Ann E. Schlosser, Tiffany Barnett White, & Susan M. Lloyd

Converting Web Site Visitors into Buyers: How Web Site Investment Increases Consumer Trusting Beliefs and Online Purchase Intentions

The authors investigate the impact of Web site design investments on consumers' trusting beliefs and online purchase intentions. Such investments signal the component of trusting beliefs that is most strongly related to online purchase intentions: ability. These effects were strongest when consumers' goals were to search rather than to browse and when purchases involved risk.

"In important ways, using the Internet involves a leap of faith. We type in our credit card numbers and other personal information in order to make purchases over the Internet and trust that this information will not be used in unauthorized or fraudulent ways" (Bargh and McKenna 2004, p. 585). Firms have responded to such consumer concerns by investing in Web site security, which has become a multibillion dollar industry (eMarketer 2005). Yet even experienced online buyers view purchasing online as risky (eMarketer.com 2005; Forrester 2005). Indeed, consumers' perceptions of the risks involved in providing personal information online often contrast the views of security experts, causing these consumers to avoid online activities that are actually safe (Dunn 2004). This avoidance has led some experts to speculate that the immediate threat to e-commerce is consumers' perceptions (eMarketer 2005; Hoffman, Novak, and Peralta 1999; Rust, Kannan, and Peng 2002). Thus, although it is necessary, investing in back-end technology to protect consumers' information and ensure that e-commerce transactions run smoothly is not sufficient. Firms, particularly those attempting to convert visitors to buyers, still face the challenge of establishing consumers' trust online. Thus, it is important to understand how companies can communicate their trustworthiness to consumers.

Ann E. Schlosser is Assistant Professor of Marketing, University of Washington Business School (e-mail: aschloss@u.washington.edu). Tiffany Barnett White is Assistant Professor of Business Administration (Marketing Group), College of Business, University of Illinois (e-mail: tbwhite@uiuc.edu). Susan M. Lloyd is Assistant Professor of Marketing and Endowed Fellow, Kogod School of Business, American University (e-mail: smlloyd@american.edu). The authors thank Ruth Bolton and the two anonymous *JM* reviewers, as well as Jim Bettman, Katherine Lemon, Michael Mazis, and Kent Monroe, for their helpful comments on previous versions of this article. The authors also thank Sandra M. Dahne and S. Rand Fishkin for their technical assistance. Funding for Study 1 was provided by the Center for Information Technology and the Global Economy at the Kogod School of Business, American University.

Marketing managers face the challenge of establishing consumers' trust in a variety of contexts, but doing so in computer-mediated environments such as the Internet may be particularly difficult (Naquin and Paulson 2003). A common approach is to post explicit statements that assure customers that personal data will be discreetly used and protected (i.e., privacy and security statements). However, evidence on the effectiveness of such statements is contradictory. Whereas some research has shown that such statements help instill consumer confidence in e-commerce sites (Palmer, Bailey, and Faraj 2000), others suggest that they are not necessarily the most important predictor of online trust (Montoya-Weiss, Voss, and Grewal 2003; Sultan et al. 2002). Findings from a recent large-scale study suggest that despite consumers' claims that privacy policies are important for establishing credibility, consumers refer instead to "surface" elements, such as Web site design (Fogg et al. 2002).

In this article, we develop a conceptual framework for understanding how marketing signals influence consumers' trust in an e-commerce setting. We clarify important distinctions related to trust that have been largely overlooked in the literature but are key to understanding how online firms can best convert visitors to buyers. Specifically, we argue that different Web site signals can influence different beliefs about a firm's trustworthiness, which in turn have differential effects on online purchase intentions. Furthermore, these effects might vary according to the consumers' purpose for visiting the site and the level of risk they perceive in the purchase. Consistent with prior research (e.g., McKnight, Choudhury, and Kacmar 2002), we conceptualize online purchase intentions in terms of customer acquisition—that is, consumers' intentions to make an initial online purchase from a firm, despite their online purchase history with other firms. We begin with a review of the trust literature. We then present and test our conceptual framework and conclude with a discussion of the theoretical, managerial, and public policy implications of these findings.

ISSN: 0022-2429 (print), 1547-7185 (electronic)

Journal of Marketing
Vol. 70 (April 2006), 133–148

Trust

Trust has been defined as "a willingness to rely on an exchange partner in whom one has confidence" (Moorman, Zaltman, and Deshpandé 1992, p. 315); "a generalized expectancy held by an individual that the word, promise, oral or written statement of another individual or group can be relied upon" (Rotter 1980, p. 1); and "a belief in a person's competence to perform a specific task under specific circumstances" (Sitkin and Roth 1993, p. 373). Reflected in these and other definitions of trust is a cognitive aspect (i.e., trusting beliefs) and a behavioral aspect (i.e., trusting intentions) (Kim et al. 2004; Moorman, Zaltman, and Deshpandé 1992).

Trusting beliefs represent a "sentiment, or expectation about an exchange partner's trustworthiness" (Moorman, Deshpandé, and Zaltman 1993, p. 315). Although various trusting beliefs have been studied in the literature, the majority can be conceptually clustered into three dimensions: ability, benevolence, and integrity (McKnight, Choudhury, and Kacmar 2002). "Ability beliefs" reflect consumers' confidence that the firm has the skills necessary to perform the job (Mayer, Davis, and Schoorman 1995), "benevolence beliefs" reflect confidence that the firm has a positive orientation toward its consumers beyond an "egocentric profit motive" (Mayer, Davis, and Schoorman 1995, p. 717), and "integrity beliefs" reflect confidence that the firm adheres to a set of moral principles or professional standards that guide its interactions with customers. These trusting beliefs are related, yet distinct. For example, consumers may believe that the firm cares about its customers and thus intends to deliver a smooth, error-free transaction (i.e., the firm is benevolent), but they may also believe that the firm lacks the ability to do so. Likewise, although integrity and benevolence beliefs are similar, the former focuses on meeting objective standards of corporate citizenship, and the latter focuses on customer welfare that goes beyond normal business activity. For example, despite consumers' beliefs that the firm follows a professional code of conduct (i.e., has integrity), they may still question the firm's genuine concern for its customers (i.e., its benevolence).

Although ability, benevolence, and integrity beliefs are acknowledged as conceptually distinct (e.g., Kumar, Scheer, and Steenkamp 1995), they are often combined into a global measure of trusting beliefs (e.g., Doney and Cannon 1997). Whereas combining these beliefs into a single variable is a parsimonious approach to studying trust, it can make it difficult to identify what action should be taken to build trust (Smith and Barclay 1997). Because a global measure likely obscures the reason certain signals are more effective than others in affecting online purchase intentions, we treat each trusting belief separately.

Trusting intentions represent "a willingness to make oneself vulnerable to another in the presence of risk" (Kim et al. 2004, p. 105). What distinguishes trusting intentions from other types of behavioral intentions is that they involve risk (Moorman, Zaltman, and Deshpandé 1992). As reflected in the opening quotation, purchasing online involves risk, especially when a person lacks experience with the online firm. Specifically, the consumer must be willing to transfer resources (e.g., credit card and other personal information) to the online firm, the consequences of which could be damaging. For example, among the real and/or perceived risks are that the firm may overcharge, fail to deliver the product, deliver an inferior product, or fail to protect personal information. To the extent that consumers are concerned about these and other risks of purchasing online, online purchase intentions reflect trusting intentions.

The distinction between trusting beliefs and trusting intentions has been acknowledged by some researchers (e.g., Moorman, Zaltman, and Deshpandé 1992; Sirdeshmukh, Singh, and Sabol 2002) but ignored by others who have studied only trusting beliefs, implicitly assuming that these beliefs imply trust (e.g., Doney and Cannon 1997; Ganeson 1994; Kumar, Scheer, and Steenkamp 1995; Mayer, Davis, and Schoorman 1995; Morgan and Hunt 1994). For example, Morgan and Hunt (1994) argue that trusting beliefs are sufficient for measuring trust because such beliefs imply that trusting intentions will follow. In contrast, Moorman, Zaltman, and Deshpandé (1992) argue that trust is limited when trusting beliefs do not accompany a corresponding trusting intention or when trusting intentions occur without corresponding trusting beliefs (e.g., under conditions of coercion or limited alternatives). In other words, these researchers argue that both trusting beliefs and trusting intentions must be present for trust to exist. Likewise, we argue that trusting beliefs are a necessary but not sufficient condition for trust to exist, because increasing trusting beliefs will not always have a corresponding positive effect on trusting intentions.

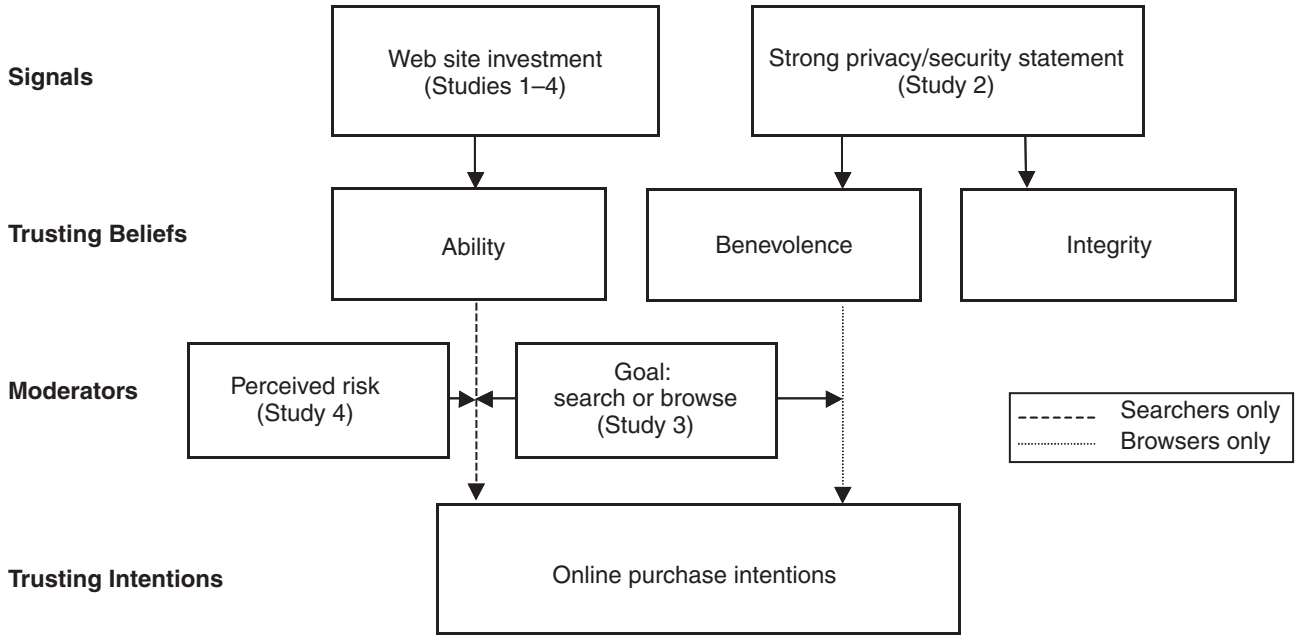
Conceptual Framework

Drawing from research on trust (Mayer, Davis, and Schoorman 1995; Moorman, Deshpandé, and Zaltman 1993), consumer goals (e.g., Hoffman and Novak 1996), and marketing signals (e.g., Kirmani and Wright 1989; Prabhu and Stewart 2001), we develop a conceptual framework for understanding how different signals influence ability, benevolence, and integrity beliefs and thus influence online purchase intentions (see Figure 1). Because our objective is to understand how to increase consumers' willingness to buy online, we focus on those whose goal is most consistent with buying online, namely, consumers who search for product information (or searchers; Hoffman and Novak 1996; Moe 2003; Schlosser 2003). Indeed, searchers think about and are persuaded more by product information (Schlosser 2003) and have higher visitor-to-buyer conversion rates than those who do not search (Moe 2003). We begin by examining the relationship between searchers' trusting beliefs and intentions.

Searchers' Trusting Beliefs and Online Purchase Intentions

Searching reflects purposive, task-specific behaviors, such as the planned acquisition of information during prepurchase deliberation (Hoffman and Novak 1996; Janiszewski 1998). Similar to those who read a text to find an answer to a question (Rosenblatt 1978), searchers are likely motivated to find the right answer efficiently. Such a fact-gathering,

FIGURE 1
Conceptual Framework of the Effect of Online Signals on Trusting Beliefs and Intentions



knowledge-seeking stance is typically outcome oriented, concentrated, impersonal, and objective (Rosenblatt 1978). Given this performance orientation, we expect that when considering whether to purchase online, searchers will focus on the trusting belief that is most relevant to performance: ability (Mayer, Davis, and Schoorman 1995). If this is the case, searchers' ability beliefs should largely influence their online purchase intentions. In contrast, their beliefs about the firm's trustworthiness on non-performance-related dimensions (i.e., benevolence and integrity) should have relatively little effect on their online purchase intentions.

H_1: Searchers' online purchase intentions depend on their beliefs about the firm's ability rather than their beliefs about the firm's benevolence or integrity.

Signaling Ability Through Web Site Investment

If trust in a firm's abilities is critical to increasing online purchase intentions, a fundamental question is, How can firms use online cues to communicate that their abilities can be trusted? To address this question, we draw from research on marketing signals. Signals are the actions or announcements that convey a firm's abilities and intentions (Porter 1980). Marketers often use observable signals (e.g., price, warranties, advertising expenditures) to communicate the level of some unobservable quality (e.g., product quality; Kirmani and Rao 2000). Signaling may be especially important in an online purchasing context because of the inherent asymmetry of relevant information between buyers and sellers. Specifically, information about the quality of a given online transaction is generally unobservable by consumers before purchase.

Investing in Web site design may be one observable signal that firms can use to communicate their abilities and boost searchers' online purchase intentions. Indeed, consumers can distinguish between expensive and inexpensive marketing tactics, such as ad production elements (Kirmani and Wright 1989). Moreover, they make inferences about companies (e.g., the company's ability to make quality products and its credibility) based on these perceived marketing expenditures (for a review, see Kirmani and Rao 2000). The attribution literature provides insight into these findings (Kirmani and Wright 1989). Specifically, when interpreting others' performance, people infer that investing time and energy promotes success (Weiner 1986). Likewise, consumers will likely infer that a firm that has invested in Web site design can successfully handle online transactions.

As in prior research, we consider investment in broad terms (Kirmani and Wright 1989); that is, investment reflects expenditures of time, money, and effort to Web site design. Importantly, it refers to investments in the front-end (design) elements of a Web site (i.e., its observable characteristics) and not back-end technologies, such as order fulfillment software, security encryption, and firewall capabilities, which are typically unobservable before purchase. Yet because ability is a stable, internal characteristic (Weiner 1972), people will likely generalize their trust in a firm's ability in one area (design) to other related areas (e.g., order fulfillment). Thus, instead of being purely cosmetic, Web site design likely communicates important performance information. However, it likely communicates less about the firm's goodwill, ethics, values, or intentions to mislead than it does about the firm's ability.[1] Consequently, consumers

[1]This assumes conditions of normality. Because a poorly designed Web site (e.g., one with hyperlinks that do not work)

will likely use perceived Web site investment to infer a firm's ability more than its benevolence or integrity. If this is the case and ability beliefs largely influence searchers' online purchase intentions (H_1), it follows that

H_2: Searchers' online purchase intentions will be higher at a high-investment Web site than at a low-investment Web site.

H_3: Beliefs about the firm's ability will mediate the relationship between site investment and searchers' online purchase intentions.

The first two studies test these hypotheses, and the last two studies examine two potential moderators (goal and perceived risk). Furthermore, to test the generalizability of these effects, we varied across studies the samples recruited (students versus nonstudents), companies (a fictitious versus well-known firm), and products (home furnishings and accessories versus cameras).

Study 1

Method

Sample and design. The sample consisted of 111 respondents who participated in exchange for $10 and were recruited through an electronic and a printed newsletter distributed to university employees. The sample was 68% female, with a mean age of 37.5 and a mean income of $35,000 to $49,999. Respondents had a median education of four years of college and used the Internet an average of four to six times per week. We randomly assigned respondents to a high- or low-investment site.

Web site investment manipulation. We manipulated Web site investment through the presence of sophisticated Web site technology and visual design elements. Specifically, the high-investment site had a white background, sophisticated fonts (images for the navigation bar; Garamond font), and an enhanced zoom feature created with Design Within Reach. This enabled users to zoom in on any part of an image and to choose among three preselected zooms that executed automatically with a single click. In contrast, the low-investment site featured the default background color and font (gray; Times New Roman) and a limited zoom feature, which, when clicked, simply provided a larger view of the focal product. The content and layout of both sites were identical.

To test the effectiveness of this manipulation, 43 undergraduates viewed screen captures of the homepage (font and background color were used to manipulate investment) and a zoom page (technology was used to manipulate investment). The order was counterbalanced, and participants viewed only those pages specific to the high- or low-investment site. After viewing each page, participants reported how much time, effort, and money they believed the firm invested in each page on a scale from 1 ("very little") to 7 ("a great deal"). We averaged the responses to these items (αs > .94) and analyzed them with a 2 (investment: high versus low) × 2 (page: zoom versus home) × 2 (order: viewed home or zoom page first) analysis of variance (ANOVA). In support of the investment manipulation, participants perceived the high-investment site as requiring greater investment than the low-investment site (Ms = 4.09 versus 3.18; $F(1, 39) = 9.02$, $p < .01$). Furthermore, the effectiveness of the investment manipulation was unaffected by the type or order of page viewed (Fs(1, 39) < 3.35, not significant [n.s.]). Thus, it appears that font, background color, and use of technology communicate investment. Participants also reported how informative, entertaining, and well organized they found the pages to be on the same seven-point scale. As we expected, investment did not affect these variables (Fs(1, 39) < 1.97, n.s.).

Procedure. Participants sat at a computer and received a paper booklet. The first page instructed participants that they would be visiting a site for a new firm called Urban-Furniture (UF) and to limit their visit to the homepage and living-room sections of the site. All participants were told to imagine that they wanted to purchase contemporary furniture and were considering UF. As in prior research (Schlosser 2003), to instill a searching goal, participants were asked to write down two questions they had for UF about its products before visiting the site.

Participants then visited either the high- or the low-investment site, which was preloaded on their computer. Afterward, they completed the survey, which contained three items that measured their online purchase intentions (α = .91) and a modification of Mayer and Davis's (1999) scale of trustworthiness (for the measures used in this and the other studies, see the Appendix). This scale measured beliefs about UF's ability (α = .90), benevolence (α = .88), and integrity (α = .71). Then, to test the effectiveness of the investment manipulation in the main experiment, participants completed the three-item Web site investment scale (see the Appendix; α = .95).

At the end of the survey, participants reported their education and income levels as well as how often they used the Internet to purchase goods in the last six months on a scale ranging from 1 ("not at all") to 7 ("quite often"). We included these measures to control for individual differences in Internet experience both directly (i.e., through self-reported use of the Web) and indirectly (i.e., using demographic variables associated with Web use). To control for variance due to mechanical error, we asked participants to report the extent to which they encountered problems at the UF site (e.g., error messages, server delays, crashing) on a scale from 1 ("not at all") to 7 ("quite often").

Results

Manipulation checks. We analyzed the investment manipulation with a one-way analysis of covariance (ANCOVA), controlling for reported problems with the site, prior Web purchase history, education, and income. In support of the manipulation, perceived Web site investment was higher among those in the high-investment condition than among those in the low-investment condition (Ms = 3.46 versus 1.97; $F(1, 108) = 32.45$, $p < .0001$).

Trusting beliefs and online purchase intentions. We used hierarchical regression to test H_1. We first modeled

likely violates consumers' expectations about norms of conduct for e-commerce firms, it will likely raise concerns about the firm's benevolence and integrity.

online purchase intentions as a function of ability beliefs. As we predicted, ability significantly influenced these intentions (β = .27, t(108) = 2.88, $p < .005$; R^2 = .07, F(1, 108) = 8.31, $p < .01$; see Table 1). Furthermore, the addition of benevolence and integrity beliefs to the model did not contribute significantly to explaining searchers' online purchase intentions (ΔR^2 = .007, F(2, 106) < 1). We replicated this pattern of results with a stepwise regression analysis, which identifies the best subset of belief variables that predict online purchase intentions. Thus, regardless of the regression procedures we used, the results are consistent with H_1. Furthermore, given the inherent correlation between trusting beliefs, we tested for multicollinearity by examining the maximum variance inflation factor (VIF). Multicollinearity is problematic for interpreting regression analyses when the maximum VIF is greater than 10 (Neter, Wasserman, and Kutner 1990). We found that multicollinearity was not an issue in the preceding analysis (the maximum VIF = 3.10).

Web site investment, trusting beliefs, and online purchase intentions. We analyzed ability beliefs with a one-way ANCOVA. As we expected, ability beliefs were higher for those who visited the high-investment site than for those who visited the low-investment site (Ms = 2.41 versus 1.80; F(1, 109) = 13.27, $p < .005$). In contrast, Web site investment did not affect benevolence or integrity beliefs (Fs(1, 109) $\leq$ 2.00, n.s.). Thus, Web site investment is more effective in communicating the trustworthiness of a firm's ability than its benevolence and integrity.

In support of H_2, online purchase intentions were higher among those who visited the high-investment site than among those who visited the low-investment site (Ms = –.13 versus –.78; F(1, 109) = 4.06, $p < .05$). To test whether ability beliefs mediated this effect (H_3), we added ability beliefs as a covariate to the ANCOVA. Consistent with the requirements for mediation (Baron and Kenny 1986), ability was significant (F(1, 108) = 4.31, $p < .05$), and the investment effect became nonsignificant (F(1, 108) = 1.48, n.s.). We found further support for H_3 using the criteria that Sobel (1982) endorsed for testing mediation (Goodman I test statistic = 2.22; $p < .05$). Because investment did not affect benevolence and integrity beliefs, these beliefs cannot be considered mediators.

Conclusions

Study 1 provides support for H_1–H_3. Specifically, searchers' online purchase intentions were influenced by their trust in the firm's ability rather than their trust in its benevolence and integrity. As a result, ability signals (i.e., Web site investment) influenced their online purchase intentions. Furthermore, their trust in the firm's ability mediated this effect.

It is possible that searchers' online purchase intentions were influenced by their ability beliefs rather than by their benevolence and integrity beliefs because there were no signals regarding the firm's benevolence and integrity. In the presence of such signals, ability beliefs may have less influence. Indeed, the impact of a given signal is weakened when other, more relevant signals are present (Kirmani and Wright 1989). If benevolence and integrity signals are more relevant, the effect of investment on searchers' online purchase intentions should be weaker when such signals are present. However, if ability is more relevant, investment should affect searchers' online purchase intentions regardless of whether benevolence and integrity signals are present. We directly test this in Study 2 by manipulating the presence and strength of a firm's privacy and security statement. Because benevolence represents the firm's orientation toward customers and integrity represents whether the firm will do what it promises (Mayer, Davis, and Schoorman 1995), one method of signaling a firm's benevolence and integrity may be through formal statements of its intentions to consumers, such as through privacy and security statements. If so, such statements should affect consumers' beliefs about a firm's benevolence and integrity rather than its ability. Yet if ability is a stronger driver of searchers'

TABLE 1
Hierarchical Regression Analysis of Trusting Beliefs on Online Purchase Intentions

			Model 1			Model 2		
Study	**Goal**	**Variable**	**β**	**R^2**	**F for R^2**	**β**	**ΔR^2**	**F for ΔR^2**
1	Searchers	Ability	.27*	.07	8.31*	.19	.01	.38
		Benevolence				.10		
		Integrity				.02		
2	Searchers	Ability	.39*	.15	15.57*	.39*	.00	.08
		Benevolence				.06		
		Integrity				–.06		
3	Searchers	Ability	.42*	.18	15.70*	.43*	.03	1.50
		Benevolence				.15		
		Integrity				–.20		
	Browsers	Ability	.15	.02	1.62	.10	.10	4.28*
		Benevolence				.33*		
		Integrity				–.01		

*$p \leq .05$.

online purchase intentions (H_1), investment should affect searchers' online purchase intentions regardless of whether a privacy and security statement is present. That is, H_2 and H_3 should be supported even when such a statement is provided.

Study 2

Method

Sample and design. A total of 79 undergraduate students participated in exchange for extra course credit. We randomly assigned participants to one of six conditions in a 2 (investment) × 3 (privacy/security statement: strong or weak versus absent) design.[2] We included the absent condition to examine whether the presence of a strong statement is better than having no statement. We included the weak condition to examine whether merely having a privacy/security statement might signal benevolence and integrity or whether the contents of the statement influence such beliefs.

Privacy/security statement manipulation. We constructed the strong and weak privacy/security statements on the basis of a content analysis of the privacy/security statements gathered from more than 25 sites. For the strong statement, explicit information was available about how UF collects and uses customer information. There was also a promise of confidentiality, a contact number, an opt-in feature, encryption information, and a 100% guarantee against information theft. In contrast, the weak statement informed the consumer that personal information would be collected and made available to other vendors that "are offering products we feel are of interest to you." There was no opportunity to opt in or out of such correspondence. Consumers were also informed that UF "tries to safely transmit your account information." No account protection or guarantee was offered.

To pretest this manipulation, 37 undergraduates read either the strong or the weak statement and rated its strength on six items. Among the items were "I believe Urban-Furniture is concerned about my privacy" and "I believe that Urban-Furniture is concerned about the security of my financial information." Participants responded on a scale ranging from 1 ("disagree strongly") to 7 ("agree strongly"), and we averaged the responses ($\alpha = .94$). In support of the privacy/security manipulation, participants agreed more that UF would preserve their privacy and security when they read the strong privacy/security statement than when they read the weak statement (Ms = 5.56 versus 2.61; $F(1, 36) = 100.53$, $p < .01$).

Procedure. The procedure and survey were the same as in Study 1, with a few exceptions. To increase involvement, participants were told to imagine that they accepted a job in Manhattan after graduation and were searching for living-room furniture for their apartment. After viewing the site, participants in the strong and weak privacy/security conditions read these statements before completing the survey. To test whether reading such statements might artificially increase participants' risk perceptions of shopping online, we added seven items to the end of the survey that measured such concerns (see the Appendix). We averaged responses to provide a perceived risk score ($\alpha = .89$). Because the sample is homogeneous in terms of education and income, we deleted these demographic questions. In addition, because we measured online purchase experience in Study 1 with a single item that captures only recent online purchase experience, we added an item that measures general online purchase experience (i.e., how often participants shop online) on a scale from 1 ("not at all") to 7 ("quite often"). We averaged these items to capture online purchase experience ($r = .78$).

Results

Manipulation checks. In support of the investment manipulation, a 2 (investment) × 3 (privacy/security statement) ANOVA yielded a significant investment effect ($F(1, 73) = 6.84$, $p = .01$): Participants perceived the high-investment site as requiring a greater investment than the low-investment site (Ms = 3.36 versus 2.48). No other effects were significant ($Fs(1, 73) < 1$).

To examine whether reading a privacy/security statement might increase participants' perceived risks of shopping online, we compared risk perceptions using a 2 × 3 ANOVA. None of the effects were significant (the investment effect: $F(1, 73) = 1.22$, n.s.; the direct and interactive effects of the privacy/security statement: $Fs(2, 73) < 2.11$, n.s.). On average, participants perceived buying online as risky (M = 5.71, which is significantly higher than the midpoint of 4; higher numbers reflect greater perceived risk, $t(78) = 14.16$, $p < .01$).

Trusting beliefs and online purchase intentions. As in Study 1, we tested H_1 using hierarchical regression. As we predicted, ability beliefs influenced searchers' online purchase intentions ($\beta = .39$, $t(77) = 3.73$, $p < .005$; $R^2 = .15$, $F(1, 77) = 15.57$, $p < .01$, see Table 1). Furthermore, the addition of benevolence and integrity beliefs to the model did not significantly contribute to explaining online purchase intentions ($\Delta R^2 = .002$, $F(2, 75) < 1$). A stepwise regression analysis yielded the same results. Multicollinearity was not a problem (the maximum VIF = 2.58).

Web site investment and trusting beliefs. Here and elsewhere, we analyzed the data with a 2 (investment) × 3 (privacy/security statement) ANCOVA, controlling for online purchase experience and problems with the site. Ability beliefs were higher for those who visited the high-investment site than for those who visited the low-investment site (Ms = 2.68 versus 2.13; $F(1, 69) = 6.54$, $p < .05$), thus replicating the results of Study 1. No other effects on ability beliefs were significant ($Fs(1, 69) \leq 2.34$, n.s.). Furthermore, as we expected, Web site investment did not affect benevolence or integrity beliefs ($Fs(1, 68) < 2.29$, n.s.).

Whereas investment appears to communicate a firm's ability but not its benevolence and integrity, privacy/security statements appear to communicate benevolence and integrity but not ability: The privacy/security effect was significant for benevolence beliefs ($F(2, 69) = 3.30$, $p < .05$)

[2]Our analysis was limited to either strong or weak privacy and security statements. Thus, for ease of exposition, we use the term "privacy/security" to describe levels of privacy *and* security.

and integrity beliefs ($F(2, 69) = 4.03$, $p < .05$) but not for ability beliefs ($F(2, 69) = 2.34$, n.s.). Benevolence and integrity beliefs were significantly higher among those who read a strong statement than among those who read a weak statement (benevolence: Ms = 3.04 versus 2.65; $F(2, 68) = 2.89$, $p < .05$ [one-tailed test]; integrity: Ms = 3.19 versus 2.66; $F(2, 68) = 7.12$, $p < .05$). These beliefs were also higher for those who received a strong statement than for those who received no statement (benevolence: Ms = 3.04 versus 2.44; $F(2, 68) = 6.55$, $p < .05$; integrity: Ms = 3.19 versus 2.76; $F(2, 68) = 5.02$, $p < .05$). However, the mere presence of a privacy/security statement does not appear to signal a firm's benevolence and integrity; the difference between a weak statement and no statement was not significant at $p < .05$. It appears that both the presence and the strength of the statement signal the firm's benevolence and integrity.

Web site investment and online purchase intentions. We analyzed online purchase intentions with a 2 × 3 ANCOVA. In support of H_2, online purchase intentions were higher among those who visited the high-investment site than among those who visited the low-investment site (Ms = –.16 versus –.79; $F(1, 69) = 3.06$, $p < .05$ [one-tailed test]). A privacy/security statement did not moderate this effect ($F(2, 69) < 1$). Thus, regardless of whether benevolence and integrity signals (i.e., privacy/security statements) were present, ability signals (i.e., Web site investment) significantly influenced searchers' online purchase intentions.

The only other significant effect was a privacy/security effect ($F(1, 69) = 4.95$, $p = .01$). In support of the argument that benevolence and integrity signals (e.g., a strong privacy/security statement) should have little effect on searchers' online purchase intentions, online purchase intentions did not differ between those who received the strong privacy/security statement and those who received no statement (Ms = –.36 versus .09; $F(1, 46) = 1.10$, n.s.). However, online purchase intentions were lower among those who received a weak privacy/security statement than among those who received a strong statement (Ms = –1.15 versus –.36; $F(1, 41) = 3.82$, $p < .05$ [one-tailed test]) or no statement (Ms = –1.15 versus .09; $F(1, 49) = 8.58$, $p < .01$). This finding is consistent with existing research that negative cues regarding a firm's character tend to be unexpected, violating established norms about "business as usual" (Garfinkel 1963). In such situations, people appear unwilling to buy online from the firm.

To test whether ability beliefs mediate the investment effect on online purchase intentions (H_3), we added ability beliefs as a covariate to the 2 × 3 ANCOVA. Consistent with the requirements for mediation, ability was a significant covariate ($F(1, 68) = 8.47$, $p < .01$), and the investment effect became nonsignificant ($F(1, 68) < 1$). We replicated this finding with the Sobel (1982) test (Goodman I test statistic = 1.93; $p = .05$). As in Study 1, benevolence and integrity beliefs cannot be considered mediators, because investment did not significantly affect these beliefs. However, it is possible that benevolence and integrity beliefs mediate the privacy/security effect on online purchase intentions. To test this, we added these beliefs as covariates to the 2 × 3 ANCOVA. Inconsistent with the requirements for mediation but in support of the prediction that searchers' online purchase intentions are influenced by their ability rather than by their benevolence and integrity beliefs (H_1), neither of these beliefs were significant ($Fs(1, 67) < 2.02$, n.s.), and the privacy/security effect on online purchase intentions remained significant ($F(2, 67) = 5.75$, $p < .01$).

Conclusions

Replicating the results of Study 1, we found that searchers' ability beliefs, rather than their benevolence and integrity beliefs, influenced their online purchase intentions. As a result, ability signals (Web site investment) influenced their online purchase intentions more than did signals of the firm's benevolence and integrity (the presence of a strong privacy/security statement).

Because the objective of this research is to predict online purchase intentions, thus far our focus has been on people whose goals are most consistent with prepurchase deliberation, namely, searchers. For those with this goal, ability beliefs are a stronger driver of online purchase intentions than are benevolence and integrity beliefs. However, there may be goals that highlight the importance of a different component of trust than ability beliefs. Specifically, for those whose goal for visiting the site is more personal and less outcome oriented (i.e., browsers), a different pattern of results may emerge. Browsing is a moment-by-moment activity rather than a search process for a specific piece of information (Janiszewski 1998). As such, it is exploratory (Moe 2003) and reflects recreational behavior (Hoffman and Novak 1996). Similar to those who read a text for entertainment (Rosenblatt 1978), browsers are likely focused on what they are "living through" during their site visits. Thus, whereas searchers tend to be more objective and outcome oriented and thus are likely to disengage from having a personal experience with the site, browsers' experiences are likely more personal.

We argue that distinguishing between these goals has important implications for the relative impact of each trusting belief on online purchase intentions. Whereas searchers focus on performance and thus base their online purchase intentions on their ability beliefs, browsers likely have a more personal experience with the site and thus will be influenced by the most personal aspect of trust: benevolence beliefs. Benevolence beliefs reflect consumers' beliefs that the firm cares about their welfare and well-being (e.g., "I trust that the firm is concerned about my wants and needs, even if doing so results in profit reductions"), whereas integrity beliefs reflect beliefs about the firm's moral standards, regardless of how it feels about the individual (e.g., "I trust that the firm is guided by sound business principles and standards"). Likewise, ability beliefs reflect beliefs about the firm's expertise, regardless of how it feels about the individual (e.g., "I trust that the firm has the necessary skills to be successful"). Thus, because browsers' experiences are highly personal, their online purchase intentions should depend on the most personal dimension of trust (benevolence) rather than on the less personal dimensions (i.e., ability and integrity).

H_4: Browsers' online purchase intentions depend on their beliefs about the firm's benevolence rather than their beliefs about the firm's ability or integrity.

We also propose that the distinction between searching and browsing has important implications for the influence of Web site investment on online purchase intentions. Whereas prior research has demonstrated the importance of separating signals from interpretation, because not everyone interprets a signal in the same manner (Prabhu and Stewart 2001), it may be equally important to separate signal interpretation from response because even similarly interpreted signals may lead to meaningfully different responses. In particular, we argue that though both searchers and browsers will likely interpret investment as signaling the firm's abilities, the impact of this belief on their online purchase intentions will vary. Specifically, if searchers' online purchase intentions are affected by their ability beliefs, ability signals (or Web site investment) should influence their online purchase intentions. However, if browsers' online purchase intentions are unaffected by their ability beliefs, ability signals (even if interpreted as such) should have relatively little influence on their online purchase intentions. Consequently, we hypothesize the following:

H_5: Web site investment influences searchers' but not browsers' online purchase intentions.

Because the firm studied thus far was an unknown Internet-only firm, an additional objective of Study 3 was to replicate the results for searchers with a well-established firm that sells a different set of products (electronics rather than home furnishings and accessories).

Study 3

Method

Sample and design. A total of 152 undergraduate students participated in exchange for extra course credit. We randomly assigned participants to one of four conditions in a 2 (investment) × 2 (goal: searching versus browsing) experimental design.

Web site investment manipulation. In contrast to Studies 1 and 2, we manipulated investment using only technology. Specifically, for the high-investment site, we used Macromedia's Shockwave technology to allow participants to experience an online demonstration and to roll over the product image to gather additional information about its features. For the low-investment site, we conveyed the same information through text and static graphics rather than through the use of this technology.

Procedure. The procedure was similar to that used in Study 2, with a few exceptions. Each participant was seated at a computer terminal, which contained the instructions, the site, and the survey. Participants were told that they would be visiting a portion of Kodak's site devoted to a specific model of digital camera. Those assigned to browse were instructed to "have fun, looking at whatever you consider interesting and/or entertaining." Those assigned to search were instructed that before doing so, they should type two questions they have for Kodak about this digital camera. To ensure that both groups would be attending to information relevant to them, we did not specify what to look for. These instructions are identical to those used in prior research to instill a searching versus browsing goal (Schlosser 2003). Participants then visited the site. To control for the amount of time browsers versus searchers spent at the site and any possible impact of this on the dependent variables, all participants viewed the site for five minutes, which is comparable to the time imposed in prior research (Schlosser 2003). We did not investigate privacy/security statements in this study.

After visiting the site, participants completed the online survey, which was identical to that used in Study 2, except that the risk questions were replaced by the goal manipulation check. Participants were asked the extent to which their time at the site was spent looking for specific information (a searching activity) or looking to be entertained (a browsing activity) on a scale from 0 ("not at all") to 5 ("a lot"). In addition to the Web site investment items, participants rated how informative they found the site to be on a scale from 1 ("very little") to 7 ("a great deal"). We also made a slight change to the trusting beliefs measure: We asked participants to focus on the trustworthiness of Kodak's Internet marketing department. We made this change to direct participants' attention toward the e-commerce side of the firm rather than the firm in general or the brand. For example, participants may trust the offline firm's ability, benevolence, and integrity, but they may not believe that its Internet marketing managers share these same qualities.

Results

Manipulation checks. We analyzed the manipulation check items with a 2 (investment) × 2 (goal) ANOVA. In support of the goal manipulation, searchers reported spending more time searching (Ms = 2.52 versus 1.86; $F(1, 150) = 14.08$, $p < .01$) and less time browsing (Ms = 1.31 versus 1.97; $F(1, 150) = 13.80$, $p < .01$) than did browsers. In support of the investment manipulation, the high-investment site was perceived as a greater investment than the low-investment site (Ms = 4.51 versus 2.58; $F(1, 148) = 88.76$, $p < .01$). This effect emerged for both browsers (Ms = 4.15 versus 2.34; $F(1, 74) = 20.19$, $p < .01$) and searchers (Ms = 4.86 versus 2.10; $F(1, 74) = 85.14$, $p < .01$). No other effects were significant. The sites did not differ in perceived informativeness ($F(1, 148) < 1$).

Trusting beliefs and online purchase intentions. To test whether ability beliefs explain searchers' online purchase intentions (H_1) and whether benevolence beliefs explain browsers' online purchase intentions (H_4), we conducted separate hierarchical regression analyses for searchers and browsers; we modeled ability beliefs as a function of online purchase intentions (Model 1) before adding benevolence and integrity beliefs (Model 2). As we predicted, ability beliefs were significantly related to searchers' online purchase intentions ($\beta = .42$, $t(74) = 3.96$, $p < .01$; $R^2 = .18$, $F(1, 74) = 15.70$, $p < .01$; see Table 2). The addition of benevolence and integrity beliefs to the model did not significantly contribute to searchers' online purchase intentions ($\Delta R^2 = .03$, $F(2, 72) = 1.50$, n.s.). For browsers, ability

TABLE 2
Study 4: Hierarchical Regression Analysis of Trusting Beliefs on Online Purchase Intentions When Risk Is High Versus Low

A: Results from a Hierarchical Regression Analysis

		Model 1			Model 2		
Social Risk	**Variable**	**β**	**R^2**	**F for R^2**	**β**	**ΔR^2**	**F for ΔR^2**
High	Product attitudes	.60**	.53	7.91**	.58**	.02	1.80
	Autotelic NFT	–.09			–.14		
	Instrumental NFT	–.03			–.05		
	Online buying	.16			.06		
	Site problems	.10			.17		
	Ability	.29**			.24*		
	Integrity				.18		
Low	Product attitudes	.44**	.27	2.40**	.41**	.02	1.12
	Autotelic NFT	–.12			–.10		
	Instrumental NFT	.02			.00		
	Online buying	.05			.14		
	Site problems	.09			.01		
	Ability	.08			.17		
	Integrity				–.17		

B: Results from a Stepwise Regression Analysis

High	Product attitudes	.64**	.41	33.92**	.56**	.07	5.94**
	Ability				.27**		
Low	Product attitudes	.48**	.23	13.47**			

*$p < .10$.
**$p \leq .05$.
Notes: NFT = Need for touch.

beliefs alone did not significantly explain their online purchase intentions ($R^2 = .02$, $F(1, 74) = 1.62$, n.s.). However, the addition of benevolence and integrity beliefs to the model significantly contributed to browsers' online purchase intentions ($\Delta R^2 = .10$, $F(2, 72) = 4.28$, $p < .05$). Consistent with H_4, browsers' benevolence beliefs were significantly related to their online purchase intentions ($\beta = .33$, $t(74) = 2.70$, $p < .01$), whereas ability and integrity beliefs were not ($t(74) < 1$). Multicollinearity was not a problem in the analyses (maximum VIFs < 1.50).

Web site investment, trusting beliefs, and online purchase intentions. We analyzed each belief with a 2 × 2 ANOVA. As we expected, ability beliefs were higher among those who visited the high-investment site than among those who visited the low-investment site (Ms = 3.51 versus 2.99; $F(1, 148) = 21.74$, $p < .01$). Investment did not affect benevolence and integrity beliefs ($Fs(1, 148) < 1$). Furthermore, people's goals for visiting the site neither directly affected nor interacted with investment to influence their ability, benevolence, or integrity beliefs ($Fs(1, 148) < 2.27$, n.s.). Thus, investment appears to signal a specific trusting belief (i.e., ability rather than benevolence or integrity), replicating the results of Studies 1 and 2 with a different set of stimuli. Moreover, this finding persisted despite differences in people's goals.

In support of H_5, searchers had higher online purchase intentions after visiting the high-investment site than after visiting the low-investment site (Ms = –.03 versus –.76; $F(1, 74) = 4.92$, $p < .05$), whereas browsers' online purchase intentions were unaffected by investment (Ms = –.48 versus –.08 at the high- and low-investment sites; $F(1, 74) = 1.26$, n.s.). This investment × goal interaction was significant ($F(1, 148) = 5.56$, $p < .05$).

In addition to demonstrating that the site effect on online purchase intentions varies across goals, we tested whether the mediating effects of ability vary across goals using the procedure that Baron and Kenny (1986) outline. Specifically, we regressed online purchase intentions on goal, site, goal × ability, and site × ability, and we found a significant goal × ability effect ($t(146) = 1.82$, $p < .05$ [one-tailed test]). For searchers, mediation was supported: Ability was significant ($F(1, 73) = 10.45$, $p < 01$), and the investment effect became nonsignificant ($F(1, 73) < 1$). A Sobel (1982) test supports this finding (Goodman I test statistic = 2.74, $p < .01$). However, for browsers, mediation was not supported: Ability had little effect on online purchase intentions ($F(1, 73) = 2.64$, n.s.). Furthermore, because investment did not affect benevolence and integrity beliefs, they cannot be considered mediators.

Conclusions

In Study 3, we examined a boundary condition for the effect of Web site investment on online purchase intentions: consumers' goals for visiting sites. We found that the effects of Web site investment and ability on online purchase intentions are specific to searchers and do not generalize to browsers. For browsers, the most personal component of trust (i.e., benevolence rather than ability) influences their

online purchase intentions. Consequently, although browsers recognized that Web site investment signals ability, it had relatively little influence on their online purchase intentions.

A remaining question is whether the findings are really a matter of trust. Recall that trusting intentions involve risk (Moorman, Zaltman, and Deshpandé 1992), which causes people to consult their trusting beliefs to determine whether to perform the trusting behavior. If the findings are driven by trust, Web site investment should influence consumers' online purchase intentions under conditions of risk. Although buying online is typically risky, certain situational factors (e.g., buying a gift for a significant versus an insignificant other) can make buying online more or less risky. When there is relatively little risk, buying online should involve relatively little trust. Consequently, people are less likely to consult their trusting beliefs when deciding how to act. Indeed, the degree of trust necessary to influence behavior has an approximate linear relationship to the degree of risk involved (Corritore, Kracher, and Wiedenbeck 2003; Mayer, Davis, and Schoorman 1995). Thus, when the purchasing scenario involves relatively little risk, ability beliefs (and signals designed to influence such beliefs) should have relatively little effect on searchers' online purchase intentions.

H_6: Ability beliefs affect searchers' online purchase intentions only when buying involves risk.

H_7: Web site investment affects searchers' online purchase intentions when buying involves risk.

Another objective for Study 4 was to test the importance of trust in determining online purchase intentions versus online purchase experience and a desire to examine products physically before purchase. For people who are motivated to touch products, barriers to touch can decrease confidence in product evaluation, though conveying haptic information through text and graphics can help (Peck and Childers 2003b). If trust is critical in determining online purchase intentions, ability beliefs should be related to online purchase intentions even when we account for these other factors.

Study 4

Method

Sample and design. A total of 98 undergraduate students participated in exchange for extra course credit. We randomly assigned them to one of four conditions in a 2 (investment: high- versus low-investment site) × 2 (risk: high versus low) factorial design. They visited the UF site used in Studies 1 and 2.

Risk manipulation. We manipulated risk by varying social risk. Specifically, the high-risk scenario was as follows: "Imagine that you graduated and obtained your dream job at a firm. You are invited to your boss' house-warming party, which takes place in a week." The low-risk scenario was as follows: "Imagine that you are invited to a former roommate's house-warming party, which takes place in a month." Participants in both scenarios were told that this person likes modern furniture and accessories, such as those offered at UF's site, and that they intend to buy a home accessory (e.g., a vase) as a house-warming gift for this person.

To test the effectiveness of these scenarios, 41 undergraduate students read either scenario and then rated how nervous and concerned they would be about making this purchase and how risky they considered this purchase on a scale from 1 to 7 (higher numbers reflected greater risk). We averaged these items to form a perceived risk score (α = .76). As we expected, perceived risk was higher among those who read the high-risk scenario than among those who read the low-risk scenario (Ms = 4.22 versus 3.12; $F(1, 37) = 7.12$, $p = .01$). Participants then looked at screen captures of the high- or low-investment site and answered the Web site investment items (α = .94; see the Appendix). As we expected, perceived investment was higher for the high-investment site than for the low-investment site (Ms = 5.12 versus 3.81; $F(1, 37) = 14.78$, $p < .01$). Moreover, risk did not directly affect or moderate these investment perceptions ($Fs(1, 37) < 1.39$, n.s.).

Procedure. The procedure and survey were the same as that used in Study 2, with a few exceptions. At the beginning of the experiment, participants read either the high- or the low-risk scenario before receiving the search instructions. Participants did not receive a privacy/security statement.

Unlike Study 2, online purchase intentions were specific to home accessories (the gift they were to buy). Participants also reported their attitudes toward UF's home accessories to control for any individual differences in their liking of UF's offerings (see the Appendix). In addition, to test the robustness of our effects related to ability versus integrity beliefs, we replaced Mayer and Davis's (1995) scale with an adaptation of Moorman, Deshpandé, and Zaltman's (1993) ability and integrity items.[3] Three items measured ability beliefs (α = .93), and two items measured integrity beliefs (r = .31; see the Appendix). Finally, to test the impact of trust on online purchase intentions relative to consumers' desire to touch products before purchase, we administered Peck and Childers's (2003a) need for touch (NFT) scale, which measures the need for autotelic and instrumental touch (see the Appendix).

Results

Trusting beliefs and online purchase intentions. To test H_6, we conducted a hierarchical regression analysis separately for searchers in the high- and low-risk conditions; we modeled ability beliefs and variables believed to influence online purchase intentions (attitudes toward home accessories, both types of NFT, online purchase experience, and site problems) as a function of online purchase intentions (Model 1) before adding integrity beliefs (Model 2). As we predicted, for searchers in the high-risk condition, ability beliefs were significantly related to online purchase intentions (β = .29, $t(48) = 2.39$, $p < .05$; $R^2 = .52$, $F(6, 43) = 7.91$, $p < .01$; see Table 2). The only other significant variable was attitudes toward home accessories (β = .60, t(48) =

[3]Moorman, Deshpandé, and Zaltman (1993) do not measure benevolence beliefs; thus, we do not address them here.

5.06, $p < .01$). The addition of integrity beliefs to the model did not significantly contribute to explaining online purchase intentions ($\Delta R^2 = .02$, $F(1, 42) < 1$). For searchers in the low-risk condition, the only significant variable from Model 1 was attitudes toward home accessories ($\beta = .44$, $t(45) = 2.88$, $p < .01$; $R^2 = .27$, $F(6, 40) = 2.40$, $p < .05$). The addition of integrity beliefs did not significantly contribute to explaining online purchase intentions ($\Delta R^2 = .02$, $F(1, 39) = 1.12$, n.s.). Consistent with H_6, ability beliefs influenced online purchase intentions only when risk was high. When risk was low, neither ability nor integrity beliefs could explain online purchase intentions. Moreover, ability beliefs is an important variable in explaining searchers' trusting intentions: In the high-risk condition, ability beliefs explained more variance in their intentions to buy online than did individual differences in NFT or online purchase experience. A stepwise regression led to the same conclusions. Furthermore, multicollinearity was not an issue: The maximum VIFs were below 1.99.

Web site investment, trusting beliefs, and online purchase intentions. For both beliefs, we conducted a 2 × 2 ANCOVA. As we expected, ability beliefs were higher among those who visited the high-investment site than among those who visited the low-investment site (Ms = 4.01 versus 2.84; $F(1, 90) = 14.82$, $p < .01$). Investment did not affect integrity beliefs ($F(1, 90) = 3.30$, n.s.). Furthermore, risk had neither a direct nor a moderating effect on either belief ($Fs(1, 90) < 1$). Thus, regardless of purchase risk, investment communicates a firm's ability.

For online purchase intentions for home accessories (the gift), a 2 × 2 ANCOVA yielded a significant investment × risk interaction ($F(1, 88) = 6.06$, $p < .05$). Consistent with H_7, when risk was high, searchers' online purchase intentions were higher at the high-investment site than at the low-investment site (Ms = .76 versus –.38; $t(49) = 2.64$, $p < .05$), whereas when risk was low, investment had little effect on their online purchase intentions (Ms = .46 versus .82 at the high- and low-investment sites; $t(47) < 1$).

In addition to demonstrating that the site effect on online purchase intentions varies across risk, we tested whether the mediating effects of ability vary across levels of risk by regressing online purchase intentions on risk, site, risk × ability, and site × ability. As we expected, the risk × ability effect was significant ($t(96) = 1.93$, $p = .057$). In the high-risk condition, mediation was supported: Ability was a significant covariate ($F(1, 43) = 8.67$, $p < 01$), whereas the previously significant site effect was reduced to nonsignificance ($F(1, 43) < 1$). The Sobel (1982) test provides further support for this finding (Goodman I test statistic = 2.13, $p < .05$). In the low-risk condition, however, mediation was not supported: It did not affect online purchase intentions ($F(1, 40) < 1$). As in Studies 1–3, integrity cannot be considered a mediator, because investment did not significantly affect this variable.

Discussion

Collectively, these studies clarify the role of trust in predicting online purchase intentions. Across four studies with different samples, companies, and products sold, we demonstrate that Web site investment influences searchers' intentions to buy online by influencing one component of trusting beliefs, ability (versus benevolence and integrity). Five conclusions can be drawn from our findings: First, they provide empirical support for the position that trusting beliefs should be considered separately from trusting intentions (Moorman, Deshpandé, and Zaltman 1993; Moorman, Zaltman, and Deshpandé 1992). Although definitions of trust typically contain both (e.g., Rotter 1980), most empirical research on consumer trust implicitly assumes that measuring trusting beliefs alone is sufficient (e.g., Morgan and Hunt 1994). However, our research suggests that it is important to measure trusting intentions because building trusting beliefs does not necessarily lead to higher trusting intentions. For example, although the presence (versus absence) of a strong privacy/security statement increased searchers' benevolence and integrity beliefs in Study 2, it did not lead to higher online purchase intentions. Likewise, in Study 3, Web site investment increased browsers' ability beliefs but not their online purchase intentions.

Second, our findings are consistent with the view that risk is a necessary (but not a sufficient) condition for trust (Moorman, Deshpandé, and Zaltman 1993; Moorman, Zaltman, and Deshpandé 1992). Specifically, in Study 4, we demonstrate that Web site investment and trusting beliefs influence online purchase intentions only when risk is high, or when the behavior requires trust. In contrast, when risk is low (and, thus, the behavior does not require trust), online purchase intentions were largely unaffected by Web site investment and trusting beliefs.

Third, we demonstrate the importance of considering the differential impact of trusting beliefs on trusting intentions. As we demonstrated across four studies, trusting beliefs do not have an equally strong influence on online purchase intentions. For example, in Study 2, we find that among searchers, gains in ability beliefs led to higher online purchase intentions, whereas gains in benevolence and integrity beliefs did not. Consequently, signals that were effective in building benevolence and integrity beliefs (i.e., the presence of a strong privacy/security statement) were less effective than ability signals (i.e., Web site investment) in increasing online purchase intentions. Together, these findings suggest that it is important for an online firm to identify the most influential trusting belief in order to identify the signal that will most effectively increase trusting intentions.

Fourth, our research contributes to the signaling literature. Prior research has demonstrated the importance of separating signals from interpretation because not all consumers interpret signals in the same way (Prabhu and Stewart 2001). Our research builds on this by demonstrating that even when consumers interpret signals as a firm intends, their responses may vary significantly. For example, although searchers and browsers (Study 3) and those perceiving high and low risk (Study 4) interpreted Web site investment as a signal of ability, Web site investment significantly affected only the online purchase intentions of searchers and for those perceiving high risk.

Fifth, these findings are also helpful in explaining what appear to be contradictory findings regarding the effective-

ness of privacy/security statements relative to Web site design. Our research suggests that though privacy/security statements can influence certain trusting beliefs (i.e., benevolence and integrity beliefs), they are less effective in increasing searchers' willingness to buy online. Consequently, even when privacy/security statements improve beliefs about a firm's trustworthiness, they can still be relatively less effective in converting visitors to buyers. These findings also help explain why Web site design plays such an important role in online purchase intentions. Instead of serving a purely aesthetic function, it signals that a firm's ability can be trusted, which we found to be the most significant driver of searchers' online purchase intentions.

Managerial Implications

The prevailing wisdom has been that concerns about buying online would diminish as consumers gain experience buying online (eMarketer 2005). Thus, marketing managers may wonder whether they need to invest in establishing trust as consumers gain online purchase experience. Contrary to this prevailing wisdom, however, recent reports indicate that consumers at all levels of Internet experience are increasingly cautious about buying online (eMarketer 2005; Forrester 2005). Compounding this problem is the notion that the actual risks associated with being online may even increase over time (Rust, Kannan, and Peng 2002). Consistent with the view that firms need to establish trust regardless of their visitors' online buying experience at other sites, we found that Web site investment had a significant effect on consumers' online purchase intentions by influencing their ability beliefs even when we controlled for online purchase experience (Studies 1–4).

Likewise, marketing managers of established offline firms may wonder whether they need to invest in Web site design to establish trust online. Our findings suggest that establishing trust is important for both an established offline firm (Kodak) and an unknown pure play (UF). It may seem surprising that consumers did not trust the ability of a known firm to handle online transactions successfully, yet this finding may reflect well-founded consumer skepticism about whether firms have the same abilities online as they do offline. Indeed, recently publicized examples of delivery failures by known firms (e.g., Toys "R" Us during the 2003 Christmas season) likely contribute to such concerns. Part of consumers' caution may also stem from their awareness that offline firms may outsource e-commerce functions, thus making it difficult to predict the quality of the online transaction on the basis of their offline experiences with the firm.

To use Web site investment effectively, however, managers should identify the reason most consumers visit their site. Our results indicate that Web site investment is effective in boosting online purchase intentions when visitors are searchers. Thus, if most visitors are searchers, Web site investment is warranted, but if most visitors are browsers, such investments may be ineffective. If the site attracts both, it may be best to invest mainly in pages that are most likely to attract searchers. For example, compared with browsers, searchers tend to "drill down" beyond category-level pages (e.g., a page featuring all the living-room furniture that a store offers) to specific product pages (e.g., the pages on the Bay Club chair; Moe 2003). Thus, investment in such technology as Shockwave or Design Within Reach may be most effective at the product level rather than the category (or home page) level. Firms can identify the segment visiting their sites by using clickstream data (searchers spend more time at product and search pages than browsers do; Moe 2003), usability studies, or more traditional market research techniques, such as online surveys or panel studies.

It appears that Web site investment is effective for purchases that involve risk, particularly social risk. For example, our findings suggest that sites selling gifts for important social occasions (e.g., weddings, birthdays, formal business functions) or holidays (e.g., Christmas, Valentine's Day) may benefit more from Web site investment than sites selling products with less risk (e.g., office supplies). For firms selling products that vary in social risk, investing in Web site design would likely be most effective at the product-level pages for products that are most likely to carry high social risk (e.g., jewelry).

Our focus has been on how to convert visitors into those who are willing to buy online. However, the firm may have other objectives, such as creating goodwill. Because Web site investment did not significantly affect benevolence or integrity beliefs in any of our studies, this tactic is likely to be ineffective in meeting such objectives. The findings from Study 3 suggest that privacy/security statements are better than Web site investment for influencing these trusting beliefs. It would be valuable to examine how other signals (e.g., announcements of investments in social causes) might communicate benevolence and integrity as well.

This research also has important public policy implications. Although signals can be used to communicate a firm's true abilities and intentions, they can also be used to mislead (Prabhu and Stewart 2001). Unscrupulous retailers may take advantage of consumers by offering high-investment sites for inferior products or an inferior online transaction or, worse, by stealing the consumer's identity. Indeed, according to the National Consumer League (2005), the second most common Internet scam complaint was about products that were never delivered or were misrepresented at an e-commerce site. Yet many of the Federal Trade Commission's (FTC's) initiatives focus on e-commerce problems at the technological level by recommending better encryption and firewall technology (e.g., FTC 2003). Although such investments are important, our findings suggest that e-commerce problems are a marketing issue as well. Specifically, our research indicates that consumers infer from investments in site design that the firm's abilities can be trusted. As a result, they are more willing to buy from the firm. Although a firm with a well-designed site has demonstrated an investment in site design, it does not follow that the firm itself has these capabilities. Oftentimes, site design and order fulfillment are outsourced and thus do not reflect the firm's online abilities. Furthermore, even if the firm developed the site internally, it does not follow that its abilities in this area will generalize to other areas, such as order fulfillment. However, because consumers appear to infer that a firm with a well-designed site can be trusted,

unscrupulous firms could use Web site investment to deceive through implication.

As with regulating other e-commerce practices, there is debate about whether government intervention is necessary or whether industry self-regulation is sufficient (Rust, Kannan, and Peng 2002). Currently, the FTC has taken a caveat emptor stance toward such issues. Although the FTC provides standards for what to include in a privacy/security statement (e.g., notifying consumers of a firm's information practices and ensuring the security of the information collected) and advises consumers to consult these statements before buying (www.ftc.gov), our results suggest that even when consumers read these statements, their online purchase intentions are largely unaffected by them unless they are noticeably weak. Instead, consumers' intentions to buy online from a vendor are affected more by its Web site investment. Thus, the FTC's suggestions may not fully protect consumers from being victimized. Conversely, industry self-regulation may be sufficient. Investing in Web site design may not be profitable for most low-quality firms, thus discouraging such firms from doing so. Publicly visible signals that require high up-front investments before any sales transactions rely on repeat purchases and word-of-mouth recommendations to recoup such sunk costs (Kirmani and Rao 2000). Thus, even if low-quality firms can induce trial with a high-investment site, the firm's true abilities would be revealed. Consequently, future purchases would be unlikely, making it difficult for low-quality firms to recover Web site expenditures.

Limitations and Future Directions

As with any study, the findings should be considered in light of their limitations. For example, instead of being part of the site, the privacy/security statements used were included in the survey booklets. This enabled us (1) to ensure that those in the strong and weak privacy/security conditions were exposed to the statement and (2) to control the timing of when they read the statement relative to experiencing the site. Although such gains in control come at the expense of face validity, this likely provided a more conservative test of our predictions. That is, by placing the statements in the survey booklet and exposing participants to them after their visit to the site (but immediately before reporting their online purchase intentions), we likely increased their salience. Yet despite this, investment had a stronger effect on online purchase intentions than did the presence of a strong privacy/security statement. Still, it would be beneficial to examine what, if any, effect a privacy/security statement would have if its exposure was allowed to vary. Perhaps the first hurdle is to establish trust in the firm's ability. Only then might searchers consult such statements.

Although we studied several products (i.e., furniture and accessories, which are likely to be evaluated more on their experiential qualities than on their search qualities, and digital cameras, which are likely to be evaluated more on their search qualities than on their experiential qualities), all were high-ticket items. It would be fruitful to examine whether such results generalize to inexpensive items, such as CDs or books. For such products, the risk of buying online might be reduced, thus reducing the effect of investment on online purchase intentions. It would also be fruitful to examine whether Web site investment has the greatest influence on trusting intentions for sites that feature services, such as banking or travel. When transactions are more personal in nature, perhaps trust in the firm's benevolence would be as important as, if not more important than, trust in its ability.

Note that participants did not have prior experience buying online from either UF or Kodak (which did not sell directly from its site at the time of Study 3). It would be worthwhile to examine how online purchase experience with a firm might influence consumers' interpretations of the firm's signals, as well as their trusting beliefs and intentions. Furthermore, we examined only signals that can be observed and experienced, but other types of signals are also possible (Kirmani and Wright 1989). For example, firms might signal their Web site investments through announcements in press releases or on the site itself. However, because such announcements require relatively little cost (and thus could be used by both high- and low-quality firms), they may be less effective than site investment in building trust. This would be a worthwhile future research direction.

Conclusion

Despite these limitations, we believe that our framework provides meaningful insights into how firms can most effectively signal their trustworthiness to convert online visitors to buyers. Furthermore, it contributes to the trust literature by demonstrating the importance of treating trusting beliefs as (1) a multidimensional construct and (2) a necessary but not sufficient condition for trust. Similarly, it contributes to the signaling literature by demonstrating that even if consumers interpret signals as a firm intends, their responses can vary significantly.

APPENDIX
Measures and Items

Measures and Items	Source
Online Purchase Intentions (Trusting Intentions)	New scale
"Unlikely/likely" (–3 to +3)	
"Impossible/possible" (–3 to +3)	
"Improbable/probable" (–3 to +3)	
Trusting Beliefs	
Ability (scale used in Studies 1–3)[a, b]	Mayer and Davis (1999)
Urban-Furniture seems very capable of performing online transactions.	
Urban-Furniture appears to be successful at the things it tries to do.	
Urban-Furniture seems to have much knowledge about what needs to be done to fulfill online transactions.	
I feel very confident about Urban-Furniture's online skills.	
Urban-Furniture appears to have specialized capabilities that can increase its performance with online transactions.	
Urban-Furniture appears to be well qualified in the area of e-commerce.	
Benevolence (scale used in Studies 1–3)[a, b]	Mayer and Davis (1999)
Urban-Furniture seems very concerned about my welfare.	
My needs and desires appear to be important to Urban-Furniture.	
It doesn't seem that Urban-Furniture would knowingly do anything to hurt me.	
Urban-Furniture seems to really look out for what is important to me.	
Urban-Furniture appears to go out of its way to help me.	
Integrity (scale used in Studies 1–3)[a, b]	Mayer and Davis (1999)
Urban-Furniture seems to have a strong sense of justice.	
Urban-Furniture appears to try hard to be fair in dealings with others.	
Urban-Furniture's actions and behaviors are not very consistent. (reverse scored)	
I like Urban-Furniture's values.	
Sound principles seem to guide Urban-Furniture's behavior.	
Ability (scale used in Study 4)	Moorman, Deshpandé, and Zaltman (1993)
"Nonexpert/expert" (1 to 7)	
"Untrained/trained" (1 to 7)	
"Inexperienced/experienced" (1 to 7)	
Integrity (scale used in Study 4)	Moorman, Deshpandé, and Zaltman (1993)
"No integrity/integrity" (1 to 7)	
Urban-Furniture does not have a great deal of integrity.[c] (reverse scored)	
Web Site Investment	New scale
The amount of time invested into developing this website seems to be: "very little/a great deal." (1 to 7)	
The amount of effort devoted to developing this website seems to be: "very little/a great deal." (1 to 7)	
The amount of money invested into developing this website seems to be: "very little/a great deal." (1 to 7)	
Online Risk Perceptions *(scale used in Study 2)*[c]	New scale
Shopping online is risky.	
Providing credit card information online is risky.	
Providing personal information (i.e., social security number and mother's maiden name) online is risky.	
Purchasing items online is risky.	
Providing my e-mail address and phone number online is risky.	
Registering online is risky.	
It is riskier to shop online for a product than to shop offline for it.	
Attitudes Toward Home Accessories *(scale used in Study 4)*	New scale
"Bad/good" (–3 to +3)	
"Unpleasant/pleasant" (–3 to +3)	
"Dislike/like" (–3 to +3)	

APPENDIX
Continued

Measures and Items	Source
NFT *(scale used in Study 4)*[c]	Peck and Childers (2003a)
Autotelic NFT	
Touching products can be fun.	
I like to touch products even if I have no intention of buying them.	
When browsing in stores, I like to touch a lot of products.	
When walking through stores, I can't help touching all kinds of products.	
When browsing in stores, it is important for me to handle all kinds of products.	
I find myself touching all kinds of products in stores.	
Instrumental NFT	
I place more trust in products that can be touched before purchase.	
I feel more comfortable purchasing a product after physically examining it.	
I feel more confident making a purchase after touching a product.	
If I can't touch a product in the store, I am reluctant to purchase the product.	
The only way to make sure a product is worth buying is to actually touch it.	
There are many products that I would only buy if I could handle them before purchase.	

[a]Measured on a scale from 1 ("disagree strongly") to 5 ("agree strongly").
[b]In Study 3, we replaced Urban-Furniture with Kodak.
[c]Measured on a scale from 1 ("disagree strongly") to 7 ("agree strongly").

REFERENCES

Bargh, John A. and Katelyn Y.A. McKenna (2004), "The Internet and Social Life," *Annual Review of Psychology*, 55 (February), 573–90.

Baron, Reuban M. and David A. Kenny (1986), "The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations," *Journal of Personality and Social Psychology*, 51 (December), 1173–82.

Corritore, Cynthia L., Beverly Kracher, and Susan Wiedenbeck (2003), "Online Trust: Concepts, Evolving Themes, A Model," *International Journal of Human-Computer Studies*, 58 (June), 737–58.

Doney, Patricia M. and Joseph P. Cannon (1997), "An Examination of the Nature of Trust in Buyer–Seller Relationships," *Journal of Marketing*, 61 (April), 35–51.

Dunn, Julie (2004), "Survey Shows Online Security Perception Gap Between Experts, Users," *Knight Ridder Tribune Business News*, (August 17), 1.

eMarketer (2005), "Privacy and Security: Fraud, Identity Theft, Phishing, Viruses and Other Threats," (accessed April 2, 2005), [available at http://www.emarketer.com/Report.aspx?privacy_mar05].

Fogg, B.J., Cathy Soohoo, David Danielson, Leslie Marable, Julianne Stanford, and Ellen Tauber (2002), How Do Users Evaluate the Credibility of Web Sites? A Study with over 2,500 Participants," (accessed December 6, 2005), [available at http://portal.acm.org/citation.cfm?doid=997078.997097?].

Forrester, Jonathan (2005), "Rebuilding Consumers' Trust in the Internet," (accessed April 2, 2005), [available at http://www.forrester.com/Research/Document/Excerpt/0,7211,35612,00.html].

FTC (2003), "FTC Working to Protect Consumers and Businesses from Information Security Breaches," press release, (November 19), (accessed December 6, 2005), [available at http://www.ftc.gov/opa/2003/11/cybersecurity.htm].

Ganeson, Shankar (1994), "Determinants of Long-Term Orientation in Buyer–Seller Relationships," *Journal of Marketing*, 58 (April), 1–19.

Garfinkel, Harold (1963), "A Conception of, and Experiments with, 'Trust' as a Condition of Stable Concerted Actions," in *Motivation and Social Interaction*, O.J. Harvey, ed. New York: Ronald Press, 187–239.

Hoffman, Donna L. and Thomas P. Novak (1996), "Marketing in Hypermedia Computer-Mediated Environments: Conceptual Foundations," *Journal of Marketing*, 60 (July), 50–68.

——— and Marcos A. Peralta (1999), "Information Privacy in the Marketspace: Implications for the Commercial Uses of Anonymity on the Web," *The Information Society*, 15 (2), 129–39.

Janiszewski, Chris (1998), "The Influence of Display Characteristics on Visual Exploratory Searching Behavior," *Journal of Consumer Research*, 25 (December), 290–312.

Kim, Peter H., Donald L. Ferrin, Cecily D. Cooper, and Kurt T. Dirks (2004), "Removing the Shadow of Suspicion: The Effects of Apology Versus Denial for Repairing Competence-Versus Integrity-Based Trust Violations," *Journal of Applied Psychology*, 89 (1), 104–118.

Kirmani, Amna and Akshay R. Rao (2000), "No Pain, No Gain: A Critical Review of the Literature on Signaling Unobservable Product Quality," *Journal of Marketing*, 64 (April), 66–80.

——— and Peter Wright (1989), "Money Talks: Perceived Advertising Expense and Expected Product Quality," *Journal of Consumer Research*, 16 (December), 344–53.

Kumar, Nirmalya, Lisa K. Scheer, and Jan-Benedict E.M. Steenkamp (1995), "The Effects of Supplier Fairness on Vulnerable Resellers," *Journal of Marketing Research*, 32 (February), 54–65.

Mayer, Roger and James Davis (1999), "The Effect of the Performance Appraisal System on Trust for Management: A Field Quasi-Experiment," *Journal of Applied Psychology*, 84 (February), 123–36.

———, ———, and F. David Schoorman (1995), "An Integrative Model of Organizational Trust," *Academy of Management Review*, 20 (July), 709–734.

McKnight, D. Harrison, Vivek Choudhury, and Charles Kacmar (2002), "Developing and Validating Trust Measures for e-Commerce: An Integrative Typology," *Information Systems Research*, 3 (September), 334–59.

Moe, Wendy W. (2003), "Buying, Searching, or Browsing: Differentiating Between Online Shoppers Using In-Store Naviga-

tional Clickstream," *Journal of Consumer Psychology*, 13 (1–2), 29–39.

Montoya-Weiss, Mitzi M., Glenn B. Voss, and Dhruv Grewal (2003), "Determinants of Online Channel Use and Overall Satisfaction with a Relational, Multichannel Service Provider," *Journal of the Academy of Marketing Science*, 31 (Fall), 448–58.

Moorman, Christine, Rohit Deshpandé, and Gerald Zaltman (1993), "Factors Affecting Trust in Market Research Relationships," *Journal of Marketing*, 57 (January), 81–101.

———, Gerald Zaltman, and Rohit Deshpandé (1992), "Relationships Between Providers and Users of Market Research: The Dynamics of Trust Within and Between Organizations," *Journal of Marketing Research*, 29 (August), 314–28.

Morgan, Robert M. and Shelby D. Hunt (1994), "The Commitment–Trust Theory of Relationship Marketing," *Journal of Marketing*, 58 (July), 20–39.

Naquin, Charles E. and Gaylen D. Paulson (2003), "Online Bargaining and Interpersonal Trust," *Journal of Applied Psychology*, 88 (1), 113–20.

National Consumer League (2005), *Internet Fraud Statistics: Internet Scams: Fraud Trends: January–June 2005*, (accessed December 6, 2005), [available at http://www.fraud.org/internet/internet_scams_halfyear_2005.pdf].

Neter, John, William Wasserman, and Michael H. Kutner (1990), *Applied Linear Statistical Models*. Boston: Richard D. Irwin.

Palmer, Jonathan W., Joseph P. Bailey, and Samer Faraj (2000), "The Role of Intermediaries in the Development of Trust on the WWW: The Use and Prominence of Trusted Third Parties and Privacy Statements," *Journal of Computer-Mediated Communication*, 5 (March), 1–25.

Peck, Joann and Terry L. Childers (2003a), "Individual Differences in Haptic Information Processing: The 'Need for Touch' Scale," *Journal of Consumer Research*, 30 (December), 430–42.

——— and ——— (2003b), "To Have and To Hold: The Influence of Haptic Information on Product Judgments," *Journal of Marketing*, 67 (April), 35–48.

Porter, Michael E. (1980), *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. New York: The Free Press.

Prabhu, Jaideep and David W. Stewart (2001), "Signaling Strategies in Competitive Interaction: Building Reputations and Hiding the Truth," *Journal of Marketing Research*, 38 (February), 62–73.

Rosenblatt, Louise (1978), *The Reader, the Text, the Poem: The Transactional Theory of the Literary Work*. Carbondale: Southern Illinois University Press.

Rotter, Julian B (1980), "Interpersonal Trust, Trustworthiness, and Gullibility," *American Psychologist*, 35 (January), 1–7.

Rust, Roland, P.K. Kannan, and Na Peng (2002), "The Customer Economics of Internet Privacy," *Journal of the Academy of Marketing Science*, 30 (4), 455–64.

Schlosser, Ann E. (2003), "Experiencing Products in a Virtual World: The Role of Goals and Imagery in Influencing Attitudes Versus Intentions," *Journal of Consumer Research*, 30 (3), 184–98.

Sirdeshmukh, Deepak, Jagdip Singh, and Barry Sabol (2002), "Consumer Trust, Value, and Loyalty in Relational Exchanges," *Journal of Marketing*, 66 (January), 15–27.

Sitkin, Sim B. and Nancy L. Roth (1993), "Explaining the Limited Effectiveness of Legalistic 'Remedies' for Trust/Distrust," *Organization Science*, 4 (August), 367–92.

Smith, J. Brock and Donald W. Barclay (1997), "The Effects of Organizational Differences and Trust on the Effectiveness of Selling Partner Relationships," *Journal of Marketing*, 61 (January), 3–21.

Sobel, M.E. (1982), "Asymptotic Intervals for Indirect Effects in Structural Equation Models," in *Sociological Methodology*, S. Leinhart, ed. San Francisco: Jossey-Bass, 290–312.

Sultan, Fareena, Glen L. Urban, Venkatesh Shankar, and Iakov Y. Bart (2002), "Determinants and Role of Trust in E-Business: A Large Scale Empirical Study," Working Paper No. 4282, Sloan School of Management, Massachusetts Institute of Technology.

Weiner, Bernard (1972), *Theories of Motivation: From Mechanism to Cognition*. Chicago: Rand McNally.

——— (1986), *An Attributional Theory of Motivation and Emotion*. New York: Springer-Verlag.