

The effect of reputation advertising suggests a second implication: that this kind of intervention is more important to trust building than are assurance seals. First impressions from second-hand information build trust effectively when no other information is available. The nonsignificant but negative impact of the ATLA seal raises the possibility that seals can backfire if those who see the seal do not respect the endorser — thus, seals should be selected with care. In the case of the legal advice website used in this study, perhaps the ABA

(American Bar Association) would have been a better seal than ATLA.

Another significant finding is that even a single use of the website can create a site quality perception that makes believers out of consumers who are not altogether satisfied with second-hand information and are waiting to form a firmer opinion on more solid information. More reliable information reduces uncertainty, making it desirable (Smith *et al.* 1991). Based on our results, a quality site builds trust better than do either assurance seals or reputation advertising during the exploratory stage.

CONCLUSION

This paper contributes in several ways. First, the study contributes by demonstrating that the foundations of trust shift over time, making trust-building a dynamic process in which the effects of some variables like disposition to trust may be replaced by other variables like site quality. The salience of the trust variables discussed in this study — structural assurance, dispositional trust, assurance seals and reputation advertising — should be tested in stages subsequent to those tested here, such as the first purchase stage. Second, this study's reputation advertising treatment approach goes beyond past literature on reputation effects by showing that site managers can take steps to influence perceived reputation. The study extends the literature by showing that reputation advertising, not just perceived reputation, influences trust. Third, counter to popular prescription, having a noticeable third party privacy assurance seal and a third-party industry seal on the site has no significant effect on trust in the vendor. The finding that site quality partially eclipses the effects of other factors when the site is used suggests that because of the uncertainty surrounding the web, neither third party seals nor reputation advertising treatments are substantial enough to continue to build trust; rather, 'seeing (or interacting) is believing'. These preliminary stage-related findings suggest that the processes by which trust is built over time should be examined, not just the factors that lead to trust, as this and similar studies have done.

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Appendix: T1 trust measures

Trusting beliefs

1. Overall, LegalAdvice.com is probably an excellent legal advice provider.
2. I expect LegalAdvice.com to perform its role of giving legal counsel very effectively.
3. LegalAdvice.com is probably skilful and able in providing legal counsel.
4. In general, LegalAdvice.com is probably well-qualified to provide counsel about the law.
5. I believe that LegalAdvice.com would be concerned about what is best for me.
6. If I required help, I think LegalAdvice.com would do what it could on my behalf.
7. LegalAdvice.com is likely to be interested in helping me, not just in serving itself.
8. LegalAdvice.com would probably be honest in how it deals with me.
9. Overall, I expect LegalAdvice.com to be truthful.
10. I anticipate that LegalAdvice.com would provide me factual information.
11. LegalAdvice.com would probably honor any commitments it makes.

Trusting intention — willingness to depend

1. If I was faced with the scenario described earlier: I would be willing to depend on the advice provided by LegalAdvice.com.
2. If I was faced with the scenario described earlier: I would rely on the information provided by LegalAdvice.com.
3. If I was faced with the scenario described earlier: I would feel confident acting on the information provided by LegalAdvice.com.