THE EFFECT OF WEBSITE DESIGN DIMENSIONS ON INITIAL TRUST: A SYNTHESIS OF THE EMPIRICAL LITERATURE

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ABSTRACT

This paper aims to provide an integrative review of the experiment-based literature on the antecedents of initial trust in a business-to-consumer (B2C) e-commerce setting. To that end, we present a framework that classifies trust-inducing website features according to three broad dimensions, namely visual design, social cue design and content design, because comparing studies with different empirical set-ups requires conceptual clarity. To synthesize the literature we use an advanced vote-count procedure combined with a sign test. We find that the literature provides sound empirical support for our general hypothesis that web design cues effectively enhance consumers' initial trust towards unfamiliar online vendors. E-tailers should thus consider embedding human-like cues (i.e., facial photos, video streams) into their interfaces, as well as integrating assistive web applications (i.e., avatars, recommendation agents). Interestingly, we also find that internally provided e-assurance structures (such as privacy/security policies and vendor-specific guarantees) can be as effective as paid e-assurance mechanisms (such as third-party trust endorsements). Our overview also reveals that the effectiveness of certain trust-signalling features within the visual and social cue design dimensions is still under-researched. The support for the positive effect of such website atmospheric cues is therefore still weak.

Keywords: initial online trust, website design, B2C e-commerce, literature review, vote-count method

1. Introduction

The goal of this paper is to provide a selective but systematic review of the empirical literature on initial trust in a business-to-consumer (B2C) e-commerce environment. In particular, we synthesize the experiment-based studies that investigate the effects of the e-tail interface on consumers' trust towards unfamiliar vendors. The choice of this specific topic is motivated by the need for a better understanding of how e-vendors can induce consumer trust by adequately choosing the characteristics of their interfaces. A lack of trust towards Web vendors is one of the main factors deterring consumers to engage in online shopping [Beatty et al. 2011]. Investigating the antecedents of *initial* trust is particularly important because in interactions where parties are unknown to each other and the internet is the channel of communication, initial trust determines whether or not a transaction will occur [Wakefield et al. 2004]. Thus, the ability to evoke initial online trust can determine the success or failure of an online retailer.

There are already a few meta-studies in this domain that have summarized large bodies of evidence. Beatty et al. [2011] and Jourdan and Ingram [2011] offer a valuable discussion of antecedents of online trust such as *usefulness*, *ease of use*, and *risk*. However, a literature review that focuses on trust-inducing website design features is still missing. This holds *a fortiori* for such dimensions as *visual*, *social cue* and *content design* features. Moreover, empirical studies on these features often reach contradictory conclusions. For example, while some authors find a

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positive influence of institutional cues on consumer initial trust formation [e.g., Hu et al. 2010], others do not support this claim [e.g., Bahmanziari et al. 2009]. The main goal of this paper is therefore to identify what elements of website design play a crucial role in initial online trust formation, and to discuss the reasons for the discrepancies observed in the empirical research.

We thus put forward the following research questions: *What kinds of Web interface applications can be effective in stimulating initial online trust?*, and also: *What areas remain to be investigated further?* Towards this end, we first briefly explain the concept of initial online trust, and how it differs from online trust in general (Section 2). An in-depth analysis of the trust concept across disciplines is outside the scope of this review, because numerous studies already exist on that matter [e.g., Beldad et al. 2010]. Subsequently, in section 3, we present a framework of trust-inducing website dimensions and propose specific research hypotheses. Next, we describe the methodology that we use to synthesize the findings of the existing research (Section 4). In section 5, we then provide a comprehensive discussion of the merits of diverse trust-inducing website features. Finally, in section 6, we discuss the implications and limitations of our study, and provide directions for future research.

2. Theoretical background

In this section, we first discuss the importance of *initial* trust and provide an operational definition of our dependent variable *"initial online trust"*. Subsequently, we briefly discuss its dimensions and sketch out the web-based antecedents of initial trust (2.1). In subsection 2.2 we discuss how the uncertainty theory [Akerlof 1970] and the cue signalling theory in a marketing context [Kirmani and Rao 2000; Olson and Jacoby 1972; Prabhu and Stewart 2001] might serve as a useful framework through which we can understand the relationship between website trust-building characteristics and consumers' initial trust. In Section 3, we will rely on these theories to drive our hypotheses and streamline our arguments.

2.1. Initial online trust

Many researchers have empirically confirmed that uncertainty, risk, cybercrime, identity theft and internet fraud negatively affect consumers' readiness to shop online [e.g., Wang and Wu 2011]. Under conditions of uncertainty and risk, trust is therefore of paramount importance, as it can mitigate information asymmetry [Ba and Pavlou 2002] and help consumers overcome perceptions of risk [Mayer et al. 1995]. Thus, online trust is a key differentiator that determines the success or failure of companies conducting their business over the Internet. More importantly, in online transactions where parties are unknown to each other, *'initial trust'* determines whether or not the transaction will occur [Wakefield et al. 2004]. Less familiar online vendors may thus face a bigger challenge [Hu et al. 2010]. A retailer's website can be an important source of information to overcome uncertainty. Hence, trust in the website is of paramount importance. From a human-computer interaction perspective the question: *"How can unfamiliar online vendors enhance the trustworthiness of their websites?"* is thus of key importance.

There are many cues that help consumers to put their trust in an online retailer. These include reputation information [Fuller et al. 2007], brand equity [Horppu et al. 2008], positive word-of-mouth recommendations [Ha 2004], and consumers' experience-based knowledge of security aspects [Kim et al. 2008a]. But how about the *initial* online interaction, where the consumer has no prior knowledge about the e-retailer? There are several research streams that explain how online trust is formed. However, the majority of these studies do not clearly point out the phase or type of online trust they investigate [e.g., Cyr 2008]. Since trust is always a situation-specific concept, and determinants of trust may differ depending on its phase and the context [Mayer et al. 1995], testing hypotheses concerning trust formation without explicitly defining what the term means may cause problems [Grabner-Krauter and Kaluscha 2003]. In this literature review, the focus is on "initial trust" in a B2C online retailing context.

According to McKnight et al. [1998, p. 474], "initial trust between parties will not be based on any kind of experience or firsthand knowledge, rather, it will be based on an individual's disposition to trust or on institutional cues that enable one person to trust another". McKnight et al. [2002a, p. 335] talk about "trust in an unfamiliar trustee, a relationship in which the actors do not yet have credible, meaningful information about, or affective bonds with, each other". We adopt the latter description as the operational definition of our dependent variable *"initial online trust"*.

The literature typically makes a distinction between three dimensions of *initial online trust*, namely (1) affect-based, (2) cognition-based, and (3) institution-based trust [McKnight et al. 1998]. Indeed, in an e-commerce setting, a website presents *affective*, *cognitive* and *institutional* signals (e.g., website attractiveness, information content, and security policy disclosures) that shape a consumer's first impressions about the e-retailer [Hu et al. 2010; Lee and Huh 2010; Wakefield et al. 2004]. In what follows, we provide a brief elucidation of these trust dimensions.

2.1.1. Affect-based trust

Affect-based trust (also called emotional trust) develops from one's instincts, intuition, or feelings concerning whether an individual, group or organization is trustworthy [Morrow et al. 2004]. *Affect-based trust* is defined as the

extent to which one *feels* secure and comfortable about *relying* on the trustee [Komiak and Benbasat 2004]. Its antecedents are based on immediate affective reactions regarding attractiveness and signals of benevolence [Riegelsberger et al. 2005]. In online environments, visual attractiveness or social cues such as human images can be used to induce affective responses which may result in favourable attitudes toward the site [Cyr et al. 2009].

2.1.2. Cognition-based trust

Cognition-based trust is defined as a consumer's rational expectation that an online vendor has the necessary attributes to be reliable [Komiak and Benbasat 2004]. This theoretical perspective views trust as a trustor's rational choice that is motivated by a conscious calculation of advantages [Komiak and Benbasat 2006]. Hence, quality information on a website can help potential customers make rational purchasing decisions [Kim et al. 2008b].

2.1.3. Institution-based trust

Institution-based trust, for its part, is amplified when customers feel something fits a common standard because of the presence of guarantees on the website [Bahmanziari et al. 2009]. Such guarantees can be provided by the e-tailer himself or can take the form of Web assurance seals (e.g., VeriSign) offered by third parties [Kaplan and Nieschwietz 2003]. Institution-based trust is particularly important when buyers mainly transact with new or unknown sellers [Pavlou and Gefen 2004].

2.2. Cue signalling theory

In buyer-seller relationships, *perceived uncertainty* is defined as the degree to which the outcome of a transaction cannot be accurately predicted by the buyer due to imperfect (or misleading) information provided by the seller [Pavlou et al. 2007, p. 107]. Due to such information asymmetry, any buyer-seller relationship is characterized by risks to the seller's advantage [Mishra et al. 1998]. The distant and impersonal nature of e-commerce accentuates this information asymmetry, as it is difficult to check product quality or the seller's genuineness.

One possible solution consists in the use of *signals* that allow transacting parties to reveal their true identity and intentions [Kirmani and Rao 2000]. Although other definitions of signals exist [e.g., Spence 1973], the most common is Olson and Jacoby's [1972] conceptualization according to which a product sends out a series of cues signalling its quality to consumers. These cues can be further classified as intrinsic and extrinsic to the product. On the Web, due to the absence of physical contact, consumers cannot check the intrinsic attributes of products (e.g., ingredients) with their senses (e.g., touch, smell) other than viewing the image online [Gefen and Straub 2004]. Actually, it is not only the product that has to be evaluated, but also the service. In the offline world, the atmospherics of the physical environment impact perceptions of service quality [Walsh et al. 2011]. In the Web environment, similar to traditional in-store stimuli [Bao et al. 2011], extrinsic cues (e.g., colours, graphics, layout, and design) can provide information about the retailer (e.g., the quality or type of retailer, the target audience) and influence online shoppers' responses [Demangeot and Broderick 2010; Eroglu et al. 2003; Hu et al. 2010]. The cue signalling theory [e.g., Olson and Jacoby 1972] might therefore serve as a useful framework through which we can understand the relationship between website trust-building characteristics and consumers' initial trust. In the next section, we discuss these characteristics one by one, and derive our hypotheses.

3. Hypotheses

Website design is obviously a multidimensional construct [cf. Kim and Stoel 2004]. Many scholars have already grouped website design characteristics into different categories [e.g., Tan et al. 2009; Tarafdar and Zhang 2006; Zhang et al. 2001] but there is no standardized way of evaluating website design dimensions. In Table 1 we therefore present a conceptual framework that classifies Web design features into three broad categories, namely (1) visual design, (2) social cue design, and (3) content design. '*Visual design'* is defined as graphical and structural factors that give consumers a first impression. *'Social cue design'* comprises social cues such as face-to-face interaction and social presence, embedded into the Web interface via different communication media. Finally, *'content design'* consists of informational components of the website, either textual or graphical [cf. Wang and Emurian 2005a/b].

We now use Table 1 to explain how different affective, cognitive, and institutional signals influence consumers' initial online trust. In Section 5, we will use the same framework to synthesize the experimental studies.

3.1. Visual design

Visual design is defined as "the attention-grabbing, aesthetic, visual quality of individual Web pages" [Demangeot and Broderick 2010, p. 127]. Elements of visual design deal with balance, emotional appeal, aesthetics, and uniformity of the overall graphical look [Cyr 2008]. Visual atmospheric cues can provide information about the retailer as well as influence shoppers' emotional responses [Eroglu et al. 2003]. Tan et al. [2009] find that web-designers perceive elements belonging to visual design such as "Colour usage", "Layout/Space usage", "Graphics usage" and "Presentation of information" as the most "effective" attributes of B2C websites. Montoya-Weiss et al. [2003], for their part, find that visual attractiveness of a website is positively associated with quality perceptions.

This suggests that Internet users might associate the visual appeal of a website with the trustworthiness of the e-retailer. According to Wang and Emurian [2005a], there are two sub-dimensions of visual design: (a) *'graphic design'* and (b) *'structure design'*:

Table 1: Classification of trust-inducing website design dimensions

Dimension	Sub-dimension	Examples
Visual design	Graphics	Product image, size, zooming and 3D clipart. Background colour, contrast and font.
	Structure	Navigation design: simple and consistent navigation. Navigation reinforcements: guides, tutorials and instructions. Accessibility of information: no broken links or missing pictures. Page design techniques: space and margin, visual density.
Social cue design	Human-like features	Facial photo: embedded photographs that give a feeling of human contact. Video stream: a rich media cue that transmits visual and audio cues.
	Assistive interface	Avatar: interactive on-screen characters that are able to use verbal cues. Recommendation agent: software-based advice-giving system. Synchronous communication media: instant messaging, chat/audio lines.
	Social media	Mass media: information that comes from other websites or the press. Customer reviews: a venue where individuals share their experiences. Online social networks: sites where people share ideas, pictures or videos. Blogging: Web community blogs, support forums, or discussion boards.
Content design	Informativeness	Company information: brand-promoting information, company logo. Product information: comprehensive and correct product information. Service information: overall support delivered by the web site. Background signals: congruence signals and promotional signals.
	Brand alliances	Brand equity: brands with positive image. Hypertext links: links that create a perception of a relationship.
	e-Assurances	Internally provided assurance structures: company policies. Externally provided assurance structures: third-party seals.
Source: Authors' own compilation based on prior literature [e.g., Tan et al. 2009; Wang and Emurian 2005a].		

3.1.1. Graphic design

'Graphic design' refers to the "look and feel" of a website; that is, the features that normally determine consumers' first impression [Montoya-Weiss et al. 2003]. Graphic design elements include the use and size of images, the use of animation, the number of words per line and size of characters, symbols, and the display of colour [Kang and Corbitt 2001; Rosen and Purinton 2004]. Prior research demonstrates that well-designed graphics such as the size of the text, the display of the text, and how appealing users find the interface in general will improve consumers' online shopping experience, and will have a positive effect on their shopping behavior [e.g., Rosen and Purinton 2004]. In contrast, poor graphic design may create confusion and lead to negative emotional reactions that interfere with consumers' willingness to continue browsing or purchase from the website [Montoya-Weiss et al. 2003]. Based on the cue signaling theory, we can thus presume that adopting attractive and appropriate graphics that draw the online shoppers further into the website may be effective in creating initial trust. Therefore, our first hypothesis reads:

Hypothesis 1a: Having a good graphic design can be an effective mechanism in inducing initial trust towards unfamiliar e-retailers.

3.1.2. Structure design

'Structure design' is another dimension of visual design and refers to the overall organisation and accessibility of displayed information on a website [Wang and Emurian 2005a]. *'Structure design'* (also called site architecture) is defined as "the organization of the different pages as an understandable whole" [Demangeot and Broderick 2010, p. 127]. It concerns technical aspects such as navigation aids, layout of information, speed of page loading, validity of links, search facilities, site-maps, site availability, and ease of accessing the site [Ahn et al. 2007].

It is crucial to have a strong sense of structure and navigation support in a website so that users know where they are, where they have been, and where they can go [Nielsen 1999]. If a website is difficult to use, potential customers may switch to another e-retailer [Nielsen 2003]. In contrast, when a website is easier to navigate,

customers are less price sensitive and may purchase more expensive products [Lynch and Ariely 2000]. Whereas the initial experience with an inaccurate website would cause a consumer to infer negative beliefs about the attributes of an e-retailer, the initial impression of a professional, timely, and high-quality website causes a consumer to infer positive beliefs, which in turn will induce initial trust [Lowry et al. 2008]. In her cross-cultural study, Cyr [2008] effectively finds that a good navigation structure contributes to the level of trust users have in the website. Hence, based on the cue signalling theory and prior research findings, we presume:

Hypothesis 1b: Having a good structure design can be an effective mechanism in inducing initial trust towards unfamiliar e-retailers.

3.2. Social cue design

Adopting social media applications to increase the degree of consumer engagement in online shopping is becoming common practice. Social media features relate to embedded social cues that give the impression of social presence and face-to-face interaction in the Web interface via different communication media such as facial photos, video streams, or social blogs [Karimov and Brengman 2011]. We classify social cue design applications into human-like features, assistive interfaces, and social media networks (cf. Table 1).

3.2.1. Human-like cues

The absence of a human aspect in the online environment limits the potential of purely virtual businesses [Anderson et al. 2010]. This does not mean, however, that social presence cannot be incorporated into the Web interface. Higher levels of social presence can be achieved by embedding human-like cues such as facial photographs or video streams in the Web interface [Karimov and Brengman 2011]. Transmitting a sense of personal, sociable, and responsive human contact via the Web interface may result in higher levels of perceived social presence, which in turn stimulates consumers' trust beliefs as well as positively influences their purchase intentions [Gefen and Straub 2003/2004]. Prior empirical research confirms that the use of facial photos or video clips may engender initial trust toward an unfamiliar e-retailer [Aldiri et al. 2008]. Numerous scholars also find that the availability of more social media applications in an e-commerce site enhances consumers' trust, loyalty, perceived usefulness, and purchase intentions [e.g., Gefen and Straub 2003/2004; Lowry et al. 2010]. Thus, based on this discussion and the cue signalling theory, we assume:

Hypothesis 2a: Utilizing human-like cues can be an effective mechanism in inducing initial trust towards unfamiliar e-retailers.

3.2.2. Assistive interface cues

Assistive interface cues refer to innovative features (e.g., recommendation agents, avatars, live-help functions) that assist online shoppers in finding specific merchandise through a real-time communication [Qiu and Benbasat 2005]. The visual characteristics of an avatar have been found to impact initial impression: avatars with large pupils and slow eye blink frequency are perceived as more sociable and more attractive, which can lead to affective trust [Weibel et al. 2010]. Artificial intelligence techniques such as intelligent software agents and recommender systems have proved to be useful in helping Internet users handle the vast quantity of information by assistance in searching, sorting, classifying, and filtering [Montaner et al. 2003]. Prior research demonstrates that the effective use of assistive interface mechanisms may generate higher levels of social presence, which in turn enhances consumers' initial online trust [Keeling et al. 2010; Qiu and Benbasat 2009]. Hence our hypothesis reads:

Hypothesis 2b: Utilizing assistive interface features can be an effective mechanism in inducing initial trust towards unfamiliar e-retailers.

3.2.3. Social media cues

Social media cues include objective reviews by other websites or the press, customer reviews, and Web communities (i.e., Facebook, YouTube, Twitter, blogs). For example, reviews from customers, who have experienced the product, help increase social presence in a website and and may increase prospective customers' trust in the e-retailer [Mudambi and Schuff 2010]. We thus hypothesize:

Hypothesis 2c: Utilizing social media applications can be an effective mechanism in inducing initial trust towards unfamiliar e-retailers.

3.3. Content design

Content design refers to the information components of a website, either textual or graphical [Wang and Emurian 2005a]. These components can be quite diverse: company information (i.e., contacts, company background, FAQ), comprehensive product information (i.e., descriptions, price information), service information (i.e., delivery and return policies), and privacy policies [Chang and Chen 2008]. Such information components may provide consumers with clues regarding the trustworthiness of an e-retailer [Kim et al. 2004].

3.3.1. Informativeness

Demangeot and Broderick [2010, p. 127] define *informativeness* as "the extensiveness of marketer information available on the site". It refers to website elements that convey (accurate or inaccurate) information about products

or services [Cyr 2008]. Information quality is found to be a significant antecedent of online trust, customer satisfaction, and loyalty [Cyr 2008; Kim et al. 2004]. In an online shopping context, shoppers will, due to the absence of the actual physical products, seek more information about the products . Therefore, as suggested by many studies, consumers likely prefer online shopping environments that contain comprehensive information over those that do not [Demangeot and Broderick 2010]. Hence, considering the important role of information content in signaling the trustworthiness of an online merchant, we propose:

Hypothesis 3a: Providing comprehensive information can be an effective mechanism in inducing initial trust towards unfamiliar e-retailers.

3.3.2. Brand alliances

A *brand alliance* is the "short- or long-term association of two or more individual brands, products, and/or other distinctive proprietary assets" [Simonin and Ruth 1998, p. 30]. The impact of brand related factors on consumer trust and judgment is well known in the marketing literature. Consumers' perceptions of reliability, benevolence, and intentions to purchase are higher for familiar well-established brands than for unfamiliar brands [Benedicktus et al. 2010]. In the absence of other relevant information, the brand image can be a symbol of quality, and can evoke more trust in the online environment [Benedicktus et al. 2010].

In an e-commerce context, alliances with reputable stores or well-established brands may allow unfamiliar e-retailers to share their image [Lowry et al. 2008], and - since famous brands trigger many positive associations - engender consumer trust [e.g., Stewart 2006]. Based on the cue signaling theory, we thus propose:

Hypothesis 3b: Using brand alliances can be an effective mechanism in inducing initial trust towards unfamiliar e-retailers.

3.3.3. e-Assurances

Structural assurances on the Web refer to protections (either legal protections or technological safeguards such as encryption) that assure safe transactions and prevent consumers from losing their personal identity [McKnight et al. 2004]. They are particularly relevant for online markets where consumers mainly transact with unfamiliar e-retailers [Pavlou and Gefen 2004]. Institutional cues can be provided as part of the Web content, and can refer to either *internally* or *externally provided e-assurance structures*, respectively *IPeAs* and *EPeAs*.

IPeAs refer to company policies provided by the e-retailer, such as money-back guarantees, privacy policies, or delivery terms. *IPeAs* are not verified by an independent source [Bahmanziari et al. 2009]. Perceptions of reduced risk have been linked with increased trust [Evans and Krueger 2011]. The provision of e-assurances should thus help increase online initial trust:

Hypothesis 3c: Utilizing IPeAs can be an effective mechanism in inducing initial trust towards unfamiliar e-retailers.

EPeAs, on the other hand, involve security or privacy certificates provided by a third party after substantial testing and careful evaluation of the website [Bahmanziari et al. 2009]. These *EPeAs* allow consumers to transact with an unfamiliar e-vendor under the protection of third parties who guarantee that the e-retailer is genuine and follows ethical business norms [Pavlou and Gefen 2004]. Third party assurance seals such as *'BBBOnline'*, *'TRUSTe*', or *'CyberTrust*' may thus provide positive signals that stimulate consumers to believe the website is trustworthy [e.g., Hu et al. 2010]. Therefore, we propose:

H3d: Utilizing EPeAs can be an effective mechanism in inducing initial trust towards unfamiliar e-retailers.

4. Methodology

In conducting our overview, we followed Durlak and Lipsey's [1991] "guide to meta-analysis". To repeat, the main goal of our literature synthesis is to summarize the results of experiment-based studies concerning the effectiveness of specific website design features in generating initial trust in a B2C environment. We put forward the following research questions:

1. *What kinds of Web interface applications can be effective in stimulating initial online trust?*
2. *How do the findings of the empirical studies vary?*
3. *What gaps exist in current research and practice that would suggest priorities for the future?*

The primary research reports we examine all use experimental procedures to collect data. Given this similarity, we decided to perform a quantitative literature synthesis. Other scholars [e.g., Beatty et al. 2011] have opted for a qualitative approach because, in their view, the e-commerce trust domain is not yet mature enough to conduct a quantitative meta-analysis. A benefit of our approach is that it enables a detailed breakdown of the data in order to analyze how the findings of the available studies vary and to better identify the gaps in the current research.

4.1. Identifying primary research

Our review covers 14 years of research, from 1996 to 2010 (literature collection finalised in December 2010). We initially picked 1996 as the starting date of the literature search, since the first research papers in the e-commerce domain appeared around that time [e.g., Hoffman and Novak 1996]. However, during the screening process we discovered that the first empirical paper on initial online trust dates from 2002 [e.g., McKnight et al. 2002b].

In order to find relevant studies, we performed search actions on full-text to minimize the risk of excluding relevant articles. The descriptors used in the search included: web+trust, website+trust, internet+trust, online+trust, ecommerce+trust, e-commerce+trust, e-trust, web+design, website+design, site+design and initial+trust. The following sources were searched to find relevant primary reports:

- We systematically screened all journals in the domains of General Management, International Business and Area Studies, Information Systems and Management, Marketing, Social Sciences, and Strategic Management that have been awarded a score in the Academic Journal Quality Guide by the Association of Business Schools (ABS) of March 2009 (329 journals in total). We used the search engines provided by the website of the journal or database. This search process generated 428 papers;
- Subsequently, we performed a key word search of electronic databases such as the *Article Database* (ADB), *Journal Storage* (JSTOR), *EBSCOhost Electronic Journals Service* (EJS), *ScienceDirect*, *ISI Web of Knowledge* and *Google Scholar*. This search process produced more than 1155 seemingly related additional papers.

In this way, we found a total of 1583 published articles in the domain of e-commerce trust and all these hits were afterwards reviewed for relevancy.

4.2. Criteria for inclusion/exclusion

First, we selected studies that focus on *'B2C e-commerce'* interactions and excluded those that were conducted in the consumer-to-consumer (C2C) and business-to-business (B2B) contexts. We did so because the determinants of trust are likely to be different in C2C and B2B as the environments are radically different from a B2C setting in terms of decision making, negotiations, trade rules, and customer types. Subsequently, we narrowed down our focus to *'experiment-based'* studies. Experiments offer the highest degree of internal validity because they permit the systematic manipulation of variables in a controlled environment [McDermott 2002]. In addition, we limited our focus to studies that treat *'initial trust'* as a dependent variable. Settings where the consumer possesses prior information about the reputation of an e-vendor, other than the cues in the website, thus lie outside the scope of this review.

To sum up, the following criteria for inclusion/exclusion were established:

- Reports must have been published between 1996 and 2010 (inclusive);
- Reports must have been published in journals or conference proceedings. Unpublished papers or dissertations are not included because of quality concerns. Note that Beatty et al. [2011] in their meta-study also limit their scope to journal and conference publications;
- Reports must use an experimental methodology. Empirical studies that are exploratory in nature are not included;
- Reports must test the effectiveness of website elements in stimulating initial trust. Studies that investigate the effect of website atmospheric cues on other dependent variables (such as perceived usability, perceived ease of use, perceived enjoyment, and perceived reputation) are not included;
- The experiments must make use of unfamiliar or mock websites. Studies that utilize popular e-commerce vendors' sites (such as Amazon.com, SonyStyle.com) are excluded. The reason is that with such websites it is hard to control for brand related impacts. By definition, "initial online trust" requires buyers and sellers to be unfamiliar with each other;
- Finally, as already explained, we selected studies that focus on B2C interactions because trust is a very context-specific concept.

The elimination of the papers that did not fit into our focus reduced the number of relevant studies to 40 (see Appendix Tables A1-A3). (NOTE: Some experiment-based studies manipulate more than one website design dimension, such as product information quality and trust seals. Since these two characteristics belong to different types of cues, we present such studies in multiple cells but each time highlight the relevant attribute in bold font. The studies are numbered only once in Tables A1-A3).

To our surprise, some of the studies in our sample do not clearly indicate the phase of online trust they investigate. However, all these studies employ unfamiliar, self-developed websites in their experiments. As consumer reactions to such websites clearly involve initial trust, the studies were retained in our sample. Our literature search also identified 12 field-studies (see Appendix Table A4) where the researchers measure initial

online trust based on general perceptions of respondents towards *one* self-developed website; that is, website design characteristics are not manipulated. For this reason, we dropped these 12 studies from the purview of our study.

4.3. Assessment of primary research

Given our research questions, we decided to use content analysis to collect the necessary data from the selected studies, and in so doing we followed the guidelines set out in GAO [1996]. Content analysis is an objective, systematic, quantitative, and generalizable research technique for making replicable and valid inferences from textual, pictorial, or audible matter [Kassarjian 1977]. The method has been used by other scholars in meta-analysing prior research in the domain of e-commerce trust [e.g., Beatty et al. 2011].

4.3.1. Unit of analysis

In this research, the units of analysis are the outcomes of the experiment-based studies as to whether the website features that were manipulated had an effect on initial trust or not. We coded the direction of the reported effects, if any, and their level of significance.

4.3.2. Independent and dependent variables

The website design elements that were manipulated represent our independent variables, and initial online trust is the dependent variable. Since most studies included in our literature synthesis manipulate multiple website features, the findings of one and the same study can appear multiple times in the same vote-count procedure. For example, Bahmanziari et al. [2009] test the effect of two different types of e-assurance structures in a 2x2 factorial between-subjects experiment (i.e., WebTrust consumer protection seal x Guarantees, free shipping, and return policies) with every cue at a high or a low level in 4 combinations.

4.3.3. Coding procedure

When reviewing all 40 selected studies, we use the pragmatic coding scheme in Table 2. Since the variables to be coded are straightforward to observe (e.g., reported effect: significant negative, significant positive, and not significant) and easy to code, we saw no need to have the data independently recorded by different observers [cf. Hayes and Krippendorff 2007, p. 80], and relied on a single review, always by the same author (the lead author of this paper).

Table 2: Coding of studies

Variables coded	Description of coded items
Independent variables	Website design elements (i.e., exact name of the website characteristics manipulated in the experimental studies (cf. Table 1).
Dependent variable	Initial trust of online consumers towards unfamiliar Web vendors.
Effects	The direction of the effects (negative, positive, or not significant) and the associated level of significance.
Study context	Year, country, source of publication.
Methodology	Online shopping context (products sold by the e-tail websites), sampling characteristics (number and type), research design (type of experiment).

4.3.4. Literature synthesis procedure

To synthesize the studies, we apply the vote-count method developed by Light and Smith [1971]. Vote-count is a systematic review procedure that allows drawing qualitative overall inferences about the focal relationship based on individual research outcomes [cf. Cooper 1998]. It involves counting the directions of the findings of the different studies by classifying them into three groups: significant positive effects, significant negative effects, and non-significant effects. The category with the largest number of studies is then assumed to demonstrate the "true" relationship. Technically, the vote-count method requires that at least 34% of findings be positive before the expected result is declared confirmed [Cooper 1998, p. 117].

We opted for this method for a number of reasons, in line with our research questions spelled out in section 4. First, the vote-count method allows us to provide a quantitative summary of the direction of prior research findings and should allow us to detect under-researched areas. Another of our aims was to highlight how the results of empirical studies vary, and the vote-count method offers a very simple picture regarding the likely sign of an effect. Finally, the specific research stream that we study (experimental data, initial trust) is not yet ready for a sophisticated meta-analysis [cf. Beatty et al. 2011]. Considering the small sample size (40 studies) and the similarity of the direction of effects investigated, the vote-count method seemed more appropriate. According to King and He [2005], vote-count can in such circumstances still produce statistically powerful results.

This said, a major drawback of the vote-count method is that it takes for given the statistical significance obtained in the primary studies, which in turn is directly dependent on their sample sizes [Cooper 1998]. As Norris and Ortega [2000] point out, "two studies observing exactly the same effect may come to contradictory conclusions

merely because of differences in sample sizes". Since a vote-counting procedure does not allow taking into account the sample size differences, one would never know the actual strength of the effects. To overcome this shortcoming, we combined the vote-count results with Vote-Count Scaling [Morschett et al. 2010] and a Sign Test [Cooper 1998]. We used a 5-point VC scale (adapted from [Morschett et al., 2010]), and transferred all coefficients from previous studies to that scale. Our scale values range as follows: -1 (= negative coefficient at $p < .01$), -0.5 (= negative coefficient at $p < .05$), 0 (= not significant coefficient at $p > .05$), +0.5 (= positive coefficient at $p < .05$) and +1 (= positive coefficient at $p < .01$).

5. Results

In Tables 3-7, we report our vote-counting results in the most obvious way; that is, we classify the findings of the different experiment-based studies according to the manipulated website features based on the framework introduced in Section 3. The tables also display the sign of the coefficient as well as the manipulated characteristics of the primary studies, which should help in interpreting the aggregated findings. Where the VC scale is concerned, it should be noted that we did not encounter any significant negative coefficients; all entries relate to either insignificant (0) or positive significant coefficients (+.5; +1). We also report a sign test to show whether the cumulative results indicate that one direction occurs more frequently than chance would suggest.

Visual design

The vote-count findings provided in Table 3 show that the impact of *'visual design'* dimensions on initial trust is under-researched. Although all of our findings indicate that 'visual design' dimensions are important in stimulating online initial trust, due to the small sample size our hypotheses H1a and H1b cannot be empirically confirmed.

Social cue design

Table 4 demonstrates that studies investigating the influence of *'social cue dimensions'* are also relatively scarce. Especially studies on *'human-like cues'* (e.g., facial photos and video clips) are limited in both number and scope. Therefore, in spite of the positive direction of the effect of 'human-like cues' on initial online trust, H2a cannot be empirically confirmed. Luckily there are a sufficient number of studies concerning our hypothesis H2b. The predominantly positive results confirm that the use of *'assistive interface features'* such as 'avatars' and 'recommendation agent' applications are indeed effective tools to provoke initial trust toward unfamiliar e-retailers. The vote-count results also show that the use of *'social media cues'* (i.e., second-hand information that comes from other reputable sources) can also be effective. However, hypothesis H2c can again not be statistically confirmed due to the low number of studies. Thus, despite the overwhelming positive direction of our findings in Tables 3 and 4, we may, overall, only assume that website design dimensions such as *visual design* and *social cue design* can be effective mechanisms that help less-familiar e-retailers to fuel the initial trust of potential consumers.

Content design

The results in Table 5 show that studies investigating the influence of *'information content'* on initial trust formation are again very limited in number, especially on the level of sub-measures. The vote-count regarding the effectiveness of *'brand alliances'* with famous third-party brands and linking unfamiliar websites with trusted sites also indicates a gap in the empirical literature. In view of the limited empirical evidence, we can only tentatively assume that information quality can be an effective tool to boost initial online trust. More empirical research is needed to address our hypotheses H3a and H3b. Finally, where *'e-assurances'* are concerned, the positive direction (67% - 100%) of the vote-count results in Table 6 underpin that internally provided e-assurance structures (IPeAs) such as vendor-specific guarantees or privacy policies may provoke initial trust toward unfamiliar e-retailers (H3c), which, in turn, positively influences consumers' behavioural responses such as purchase intention and willingness to provide personal information. The vote-count results in Table 7 show that the role of EPeAs in boosting consumer trust has also been investigated by many researchers. Our findings indicate a positive direction (40%-100%) regarding the impact of EPeAs on initial trust formation (H3d).

Table 3: Vote count: Impact of visual design cues on initial online trust

Measure	Sub-measure	Manipulation	Impact sign (VC scale)					Study	SPSM	SPM
			-1	-.5	0	+.5	+1			
Visual design	Graphics	Good style (ambience – the poor style condition provided background graphics that reduced the contrast between the text and the background)					++	Everard and Galletta [2005]	100% 3/3	100%
		High-investment site (high-investment site had a white background, sophisticated fonts (images for the navigation bar; Garamond font), and an enhanced zoom feature)					++	Schlosser et al. [2006]		
		Blue colour (the two e-stores are identical in all respects other than the colour blue versus green)					++	Lee and Rao [2010]		
	Structure	Completeness (functionality-incompleteness was operationalized by selecting one salient element on each page and replacing it with a placeholder such as "under construction" or "image not yet available")					++	Everard and Galletta [2005]	100% 4/4	
		No language errors (the reliability of the information on the site – language errors were operationalized by misspelling words and making obvious grammatical errors on each page)					++			
		Interactive information management tools (IIM) (filter system – allowed respondents to limit the consideration set on the basis of various attributes and attribute levels desired and a comparison chart – to help users manage the available laptop information)					++	Gupta et al. [2009]		
		Interactive information comprehension tools (IIC) (buying guides – explain the capabilities of various attribute configurations, and a glossary – to help users understand computer terminology)				+				

Note: Positive sign [+] = positive effect has been found at $p<.05$ or $p<.01$ level; n.s. = no effect has been found.
-1 = negative coefficient at $p<.01$; -0.5 = negative coefficient at $p<.05$; 0 = positive or negative coefficient at $p>.05$; +0.5 = positive coefficient at $p<.05$; +1 = positive coefficient at $p<.01$.
SPSM = Summary per sub-measure; SPM = Summary per measure.

Table 4: Vote count: Impact of social media cues on initial online trust

Measure		Sub-measure	Manipulation	Impact sign (VC scale)					Study	SPSM	SPM
				-1	-.5	0	+.5	+1			
Social cue design	Human-like	Photo	Facial photo of shop representative					++	Aldiri et al. [2008]	100% 3/3	57-100%
			High social presence (products are shown worn by people in emotional settings and text evoking positive emotions)				+		Hassanein and Head [2007]		
			Employee photo					++	Riegelsberger et al. [2003]		
		Video	Video clip of shop representative					++	Aldiri et al. [2008]	100% 2/2	
			Video clip of privacy disclosure					++	Aljukhadar et al. [2010]		
	Assistive interface	Avatar	Task oriented avatar (goal orientated and purposeful: the emphasis is on task efficiency and minimum cost, effort, and time)					++	Keeling et al. [2010]	57% 4/7	
			Social oriented avatar (aims to personalize, socialize and establish relationships with customers, and associates positively with sales)					++			
			Human-like male avatars			n.s.			Luo et al. [2006]		
			Human-like female avatars					++			
			Cartoon-like male avatar			n.s.					
			Cartoon-like female avatar				+				
			Live-help interfaces with a 3D avatar			n.s.			Qiu and Benbasat [2005]		
		RA	Recommendation Agent (RA) with a humanoid embodiment					++	Qiu and Benbasat [2009]	71% 5/7	
			RA with human speech output modality					++			
			RA with text-to-speech (TTS) voice modality			n.s.					
			RA with text modality			n.s.					
			RA with how explanation (informs about the product attributes that satisfy their needs, uses, and preferences)				+		Wang and Benbasat [2007]		
			RA with why explanation (providing justifications for the recommendations provided after the consultation is complete)				+				
			RA with trade-off explanation (informative guidance about both the usefulness of different product features and the potential costs of having such features)				+				
		SCM	Live-help with text-to-speech (TTS) voice				+		Qiu and Benbasat [2005]	100% 1/1	
	Social media	Mass media	Second-hand reputation advertising (non-experiential information that would come from others, including from other websites or site searches)				+		McKnight et al. [2004]	100% 3/3	
			Objective source rating (i.e., a review from Consumer Reports magazine – "PC-Superstore.Com receives our highest rating r162162 Reports.")				+		Aiken and Boush [2006]		
			Vendor reputation (*Wall Street Journal* article)					++	Pennington et al. [2003]		
		Reviews	Customer reviews/customer ratings						**Not investigated.**		
		OSN	Online Social Networks such as Facebook, YouTube, Twitter and other online blogs or forums						**Not investigated.**		

Note: Positive sign [+] = positive effect has been found at p<.05 or p<.01 level; n.s. = no effect has been found at p>.05 level.
-1 = negative coefficient at p<.01; -0.5 = negative coefficient at p<.05; 0 = positive or negative coefficient at p>.05; +0.5 = positive coefficient at p<.05; +1 = positive coefficient at p<.01.
SPSM = Summary per sub-measure; SPM = Summary per measure.

Table 5: Vote count: Impact of information content on initial online trust

Measure		Sub-measure	Manipulation	Impact sign (VC scale)					Study	SPSM	SPM
				-1	-.5	0	+.5	+1			
Content design	Informativeness	Company information	Company identity information disclosure (i.e., a description or contact information)					++	Chou et al. [2009]	60% 3/5	60-100%
			Domestic e-vendor's website had live links to information about the company, product catalogue, and contacts					++	Fisher and Chu [2009]		
			International e-vendor's website had live links to information about the company, product catalogue, and contacts			n.s.					
			Physical store presence manipulated by providing a street address			n.s.			Stewart [2003]		
		Company reputation information	Subjects exposed to the strong reputation scenario received positive information about the company (i.e., in business for over 25 years versus in business for 6 months, etc.)					++	Eastlick et al. [2006]		
		Product information	Product information quality (the high-quality conditions were manipulated by presenting most important product attributes: (pixel, built-in microphone, etc.), (brand, product service, etc.), and other (price, appearance, etc.))					++	Yang et al. [2006]	100% 1/1	
		Service information	Online company's customer service information						**Not investigated.**	n.a.	
		Background statements	Signal of implied investment in advertising (i.e., a television advertisement to air during the Super Bowl – "Watch for our upcoming television ad, to be aired during half-time of Super Bowl XXXV (click here for a preview)")				+		Aiken and Boush [2006]	100% 3/3	
			Value congruence (i.e., "This organization supports the political and moral causes that I support")					++	Cazier et al. [2006]		
			Value conflict decreases trust (e.g., "This organization opposes the political and moral causes that I support" etc.)					++			
	Brand alliance	Brand equity	Web site of an unknown brand displaying high-image third-party brand					++	Lowry et al. [2008]	100% 1/1	67-100%
		Hypertext links	Unfamiliar website x Trusted list (Link in a list of links to trusted firms)				+		Stewart and Malaga [2009]	67% 4/6	
			Number of ties displayed by trusted target (9 links)					++	Stewart [2003]		
			Hypertext link from a trusted target (1 link)					++			
			Hypertext link from a reputable target					++	Stewart [2006]		
			A link representing a partnership			n.s.					
			A link representing an advertising			n.s.					

Note: Positive sign [+] = positive effect has been found at p<.05 or p<.01 level; n.s. = no effect has been found at p>.05 level.
-1 = negative coefficient at p<.01; -0.5 = negative coefficient at p<.05; 0 = positive or negative coefficient at p>.05; +0.5 = positive coefficient at p<.05; +1 = positive coefficient at p<.01.
SPSM = Summary per sub-measure; SPM = Summary per measure.

Table 6: Vote count: Impact of IPeAs on initial online trust

Measure		Sub-measure	Manipulation	Impact sign (VC scale)					Study	SPSM	SPM
				-1	-.5	0	+.5	+1			
Content design	Internally provided assurance structures	Privacy assurance	Privacy disclosure					++	Aljukhadar et al. [2010]	87% 7/8	67-100%
			Privacy assurances (providing reasonable assurance that personal information is kept secure)					++	Liu et al. [2004]		
			Notice (notification of personal info usage: providing people notice that personal information is being collected prior to the collection of that information)					++			
			Access (allowing access to personal info: providing people with access to the data that is collected about them)				+				
			Choice (giving choice to opt-in or opt-out: providing people with a choice to allow an organization to use or share information collected about them)					++			
			Online privacy policy				+		Pan and Zinkhan [2006]		
			Privacy disclosures (detailed information about how and why data about consumers would be collected and used)			n.s.			Wang et al. [2004]		
			Website's ethical performance (privacy policy stated clearly and explicitly; responsible for the information posted)					++	Yang et al. [2009]		
		Security assurance	Security disclosures (detailed information about how SSL is used to protect transaction security and financial security and showing participants the SSL symbol)					++	Wang et al. [2004]	100% 1/1	
		Vendor specific assurance	Guarantees, free shipping, return policies					++	Bahmanziari et al. [2009]	67% 2/3	
			Money-back guarantees					++	Pennington et al. [2003]		
			Return policy: any gift could be returned within 30 days for any reason			n.s.			Wang et al. [2004]		
		Assurance statements	Claim only trust assuring arguments (A *claim* is what one is arguing for)			n.s.			Kim and Benbasat [2006]	83% 5/6	
			Claim plus data arguments (*data* is the ground on which the *claim* is based).				+				
			Claim plus data and backing arguments (*Backing* supports *claim indirectly* by supporting the *data*)				+				
			Self-proclaimed assurance statement					++	Nöteberg et al. [2003]		
			Privacy/security statements				+		Schlosser et al. [2006]		
			Business ethics (Do ethical practices, such as respecting public welfare, benevolent actions)					++	Yang et al. [2009]		

Note: Positive sign [+] = positive effect has been found at p<.05 or p<.01 level; n.s. = no effect has been found at p>.05 level.
-1 = negative coefficient at p<.01; -0.5 = negative coefficient at p<.05; 0 = positive or negative coefficient at p>.05; +0.5 = positive coefficient at p<.05; +1 = positive coefficient at p<.01.
SPSM = Summary per sub-measure; SPM = Summary per measure.

Table 7: Vote count: Impact of EPeAs on initial online trust

Measure		Sub-measure	Manipulation	Impact sign (VC scale)					Study	SPSM	SPM
				-1	-.5	0	+.5	+1			
Content design	Externally provided assurance structures	Privacy seal	TRUSTe privacy seal			n.s.			Fisher and Chu [2009]	67% 6/9	40-100%
			TRUSTe privacy seal					++	Nöteberg et al. [2003]		
			CyberTrust privacy seal					++	Hu et al. [2010]		
			CyberTrust privacy seal					++	Wu et al. [2010]		
			TRUSTe privacy seal					++	Kaplan and Nieschwietz [2003]		
			TRUSTe privacy seal			n.s.			Kimery and McCord [2002]		
			TRUSTe privacy seal			n.s.			McKnight et al. [2004]		
			TRUSTe privacy seal					++	Kim and Kim [2010]		
			BBBOnline and TRUSTe privacy seals				+		Rifon et al. [2005]		
		Security seal	CyberTrust security seal					++	Hu et al. [2010]	80% 4/5	
			CyberTrust security seal					++	Wu et al. [2010]		
			VeriSign secure site seal			n.s.			Kimery and McCord [2002]		
			VeriSign secure site seal					++	Lee ande Lee [2005-2006]		
			HiTrust security seal					++	Yang et al. [2006]		
		Security and privacy seals mixed	TRUSTe privacy and VeriSign security				+		Aiken and Boush [2006]	67% 2/3	
			TRUSTe, BBBOnline and VeriSign security			n.s.			Wang et al. [2004]		
			BBBOnline privacy, TRUSTe privacy seal, WebTrust Consumer Protection seal, Coopers, Wilson, and Thompson LLP (Certified Public Accountant Seal).				+		Wakefield et al. [2004]		
		Tansaction integrity	CyberTrust transaction integrity				+		Hu et al. [2010]	100% 2/2	
			CyberTrust transaction integrity					++	Wu et al. [2010]		
		Reliability assurance	BBBOnline Reliability					++	Kaplan and Nieschwietz [2003]	40% 2/5	
			BBBOnline Reliability			n.s.			Kimery and McCord [2002]		
			BBBOnline Reliability					++	Nöteberg et al. [2003]		
			BBBOnline accredited business seal			n.s.			Pennington et al. [2003]		
			Product Quality Check seal			n.s.			Lee and Lee [2005-2006]		
		Accountant's assurance	WebTrust Consumer Protection seal			n.s.			Bahmanziari et al. [2009]	40% 2/5	
			WebTrust Consumer Protection seal			n.s.			Fisher and Chu [2009]		
			WebTrust Consumer Protection seal					++	Kaplan and Nieschwietz [2003]		
			WebTrust accountant's assurance					++	Nöteberg et al. [2003]		
			Industry seal ATLA professional seal			n.s.			McKnight et al. [2004]		
		Award seals	BizRatings seal			n.s.			Pennington et al. [2003]	50% 1/2	
			Awards from neutral sources: symbols and explanation of three Web site awards				+		Wang et al. [2004]		

Note: Positive sign [+] = positive effect has been found at p<.05 or p<.01 level; n.s. = no effect has been found at p>.05 level.
-1 = negative coefficient at p<.01; -0.5 = negative coefficient at p<.05; 0 = positive or negative coefficient at p>.05; +0.5 = positive coefficient at p<.05; +1 = positive coefficient at p<.01.
SPSM = Summary per sub-measure; SPM = Summary per measure.

To wrap up our analyses, in Table 8 we present VC scale means and sign test results in order to gauge the relative strengths of the revealed effects. As explained, many of the seemingly significant results discussed above cannot be considered fully reliable due to the low number of studies. We have, however, sufficient counts of the main effects for 'assistive interface cues', and for 'IPeAs' and 'EPeAs' to be able to consider the results of the VC scale in more detail. Interestingly, the mean for EPeAs is lower than for IPeAs, putting the value of EPeAs in question. We also performed a sign test using the formula below [cf. Cooper 1998, p. 118], where Z_{vc} is the standard normal deviate, or *z* score, for the overall series of findings; N_p is the number of positive findings; and N is the total number of findings. This sign test helps to discover whether the cumulative results indicate that one direction occurs more frequently than chance would suggest:

$$Z_{vc} = \frac{(Np) - (\frac{1}{2}N)}{\frac{1}{2}\sqrt{N}}$$

Table 8: VC scale: the effectiveness of website design cues

Website design dimensions	N		VC scale	Sign test	
	+	*Total*	*Mean*	*Sig.*	*Z*
Visual design	**7**	**7**	**.928**	**.015**	**2.64**
Graphics	3	3	1.000	.025	1.73
Structure	4	4	.875	.005	2
Social cue	**18**	**23**	**.608**	**.01**	**2.71**
Human-like cues (photo, video)	5	5	.900	.01	2.23
Assistive interfaces (avatar, recommendation agent, live-help)	10	15	.500	.035	1.29
Social media cues (reputation information from media, reviews)	3	3	.666	.02	1.73
Content design	**46**	**65**	**.292**	**.005**	**3.34**
Company and product information, background statements	7	9	.722	.03	1.66
Brand alliance (product brand image, reputable hypertext links)	5	7	.642	.046	1.13
IPeAs	15	18	.694	.005	2.82
EPeAs	19	31	.532	.04	1.25

N+ = number of significant (positive) findings.
N Total = total number of studies (total number of effects regardless of significance level).
Sig. = significance level for two-sided test.
Z = standard normal deviate.

The results of the sign test also support the positive direction of our vote-count results. This means that, based on the findings of the prior studies under investigation, we may conclude that website design dimensions can be effective in enhancing initial online trust towards unfamiliar e-commerce vendors. However, as mentioned earlier, the results of our literature-synthesis procedure should be considered with caution. In the next section, we discuss precisely how the empirical studies vary as to the effectiveness of website antecedents of initial online trust, and based on the vote-count findings we also outline avenues for future research.

6. Discussion of findings

This paper aimed to provide insight into the antecedents of initial online trust by synthesizing quantitative research in a B2C context. The key literature presented here attests to the importance of website design features in enhancing initial trust. Our literature synthesis yields, we believe, both theoretical and managerial implications, and we hope that it will draw the Information Systems (IS) community's attention to a set of under-researched areas.

Visual design

Prior research has found that both dimensions of visual design - that is, graphical appearance (attractiveness, proper use of fonts, proper use of colours) and structure (navigation, search facilities, valid links, ease of accessing the site) - are important antecedents of perceived usefulness, enjoyment, satisfaction, and behavioral attitudes [e.g., Parboteeah et al. 2009]. However, our review demonstrates that the number of studies investigating the impact of visual atmospheric elements of an e-tail interface on a crucial variable such as initial trust remains limited. Moreover, all empirical studies in this regard have been conducted in the United States (cf. Table A1).

Our extensive review of the e-commerce trust literature also reveals that, in testing the influence of web-design elements on consumers trusting intentions, a majority of the studies fail to control for store reputation or product brand equity. Cyr et al. [2010], for example, find that website colour appeal is a significant determinant for website trust and satisfaction, with differences noted across cultures. Germans had the most pronounced preference for the blue colour scheme, and Canadians appreciated the grey colour scheme more than Germans and the Japanese. While the Japanese did not like the websites with the brighter yellow tone, Canadians and Germans even showed distrust for the yellow colour scheme compared to the blue colour scheme. However, Cyr et al. [2010] used the SonyStyle website as the basis for their experiment. Although the SonyStyle name was removed from the websites to avoid branding effects, it is hard to preclude the influence of product brand quality of a trusted manufacturer like Sony Electronics. The product brand image of the Vaio laptops used in the experiment may have had a substantial impact [cf. Horppu et al. 2008]. Future research should thus try to control for such hidden confounders.

Our vote-count results also show that a majority of the experiment-based studies used more functional goods (e.g., books, computers, cameras) as a shopping context. Studies that use look-and-feel products (e.g., apparel) do not yet exist. Future research might thus want to check whether the impact of visual design dimensions is different for products that are higher in symbolic value (e.g., fashion, jewellery) compared to more functional goods that require more information on technical specifications.

Social cue design

Utilizing social cues, such as photos and video streams, to boost social presence has become common practice among thriving e-retailers [cf. Karimov and Brengman 2011]. However, our review demonstrates that the empirical literature investigating the impact of human-like cues on initial trust remains limited. Hassanein and Head [2007] investigated social presence by showing products worn by people. However, this kind of manipulation at the same time also gives additional product information (e.g., how a dress looks on the body). We therefore see a need to test the effect of more neutral facial photos.

Also, while Aldiri et al. [2008] and Aljukhadar et al. [2010] manipulate social presence by embedding *a video clip of a shop representative* into the B2C interface, experiment-based research investigating the impact of more general *video streaming* on initial trust formation does not exist - despite the popularity of user-generated video sharing applications such as YouTube among e-retailers [Karimov and Brengman 2011]. This constitutes another promising research avenue.

Our review also shows that there is little empirical evidence regarding the effectiveness of avatars and recommendation agents (see Table 4). A majority of the relevant studies in our synthesis confirm that utilizing these cost-efficient technologies that do not require a human presence behind the scene (unlike in the case of 'live-help') is effective in enhancing consumers' trust. Due to the technological advancements, more interactive shopping applications have become available (e.g., Second Life). Making use of 3D (cartoon-like or human-like) avatar applications can be a handy tool for online merchants vending diverse types of goods because these technologies can virtually assist e-shoppers. The empirical literature should therefore devote attention to the field of social shopping applications such as Second Life.

Social networking applications such as Facebook, YouTube, Twitter, blogging, and live-help have become a popular practice to generate traffic, increase sales, and boost social presence [Karimov and Brengman 2011]. Previous research has stressed the importance of Web community features, which offer a supportive environment for consumers by information exchange, advice, and knowledge sharing, in boosting online trust. However, our findings demonstrate that experiment-based research investigating the effect of integrating social networking applications that support information exchange between online shoppers in an e-tail interface is predominantly lacking.

Content design

Our review shows that empirical research investigating the information content design dimensions remains limited. Moreover, there are some contradictions regarding the effect of information quality on initial trust. While Chou et al. [2009] find that the disclosure of company identity information will enhance consumers' trust toward an unfamiliar e-retailer, Fisher and Chu [2009] find such a positive effect for domestic vendors, but not for international vendors. Thus, future research needs to further examine the effectiveness of providing high-quality company identity information (e.g., a description, physical address, etc.) on initial trust formation, obviously controlling for other factors such as local versus foreign e-retailers.

Service information quality, for its part, has been recognized to be an effective mechanism to enhance perceived usefulness, ease of use, and customer satisfaction [e.g., Jun et al. 2004]. However, we did not find any experiment-based research that examined the influence initial online trust formation. This would seem to be another promising research avenue.

Where branding alliances are concerned, Hsu et al. [2007] empirically confirmed that lesser-known manufacturers can use a reputable website as a quality endorser in vending less popular brands. However, research investigating the impact of vending well-known brands at lesser-known e-stores does not exist, and would seem to be a promising topic.

Turning to institutional cues, our findings generally confirm the effectiveness of *'e-assurances'*, but several studies have reached contradictory results. Some find a significant effect of Web assurance seals on initial online trust [e.g., Wu et al. 2010], while others do not [e.g., Bahmanziari et al. 2009]. There are several possible explanatory factors for these contradictions, such as the diverse manipulations of Web assurance programs and the different kinds of product categories used in the experiments (i.e., cheap, expensive, or look-and-feel products) [cf. Kim and Kim 2010; Lian and Lin 2008]. Nöteberg et al. [2003], for example, examined the effect of *EPeAs* on the likelihood of a consumer purchase, taking into account the *monetary value (low vs. high)* of the product categories sold. While their findings show that Web seals become important for purchases of more expensive or high-risk products (video cameras, international travel tours, securities), Nöteberg et al. do not find any effect for cheaper products such as books. Bahmanziari et al. [2009] empirically confirm a more important role of *IPeAs* (i.e., money-back guarantees) over *EPeAs* (i.e., WebTrust consumer protection seals) in purchasing relatively expensive jewellery. These inconsistent findings regarding the value of *EPeAs*, and the lack of relevant studies that consider the dissimilar contexts discloses another gap in the literature. In particular, future research should consider the monetary and symbolic value of products, as well as the degree of risk or consumer involvement when testing the effectiveness of IPeAs and EPeAs.

Importantly, all the studies that we investigated reported that initial trust can be a strong predictor of purchase intentions. This finding once again confirms the paramount importance of the initial trust concept in a B2C e-commerce context and calls for further investigation of the Web applications that can engender such a crucial factor.

6.1. Theoretical and practical implications

Several theoretical implications come up from our literature synthesis. First, based on prior research, we proposed a framework that distinguishes Web interface applications from one another and that can be used to discuss their effectiveness. However, the framework is conceptual and should be empirically tested.

Second, our vote-count results show that only a few studies have examined the impact of Web interface applications on initial trust formation while explicitly considering the "risk" factor. Theory suggests that trust is a situation-specific concept and its determinants may vary depending on the context [Mayer et al. 1995]. Thus, on the methodological front, future research should try to capture the "risk" factor in measuring respondents' reactions to website design elements. This could be done by conducting experiments manipulating product-related attributes such as their monetary or symbolic value, and taking into account the degree of consumer involvement in a particular shopping context.

Third, there is sound empirical support for the positive impact of the cultural congruency of a website on performance measures such as 'usefulness', 'ease of use', 'positive attitudes', 'positive intentions', and 'overall effectiveness' [Vyncke and Brengman 2010]. In her cross-cultural study, Cyr [2008] found that visual design elements can evoke trust in Chinese users, but not in Canadian or German users. Simon [2001] also found different preferences for colours and navigation across different cultures. Nevertheless, among the reviewed studies only Aldiri et al. [2008] tested the effect of a facial photo on user trust in two different cultures (Western and Saudi). They found the impact of using culturally congruent photos stronger in the Saudi Arabian setting. In short, it is very important to take cultural aspects into consideration when testing consumers' initial online trust.

Next, the online trust literature should try to keep up with technological developments. Consumers' trust beliefs will progressively be influenced by the social shopping possibilities of Web 2.0. Online social networks such as virtual communities, video sharing sites, and instant messaging platforms are altering the way in which people interact. However, no research has yet addressed their influence on initial online trust formation.

Finally, our review of the empirical literature provides support for the acceptance of our general research hypothesis that Web interface applications can be effective tools in engendering consumer trust toward unfamiliar e-retailers, which in turn can be a strong predictor of online purchase intentions. However, none of the studies have yet manipulated all four dimensions of website design in a full factorial experiment in order to see whether there are any interaction effects and to assess the relative strength of the different factors. This is yet another research gap. In short, there is a great deal of important work yet to be accomplished in this area.

Our literature synthesis also yields several practical implications. First, although the available research emphasizes the importance of the graphical appearance and navigation design of an e-tail site, there are many sites with poor graphics and navigation structure. E-retailers need to enhance the graphical appearance of their web-stores by using appropriate background colours, sophisticated fonts as well as enhanced zoom features that enable to see product attributes from every angle. In addition, e-retailers need to ensure that their sites possess a user-friendly navigation structure and are free of language errors and incomplete pages. On the Internet, shoppers may easily switch to another e-retailer if a website is difficult to use (Nielsen 2003). Visual design dimensions may play an important role in retaining customers and building trust online.

Second, our review highlights the importance of incorporating social presence into a Web interface in order to boost consumers' initial trust. This can be done by embedding facial photos or trust-inducing video clips of shop representatives, utilizing avatars, recommendation agents, or live-help channels in order to assist e-shoppers. In particular, the use of avatar technology by top e-retailers is almost non-existent. An exception is the cartoon-like avatar 'Anna' utilized by Ikea.com [Karimov and Brengman 2011].

Third, our review also highlights the paramount importance of information content. Thus, it is recommended to provide detailed product information to ease consumers' shopping decisions. This may include providing high-quality images and technical characteristics of products, price comparison information, after sales service information and company information. In addition to this subjective information, unfamiliar e-retailers may also benefit from social media applications (i.e., blogs, social network sites) where e-shoppers can discuss their objective views about the company and recommend their favourites.

Next, the bulk of the literature confirms that institutional structures are important antecedents of online initial trust. Interestingly, internally provided e-assurance structures such as privacy disclosure, security policies and vendor-specific guarantees (return policies, free shipping, and money-back guarantees) can be as effective as paid institutional mechanisms such as third party trust endorsements. According to our VC scale and sign test results, IPeAs are more effective than EPeAs. This finding puts the value of EPeAs in question.

Finally, and most generally, our review shows that prior studies have tested the impact of diverse website features in diverse e-shopping contexts. This could be one of the reasons behind some of the aforementioned inconsistent findings. Since the antecedents of trust may vary according to the shopping context, the important question is not which Web applications to adopt, but how to adopt them effectively. E-retailers must focus on understanding how to apply these applications effectively by considering the area of retail business they operate in.

6.2. Limitations

Our review is not free of limitations. Any research synthesis contains some inherent bias because of the inclusion and exclusion criteria and the methods chosen to review the literature. One limitation of our research synthesis may be the small sample of primary research (40 experiment-based studies). Narrowing down our focus to experiment-based studies should bring with it higher internal validity of the results, since experiments offer the highest degree of internal validity [McDermott 2002], but it could be argued that it puts the external generalizability in question. Although the use of VC scales allows a quantitative integration of research findings for variables with a rather low number of previous studies [Morschett et al. 2010], this is a caveat that has to be taken into account when interpreting our findings.

Another problem is that significant results are more likely to be published than results that do not achieve statistical significance. There may, in other words, be a publication bias [King and He 2005]. To address this limitation, we included papers that appeared in conference proceedings along with highly-ranked published articles. Furthermore, the vote-count procedure can be criticized as the statistical significance level it relies on is directly dependent on the sample sizes of the primary studies. Moreover, the vote-count method cannot detect moderator effects, nor combined effects (interaction effects). Still, it is a very suitable method to identify under-researched areas in a domain. Despite these limitations, given that the reviewed studies represent more than a decade of research and given that they diverge substantially in terms of methodology, we believe that the need for this literature synthesis was imperative.

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APPENDIX

Table A1: Manipulation of visual design dimensions

N	Author	Shopping context	Research design and manipulated variables	Sample[a]	Place[b]
Visual cues: graphics and structure					
1	Everard and Galletta [2005]	e-Book store	2x2x2: (complete vs. incomplete) x (no error vs. error) x (good style vs. poor style).	272s	US
2	Gupta et al. [2009]	Laptop	Study 1: 2x2x2: (Interactive information management (IIM= filter system) x (Interactive information comprehension (IIC=buying guides) x (Product involvement: high vs. Low).	246r	US
			Study 2: 2x2x2: (IIM [filter system) x (IIC (buying guides) x (Product knowledge: high vs. low).	223r	
3	Lee and Rao [2010]	Textbooks	1 factor manipulating 2 levels of colour: blue and green.	277s	US
4	Schlosser et al. [2006]	Furniture	Study 1: 2x2x2: (**Investment: high vs. low**) x (Page: zoom vs. home) x (Order: viewed home or zoom page first).	111r	US
		Digital camera	Study 3: 2x2: (**Investment: high vs. low**) x (Goal: searching vs. browsing).	152s	
		Home furniture	Study 4: 2x2: (**Investment: high vs. low**) x (Risk: high vs. low).	98s	

a. The studies describe their samples as: r = random sample; s = student sample; p = participants; e = e-shoppers;
b. CA=Canada; EU=European Union; NA=North America; NL=Netherlands; NZ=New Zealand; OC=Oceania; TW=Taiwan; SA=Saudi Arabia; UK=United Kingdom; US=United States.

Table A2: Manipulation of social cue design dimensions

N	Author	Shopping context	Research design and manipulated variables	Sample[a]	Place[b]
			Human-like-cues, assistive interfaces, and social-media applications		
5	Aiken and Boush [2006]	Computer	2x2x2: (Trustmarks) x (**Objective-source ratings**) x (Implied investment in advertising).	293r	US
6	Aldiri et al. [2008]	Laptop	One-factor at 3 levels of website social-cues: facial photo/video clip/no photo.	72s	SA
7	Aljukhadar et al. [2010]	Computer	2x2: (Three sites with a privacy disclosure (made available by **video, audio, or in text format**) and one with no disclosure (control)).	423r	US
8	Hassanein and Head [2007]	Clothing	One factor at 3 levels of website social presence: (Low: products are shown in a solitary format) x (Medium: products are shown in a solitary format and text evoking positive emotions) x (High: products are shown worn by people in emotional settings and text evoking positive emotions).	78s	CA
9	Keeling et al. [2010]	Books, CDs, or travel insurance	2x2: (Social-orientated avatar interaction: realistic vs. cartoon) x (Task-orientated avatar interaction: realistic vs. cartoon).	636r	NA, OC, EU
10	Luo et al. [2006]	Books	2x2: (Avatar facial appearance: human vs. cartoon) x (Avatar gender: male vs. female).	183p	UK
11	McKnight et al. [2004]	Legal advice	2x2: (TRUSTe privacy seal vs industry seal ATLA) x 2 (**Second hand reputation advertising**).	343s	US
12	Pennington et al. [2003]	DVD player	2x2x2x2: (BBB Ribbon) x (BizRatings) x (Money back guarantees) x (**Vendor reputation**).	266e	US
13	Qiu and Benbasat [2005]	Digital camera	3x2: (3 levels for the use of voice technology: text-to-speech voice x text only x voice only x text and voice together) x (Avatar).	72s	CA
14	Qiu and Benbasat [2009]	Digital camera	2x3: (Avatar) x (modality of the agent: text, text-to-speech voice, or human voice).	168s	CA
15	Riegelsberger et al. [2003]	Flowers	Eye-tracking method: employee photo.	39s	UK
16	Wang and Benbasat [2007]	Digital camera	2x2x2: (RA with *how* explanation) x (RA with *why* explanation) x (RA with *trade-off* explanation).	120s	CA

a. The studies describe their samples as: r = random sample; s = student sample; p = participants; e = e-shoppers;
b. CA=Canada; EU=European Union; NA=North America; NL=Netherlands; NZ=New Zealand; OC=Oceania; TW=Taiwan; SA=Saudi Arabia; UK=United Kingdom; US=United States.

Table A3: Manipulation of content design dimensions

N	Author	Shopping context	Research design and manipulated variables	Sample[a]	Place[b]
			Informativeness and brand alliances		
---	Aiken and Boush [2006]	Computer	2x2x2: (Trustmarks) x (Objective-source ratings) x (**Implied investment in advertising**).	293r	US
17	Cazier et al. [2006]	e-Bookstore	2x2: (Value congruence statements vs. neutral) x (Value conflict statements vs. neutral).	297s	US
18	Chou et al. [2009]	Mobile phone repair	One-factor between-subjects design: Company identity information disclosure: high vs. low.	213s	TW
19	Eastlick et al. [2006]	Insurance policy	2x2 E-tailer reputation (High versus Low) x E-tailer employing (opt-in versus opt-out information choice strategy).	2000r	US
20	Fisher and Chu [2009]	Textbook	2x3: (**Location information: domestic vs. international**) x (TRUSTe seal vs. WebTrust seal vs. no Web seal).	181s	NZ
21	Lowry et al. [2008]	Hotel reservation	3×3, fully crossed experiment with a control treatment (a control (no name or logo), name only, logo only, or name and logo branding treatment with a high, low, or unknown third-party brand on the experimental website).	298p	US
22	Stewart [2003]	Laptop	Six experimental groups created by crossing the links and store factors (zero links, one link, or nine links).	182r	US
23	Stewart [2006]	Laptop	Subjects visited two Web sites (no link, a link labeled as an advertisement, or a link to an organization labeled as a partner).	165r	US
24	Stewart and Malaga [2009]	Online travel site	2x3 (target trusted or unfamiliar) x (list familiarity: no list, trusted list, unfamiliar list).	152r	US
25	Yang et al. [2006]	Web camera	2x2: (HiTrust seal) x (**Product information quality: high versus low**).	160s	TW
			IPeA		
---	Aljukhadar et al. [2010]	Computer	2x2: (Three sites with **a privacy disclosure** (made available by video, audio, or in text format) and one with no disclosure (control)).	423r	US
26	Kim and Benbasat [2006]	Watch	2x2: (A website *without* arguments) x (displaying *claim only* arguments) x (displaying arguments that consist of *claim plus data*) x (displaying arguments that include *claim plus data and backing*).	112r	CA
27	Liu et al. [2004]	Text book	1 factor manipulating 4 levels of privacy dimension: notice, access, choice, and security.	212s	US
28	Pan and Zinkhan [2006]	Gift items	2x2: (A privacy policy) x (Privacy risk: high vs. low).	120r	US
---	Schlosser et al. [2006]	Furniture	Study 2: 2x3: (Investment: high vs low) x (**privacy and security statement: strong/weak/absent**).	79s	US
29	Yang et al. [2009]	n.a.	One factor at 2 levels: Website's ethical performance: (E-commerce ethics: Privacy policy stated clearly and explicitly) x (Website's business ethics: Do ethical practices such as respecting public welfare).	238s	TW

a. The studies describe their samples as: r = random sample; s = student sample; p = participants; e = e-shoppers;
b. CA=Canada; EU=European Union; NA=North America; NL=Netherlands; NZ=New Zealand; OC=Oceania; TW=Taiwan; SA=Saudi Arabia; UK=United Kingdom; US=United States.

Table A3: *Continued.* Manipulation of content design dimensions

N	Author	Shopping context	Research design and manipulated variables	Sample[a]	Place[b]
			IPeA and EPeA		
---	Aiken and Boush [2006]	Computer	2x2x2: (**Trustmarks**) x (Objective-source ratings) x (Implied investment in advertising).	293r	US
30	Bahmanziari et al. [2009]	Jewelry	2x2: (WebTrust consumer protection seal) x (Guarantees, free shipping, return policies).	147s	US
---	Fisher and Chu [2009]	Textbook	2x3: (Location information: domestic vs. international) x (**TRUSTe seal vs. WebTrust seal vs. no Web seal**).	181s	NZ
31	Hu et al. [2010]	Books, PC, apparel	2x2x2: (CyberTrust privacy) x (CyberTrust security) x (CyberTrust transaction-integrity seal).	185s	US
32	Kaplan and Nieschwietz [2003]	Clothing	Subjects assigned to 1 of these 5 conditions: BBBOnline Reliability/TRUSTe/WebTrust/Big 5 seal/Self Seal by the company.	225s	US
33	Kim and Kim [2010]	Running shorts	2x2x2x2: (TRUSTe privacy assurance seal: present vs. absent) × (Purchase-decision involvement: low vs. high) × (Disposition to trust: low vs. high) × (Privacy-protection self-efficacy: low vs. high).	223s	US
34	Kimery and McCord [2002]	n.a.	1 factor manipulating 4 levels of Web seals: (VeriSign; TRUSTe; BBB Reliability; No seal).	164s	US
35	Lee and Lee [2005-2006]	Used laptop	2x2: (VeriSign seal) x (QualityCheck seal).	163s	US
---	McKnight et al. [2004]	Legal advice	2x2: (**TRUSTe privacy seal vs Industry seal ATLA**) x 2 (Second hand reputation advertising).	343s	US
36	Nöteberg et al. [2003]	Book, video camera, travel tour, securities	4x3x6: (Products: book, video camera, travel tour, securities) x (Vendor types: unknown, well-known on Internet, well-known in non-electronic market) x (Seals: Accountant's assurance, Bank's assurance, Consumer Union's assurance, Computer Industry's assurance, Self-proclaimed assurance, No seal).	1109r	NL
---	Pennington et al. [2003]	DVD player	2x2x2x2: (**BBB Ribbon**) x (**BizRatings**) x (**Money back guarantees**) x (Vendor reputation: low vs. high).	266e	US
37	Rifon et al. [2005]	Compact discs	A one-way experimental design at 2 levels: Privacy seal: BBBOnline and TRUSTe presence vs. absence.	210s	US
38	Wakefield et al. [2004]	Camera	1 factor at 4 levels: BBBOnline x TRUSTe x WebTrust x Coopers, Wilson, and Thompson LLP seals.	223r	US
39	Wang et al. [2004]	Flowers, food, college souvenirs	2^{5-1} factorial design with every cue at a high or a low level in 16 combinations: Five cues at two levels: seals of approval/privacy disclosures/security disclosures/return policy/awards from neutral sources.	402s	US
40	Wu et al. [2010]	Books, laptops	2x2x2: Web assurance seals: (CyberTrust Privacy) x (CyberTrust Security) x (CyberTrust Integrity).	552s	US
---	Yang et al. [2006]	Web camera	2x2: (**HiTrust seal**) x (Product information quality: high versus low).	160s	TW

a. The studies describe their samples as: r = random sample; s = student sample; p = participants; e = e-shoppers;
b. CA=Canada; EU=European Union; NA=North America; NL=Netherlands; NZ=New Zealand; OC=Oceania; TW=Taiwan; SA=Saudi Arabia; UK=United Kingdom; US=United States.

Table A4: Field-studies on initial trust

N	Author	Shopping context	Research design	Sample[a]	Place[b]
1	Chen and Barnes [2007]	e-Bookstore	The participants have been asked to choose and visit one of four online bookstores (i.e., books.com.tw, KingStone, silkbook.com, and Sanmin), and after the searching activities participants have been required to fill-out the questionnaire.	103s	TW
2	Chen and Dibb [2010]	Laptop	Participants have been directed to sections of the website addressing company background, security and privacy information, shipping and handling information, and guidance on returns policy. After reading this information, they have been asked to perform a mock shopping task and fill out the main questionnaire.	452s	UK
3	Hampton-Sosa and Koufaris [2005]	Laptops and travel sites	Subjects have been given a set of instructions that asked them to search for either a laptop or flight tickets for a trip to California. After they have been asked to fill out the questionnaire.	111s	US
4	Kim and Tadisina [2005]	n.a.	Students have been instructed to visit one of the four selected e-business websites and then to complete the questionnaire. The websites were selected ensuring that the subjects had not visited them before.	300s	US
5	Kim et al. [2004]	e-Bookstore	Two questionnaires have been developed based on the research models – one for potential customers and one for repeat customers. Data was collected for the study through the book store's website, which had mounted banner on its front page to publicize the survey.	1352r	SG
6	Koufaris and Hampton-Sosa [2004]	Laptops and air tickets	Subjects have been asked to browse a website they had never visited before and search for a particular product. Subsequently, they have been required to answer a series of questions regarding their experience on that site.	212s	US
7	McKnight et al. [2002b]	Legal advice website	Subjects have been taken to a custom-created website designed to provide visitors with advice on legal matters and they have been asked to answer a questionnaire that include items designed to measure their trusting beliefs, willingness to depend, and other study constructs.	1403s	US
8	Sha [2009]	Digital camera	Students have been instructed to visit a web store to select a gift which they would be interested in purchasing. At the end, students have been asked to answer the questions based on their beliefs or opinions about the online store.	322s	US
9	Wang and Emurian [2005b]	Plasma TV	Fake e-commerce website selling plasma TV was created and subjects filled out survey after visiting this website.	181r	US; CN
10	Yang et al. [2005]	e-Bookstore	Customers who visit the online bookstore have been asked to answer a questionnaire.	376r	CN
11	Yaobin and Tao [2007]	All kinds of commodities	The subjects have been asked to visit the website: zon100.com. Then the subjects have been asked to fill out a questionnaire regarding their shopping experiences on the website.	193s	CN
12	Zhang [2004]	Books	Subjects have been requested to complete a first questionnaire which determined their Internet shopping experience, their willingness to purchase from completely unknown online stores, their familiarity with trust-promoting seals, and their demographic information. The same subjects were then given a second questionnaire which acknowledged the presence of a seal (Truste, VeriSign, BBB*OnLine*, and AOL Certified Merchant Guarantee, respectively) on the unknown store's website.	120s	US

a. The studies describe their samples as: r = random sample; s = student sample; p = participants; e = e-shoppers;
b. CN=China; TW=Taiwan; SG=Singapore; UK=United Kingdom; US=United States.