

Intuitive judgment and building initial trust in online vendors: An
application of decision making theories in online customer behavior

by

Mohammad-Mahdi Roghanizad

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Mohammad-Mahdi Roghanizad

Abstract

The importance of trust in Electronic Commerce (EC) has been addressed for about two decades and various theories have been applied to investigate the issue. In spite of a consensus among researchers of trust in a website being a risky decision, they have neither applied decision making theories (e.g. two systems of reasoning) in the context nor created a risky situation when examining their hypotheses about trust in EC. Instead, the decision is implicitly assumed to be deliberative although not enough evidences have been collected to support the assumption.

An in-lab experiment was conducted to investigate the above shortcomings in the literature. Findings show that unlike the current belief, intuition (and not deliberation), is the dominant decision making process when trusting an unknown website in a risky situation. The level of trust is significantly different when risk is not involved. In addition, one of the well-established constructs, “situational decision making to trust”, was not confirmed by the collected data in the risky situation. The results conflict with EC and trust literature and clarify the crucial role of risk in decision making to trust. Hence, the studies that have measured and validated trust and related constructs without the actual risky situation might need to be reconsidered.

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Introduction

1.1 Trust

Both academics and practitioners acknowledge the importance of trust in a variety of settings. Productive interpersonal relations in different contexts are based on trust. For example, cooperation increases when trust exists. Beyond the personal level, trust lubricates relationships within and between organizations and makes those connections faster and less expensive. Because of the high importance of trust, it has been studied in many different disciplines over the past decades. However, there has been little agreement on the meaning and definition of trust. Rather, diverse definitions of trust are used in different disciplines ranging from trust being viewed as a personality trait (Rotter, 1971) to it being considered a structural phenomenon¹ (D. H. McKnight & Chervany, 1996). McKnight and Chervany (1996) reviewed sixty books and articles dealing with the topic of trust and concluded: "While sociologists tend to see trust as structural in nature, some psychologists have viewed trust as a personal attribute. Social psychologists are more likely to view trust as an interpersonal phenomenon. Economists are more inclined to view trust as a rational choice mechanism" (page 11). Later, in another article they define trust as one's willingness to become vulnerable to a trustee (another person, organization, institution, etc.) while considering the characteristics of the trustee (D. H. McKnight & Chervany, 2001).

1.2 Why trust is important in Electronic Commerce

Improvements in computing and communication technologies have created a useful infrastructure for businesses to expand their markets to geographically remote areas which were previously hard to access. Vendors introduce themselves to online users through Electronic Commerce (EC) websites and advertising their products and services at comparatively low cost. The relatively low barriers to entry make EC both attractive and competitive. The number of brick and mortar companies which has turned to click and mortar is growing and numerous pure

¹ A set of rigidly defined and categorized constructs and components.

EC companies (i.e., those that sell digital products and services) enter the market every day. A quick search for a service or product leads an online customer to many online vendors many of which are not known to him or her. If well-known EC entities don't offer a specific good or charge a higher price than their less known rivals, an online customer could take advantage of purchasing from a previously unknown website. However, facing a previously unknown website, online customers need to make a decision about the trustworthiness of the EC entity. This point in the process is critical for both seller and buyer. The seller needs to know what kind of information is sought by the buyer and how it is used for making the decision to trust the EC entity. On the other hand, the buyer makes a risky decision that can either lead to the benefit of obtaining a product at an acceptable price and spending less time on product search or to negative consequences such as non-shipment of items ordered and paid for or having their personal information being abused.

From a marketing point of view, one of the E-vendor's key objectives is to deliver a website that encourages initial trust among first time visitors. Otherwise in today's fierce competition the E-vendor will find it difficult to stay in business. To develop such a website, the online merchant needs to know how first time visitors build initial trust such that online customers are persuaded, explicitly and implicitly, that the potential advantage of making the purchase exceeds the risks involved.

1.3 Previous research on EC and trust

Researchers have addressed trust formation in EC websites from various perspectives during the last decade and have identified many issues regarding trust and EC. For instance, one major stream of research has identified a set of interrelated trust constructs (D. H. McKnight, Choudhury, & Kacmar, 2002). Several other studies have studied security in EC transactions and its relation to trust (Chellappa & Pavlou, 2002). Some others have applied the Technology Acceptance Model (Gefen, Karahanna, & Straub, 2003); (van der Heijden, Verhagen, & Creemers, 2003) to study trust. Some studies with roots in Human Computer Interaction (HCI) have focused on website design in terms of presentation quality and aesthetics and their relation to trust (Zhang, Prybutok, Ryan, & Pavur, 2009). However, very few researchers have focused on the psychological process involved in deciding to trust an EC website, especially the first time a user visits a previously unknown site (Benedicktus, 2008).

1.4 Literature shortcomings

In the beginning of the EC era, when most online users were novices, online customers probably looked at online trust as a compound factor which includes different components to be evaluated one by one. Just like a trainee driver who perceives driving as a composite of discrete activities and performs them step by step and one task at a time. As he/she becomes more experienced, less attention is required and he/she can perform other tasks simultaneously. In other words driving migrates from a deliberative category of tasks to automatic (intuitive) ones. Interpersonal trust is similar. As one interacts with many people in one's life one accumulates implicit knowledge about them such as the relation between trustworthiness and facial appearance. Subsequently, one is able to form reliable judgment about strangers in a few seconds, solely based on their faces (van 't Wout & Sanfey, 2008).

We have experienced more than a decade of extensive public use of EC-related technologies and the number of transactions over the internet is growing exponentially. EC technologies are becoming more and more reliable. Young people have grown up using the internet and they don't feel insecure when conducting transactions online². Technology acceptance and security risks are not focal concerns any more. Referring to the examples cited earlier, today's online customers are similar to the experienced driver or the person who has met many people, both friends and strangers. They assess an unknown website using their pool of implicit knowledge of what a trustworthy website looks like. They rely on their gut feeling and intuition to form a judgment. But these intuitive processes and especially the psychological process of decision making about trust have not received much research attention to date.

Most current empirical studies have relied on subjects' self-reports regarding their decision to trust a website or their intention to purchase (e.g. Peggy, Panagiotis, & Drakoulis, 2003; Jiang, Jones, & Javie, 2008; D. H. McKnight, Choudhury, & Kacmar, 2002; Corritore, Kracher, & Wiedenbeck, 2003; Y. Chen & Barnes, 2007; Kim & Prabhakar, 2004). It has been shown in both behavioral psychology and EC literature that subjects' actual behavior might not be the

² I ran a survey among sixty undergraduate students in UW and more than 90% of them regularly purchase online.

same as their self-report (e.g. No, 2007; Premazzi et al., 2010). In this study we observed subjects' actual online behavior in a setting that involved a decision about initial trust.

Another deficiency in EC and trust literature is the omission of risky situations when operationalizing the trust concept. When subjects are required to trust an unknown website without taking any risk, they neither try to nor are motivated to exploit all available resources to gather needed information for decision making about whether to trust an EC website. They receive compensation for their participation anyway.

This study investigates two fundamental issues that have not received enough attention in current literature. First, customer decision making about trust in an EC setting is explained by psychological decision making theories. The study explores whether people make the decision to trust an unknown website (i.e., a website that they have not had any prior experience with) intuitively or deliberately. Second, subjects face a risky decision making process that simulates risk and uncertainty in an actual EC setting.

1.5 Summary of results

An in-lab experiment was conducted to investigate the above shortcomings in the literature. Findings show that unlike the current belief, intuition (and not deliberation), is the dominant decision making process when trusting an unknown website in a risky situation. The level of trust is significantly different when risk is not involved. In addition, one of the well-established constructs, "situational decision making to trust", was not confirmed by the collected data in the risky situation. The results conflict with EC and trust literature and clarify the crucial role of risk in decision making to trust. Hence, the studies that have measured and validated trust and related constructs without the actual risky situation might need to be reconsidered.

1.6 Contribution

The results summarized in the previous section introduce a new approach to online trust that can inform both scholars and practitioners. Scholars can address means by which to encourage the use of a deliberative judgment process instead of an intuitive one (Simmons & Nelson, 2006; Alter, Oppenheimer, Epley, & Eyre, 2007; Song & Schwarz, 2009). They might investigate methods to encourage online customers to override intuitive judgment and validate an unfamiliar

online vendor's trustworthiness deliberately. Practitioners can create more efficient and more effective methods of e-marketing to enable EC entities to maximize their online customers' level of initial trust.

This new approach might apply to different cultures as well. Target markets around the world have various cultural paradigms. Cultural differences might lead to different styles of building trust. Some information might be crucial in one market and worthless in another. Studies show that people in different cultures have different preferences about website design (D. Cyr, Bonanni, Bowes, & Ilsever, 2005; Simon, 2001; D. Cyr & Trevor-Smith, 2004).

1.7 Organization of study

This study is organized as follows. Following this brief introduction, chapter 2 review trust and EC research studies and decision making theories in regard to deliberative and intuitive decision making and judgment. The chapter also discusses shortcomings in current literature on trust and EC which represent research opportunities. In chapter 3 the derived hypotheses are developed. Chapter 4 describes the experiment design and administration and data gathering methods. The materials and instruments that were used, and their validation are presented. In chapter 5 the methods of data analysis and results are discussed. Findings and implications of the findings, and the limitations of the study are discussed in chapter 6. Finally, the thesis concludes with brief concluding remarks.

2 Literature review

To conduct this study we look at three distinguished literatures;

1. Meanings and definitions of trust in different disciplines.
2. Trust in Electronic Commerce (EC). This part contains definition of different trust types in EC literature. Also a number of approaches to trust with roots in various disciplines are discussed. This part ends with some critiques of the literature.
3. Intuitive decision making and judgment. Definition of intuitive and deliberative decision making is discussed in this part. Then we talk about how these two decision making systems have been applied to interpersonal trust. At the end, similarities between interpersonal trust and trust in EC are noted.

2.1 Meanings and definitions of trust

The concept of trust has been around from the beginning of history when humans started to rely on each other. Despite being such an old concept, researchers don't agree upon a simple and universal definition of trust. The complexity of defining trust has been addressed by many researchers. For example, McKnight and Chervany (1996) identify various definitions from sixty different resources including research articles and books from management / communication, sociology, economics, political science, cognitive psychology and social psychology. They cite other scholars' opinions about the concept of trust as a "confusing potpourri," (Shapiro, 1987a: 625), a "conceptual confusion" (Lewis & Weigert, 1985a: 975), even a "conceptual morass" (Barber, 1983: 1; Carnevale & Wechsler, 1992: 473). They describe trust as an "elusive" concept (Gambetta, 1988: ix; Yamagishi & Yamagishi, 1994: 130).

Rotter (1971) is among the first researchers who looked at trust from a personality point of view. He stresses dispositional trust as a predictor of trusting behavior and approaches trust as a personality trait (Rotter, 1980). He defines trust as "an expectancy held by an individual or a group that the word, promise, verbal, or written statement of another individual or group can be relied on." (Rotter 1970: 444) He applies his theory of social learning (1954) in the trust domain with more emphasis on "expectancies" among the four variables in the theory. Thus, the level of

a trustor's expectancy of the trustee to be reliable is developed according to the trustor's previous experiences in similar situations.

Luhmann, Burns, & Poggi, (1979) look at trust as a reduction of social complexity. First they define familiarity as understanding other's behavior based on previous interaction with them. They believe familiarity is the precondition for trust and distrust. Since the previous actions of a familiar actor are known the complexity of future prediction is reduced and the decision to trust or distrust is easier. They define trust as preferring one action among the others in spite of the possibility of being disappointed by others' behavior. Familiarity helps this preference to be more justifiable.

Mayer, Davis, & Schoorman, (1995) focus on trust as a willingness to be vulnerable to another party. Their trust construct is based on two antecedents of trust:

1. A propensity to trust which is a general expectation of trustworthiness of others.
2. A set of three attributes regarding trustworthiness of another party which are ability, benevolence and integrity. Their model also includes perceived risk as a moderator of the relationship between trust and risk taking.

Lewis & Weigert, (1985) look at trust from a sociological point of view. They believe emotion is a sociological foundation of trust which happens more intensely in interpersonal relationships. They also recognize two other analytical dimensions of trust which are behavior and cognition.

Dobing's (1993) view of trust includes willingness to depend upon others, trusting beliefs, and few situation-specific trusting behaviors. Dobing's definitions and approach to trust are tailored to the domain he studies which is the relationship between an information system user and the system analyst during system development.

McAllister, (1995) introduces two types of trust, affect- and cognition-based trust. He believes the cognition-based trust operates when "we choose whom we will trust in which respects and under what circumstances, and we base the choice on what we take to be 'good reasons,' constituting evidence of trustworthiness." (McAllister, 1995: 25). Affect-based trust on the other hand consists of emotional bonds between individuals. These links are created in an organizational atmosphere where people invest emotionally in trust relationships and show genuine care and concern for the well-being of partners.

Bromiley & Cummings (1995) categorized the antecedents of trust into a three-by-three grid with nine cells (McKnight & Chervany, 1996). One side of their three-by-three matrix includes the trustor's perception about trustee including keeping commitments, negotiating honestly, and not taking excessive advantage. The first two differ in terms of time frame i.e. negotiating commitments precedes keeping commitments. The other side of their three-by-three matrix has three components of more personal dimensions which are affective state, cognition, and intended behavior.

Mishra (1996) defines trust as one's willingness to be vulnerable to another party based on the belief that the trustee is competent, open, concerned, and reliable (McKnight & Chervany, 1996). Mishra argues that trust is an overall construct that is made up of the combination of these four belief dimensions (trustee is competent, open, concerned, and reliable). In other words, trust is a multi-dimensional construct formed by these beliefs. Mishra also describes these beliefs as combining in an interactive way. "That is, a low level of trust in terms of any of the dimensions offsets high levels of trust in terms of the other dimensions." (Mishra, 1996: 269)

In addition to willingness to be vulnerable, Rousseau, Sitkin, Burt, & Camerer (1998) have extracted another element of contemporary definitions of trust which is "positive expectations". They suggest this definition of trust after a comprehensive literature review. "Trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another." (Rousseau et.al, 1998, 395). They also confirm that risk and interdependence are two integral parts of trust upon which most trust scholars agree.

Castelfranchi (2008) looks at trust as a trustee being exploited by trustor. He explains that one manipulates the trustee, by spending some resources, then forcing him by moral, ethical, and institutional laws to act towards achieving one's goal. He also says the risk of trust is not merely wasting resources or incurring anticipated cost, but the main risk is not achieving one's goals and probably losing other opportunities. He even believes that trust does not necessarily need reciprocity. For example, one gives power to a trustee to help poor people. The trustor's goal of helping poor people is achieved and no reciprocity is involved.

Doney & Cannon (1997) study trust between firms. They recognize five cognitive processes through which firms develop trust in each other. (a) Calculative: Trustor calculates the cost of

untrustworthy behavior of trustee. (b) Prediction: Trustor develops confidence that trustee's behavior is predictable (c) Capability: Trustor's assessment of trustee's ability. (d) Intentionality: Trustor evaluates the trustee's intentions and motivations (e) Transference: Trustor assures the trustworthiness of the trustee from other well-known and reliable sources.

McKnight, Cummings, & Chervany (1998) introduce "initial trust" within a firm. It means two parties have not met or interacted in the past. Then McKnight and colleagues shift to a personal level of analysis to solve "the paradox of high initial trust levels" in an organizational context. They suggest a theoretical construct of antecedents of initial trust. (a) Disposition to trust including trusting stance and faith in humanity. (b) Cognitive processes including categorization (stereotyping) and illusion of control. (c) Situation based trust including structural assurance (e.g. safeguards as regulations, guarantees, or contracts) and situational normality (e.g. the perception that things appear normal). They agree that trust could be rapid and based on first impression; however, they don't define an important role for first impression or gut feeling in their model of initial trust.

Gambetta (2000) defines trust as subjective probability. He says: "Trust (or, symmetrically, distrust) is a particular level of the subjective probability with which an agent assesses that another agent or group of agents will perform a particular action, both before he can monitor such action (or independently of his capacity ever to be able to monitor it) and in a context in which it affects his own action" (Gambetta 2000, P. 216) He continues that trust is like a threshold point on a probabilistic distribution. He believes that the optimal threshold varies for each person according to his/her disposition to trust and objective circumstances for a given situation.

Weber, Malhotra, & Murnighan (2005) believe that the extent to which a party feels dependent on the other affects his attributions of the other's trustworthiness and his evaluation of information regarding the other's reputation and observed behavior. They introduce dependency as the major antecedent of trust even if there is no willingness to rely on the other party.

Huang & Murnighan (2010) utilize subliminal cues to show that a trusting decision starts even sooner than gathering deliberative and analytical information and before and beneath conscious awareness. Their results strongly suggest broadening trust research studies to non-conscious, automatic, schema-based processing in addition to deliberative and analytical processes.

Morgan & Hunt (1994) looked at trust from an inter-organizational point of view in the context of the theory of relationship marketing. They define trust “when one party has confidence in an exchange partner’s reliability and integrity” (Morgan and Hunt 1994, P.23). They exclude trusting behavior from trust which is seen in other researchers’ definitions. They argue that behavioral intention is best viewed as an outcome of trust and not a part of its definition. They also believe shared values, “the context to which the partners have beliefs in common about behavior goals and policies” (Morgan and Hunt 1994, P.25), are a direct antecedent of trust and communication helps trust to develop.

In an extensive literature review Bigley & Pearce (1998) categorize the trust literature into two main branches according to foci of existing research. (a) Trust between unfamiliar parties and (b) Trust between familiar parties with an ongoing relationship. Furthermore, they divide the first group into three divisions; (i) research involving dispositional theories about trust. (ii) “behavioral decision theory” which focuses on immediate situational factors in the context of game settings and rational decision making.(iii) “Institutional framework” involving the situation in an organizational and institutional context. They suggest that the best definition for trust must be chosen based on the specific trust situation which is under investigation. They believe it might not be feasible and productive to have a unique construct of trust to apply in all domains.

2.2 Trust and Electronic Commerce

Trites & Boritz (2009) offer a broad definition of Electronic Commerce (Electronic Business): “E-Business is the strategic use of technology, particularly the internet, to integrate and streamline the business processes, enterprise applications, and organizational structure of a business to create a high-performance business model” (Trites and Boritz 2009, P.5). The focal point of this study is a specific domain of EC which involves interaction between business and customers (B2C). In this domain, businesses offer variety of products and services on the internet. (Trites & Boritz, 2009). So, in this study “Electronic Commerce (EC) refers to B2C which is a subset of the above definition.

The necessity of online customer trust toward e-vendors has been noticed in the EC domain for more than a decade. Some EC scholars (e.g. Kim & Prabhakar, 2004; Gefen, 2000) utilize a definition extracted from a single discipline and have based their studies on that. On the other

hand others (e.g. D. H. McKnight & Chervany, 2001) have come up with a more comprehensive and multi-disciplinary definition or construct and apply it to the EC domain. A third alternative approach, which has not received enough attention in the literature, is identification of the mental process which is activated when building on line trust and finding a discipline and definition which best suits the EC accordingly (Bigley & Pearce, 1998). For this purpose, I start with a brief overview of trust concepts which are imported into EC in section 2.2.1 after a brief overall classification.

2.2.1 Overview of trust concepts and definitions in EC

There are two major research streams in trust and EC literature. The first and most widely employed is research based on McKnight’s conceptualization of trust and the second is the one that focuses on implicit information and intuitive judgment about the trustworthiness of a website.

In their comprehensive and multi-disciplinary literature review McKnight and Chervany (1996) extract four attributes necessary for a trustee to be trusted which are benevolence/caring/concern, competence, goodwill/good intentions, and honesty. Moreover they define six trust constructs to include all dimensions of trust which are Trusting Intention, Trusting Behavior, Trusting Beliefs, System Trust, Dispositional Trust, and Situational Decision to Trust. Definitions of each of these constructs are presented in Table 1

Construct	Definition
Trusting behavior	The extent to which one person voluntarily depends on another person in a specific situation with a feeling of relative security, even though negative consequences are possible.
Trusting beliefs	The extent to which one believes (and feels confident in believing) that the other person is trustworthy in the situation. (Trustworthy: one is able and willing to act in the other person’s best interests)
System trust	The extent to which one believes that proper impersonal structures are in place to enable one to anticipate a successful future endeavor

Disposition to trust	A person has Dispositional Trust to the extent that s/he has a consistent tendency to trust across a broad spectrum of situations and persons.
Situational decision to trust	The extent to which one intends to depend on a non-specific other party in a given situation.

Table 1 Mcknight trust constructs and definitions

The above constructs and attributes have been utilized widely in EC and trust studies.

An important stream in the literature has examined trust in terms of beliefs about the trustee including perceived benevolence, competence, integrity, and predictability of an online vendor (e.g. (Bhattacharjee, 2002); (Lee & Turban, 2001); (Sinclair, 2007); (S. Chen & Dhillon, 2003) . Although McKnight et al. (D. H. McKnight, Choudhury, & Kacmar, 2002) acknowledge the effect of “perceived site quality” in building initial trust among many other factors, the second stream of research gives much more weight to first impression when building initial trust.

The second stream in the literature, which recently has received some attention, is intuitive factors such as interface design, navigation design, cultural values, information design and other implicit clues that elicit positive or negative impressions toward a website among target audiences. (Y. D. Wang & Emurian, 2005; Pelet & Papadopoulou, 2011; D. CYR, 2008; Gefen & Straub, 2003; Gefen, 2000). Initial trust, which is discussed in the next section, is the focal point of this research. Consequently, the rest of the literature review is more focused on this second stream of the literature in which initial trust receives more attention.

2.2.2 What is the difference between initial trust and recurring trust

Bigley and Pearce (Bigley & Pearce, 1998) categorize trust studies into three main categories based on logical distinctions between the fundamental problems addressed by researchers.

- Interactions among unfamiliar actors who have not any prior information about or any affective bond with each other.
- Interactions among familiar actors who have prior information about or affective bound with each other.

- Organization of economic transactions which talks about how trust reduces transaction costs and helps the governance of intra- and inter-firm transactions.

More specifically, McKnight et al. (2002) apply the above definition of “unfamiliar actors” to the domain of EC and come up with a customized definition for initial trust; “trust in an unfamiliar web vendor, one with whom the consumer has no prior experience.” (McKnight et. al 2002, P.299)

The second category listed by Bigley and Pearce on the other hand, refers to recurring trust. This type of trust is mostly attended by researchers who are interested in relationships in the organizational context. The level of analysis in this category includes interpersonal trust as well (e.g., Mayer et al., 1995; McAllister, 1995). This kind of trust is built after a few transactions. In an EC context if an online customer transacts a few times then s/he forms recurring trust toward the e-vendor. S/he might even be more specific about the vendor’s quality. For example, one can say: ”The website offers good quality products but they are not good in shipping arrangements.” This study focuses on initial trust. Various approaches to initial trust are discussed in sections 2.2.3 to 2.2.9.

2.2.3 Technology Acceptance Model (TAM)

The TAM was first developed by Davis to explain user acceptance of technology in the workplace (Davis, Bagozzi, & Warshaw, 1989; Davis, 1989). Davis adopted the Theory of Reasoned Action (TRA)³, to develop his model. He introduced three antecedents of technology acceptance:

1. Perceived usefulness; the degree to which one believes that using a particular system enhances one’s job performance.
2. Perceived ease-of-use; the degree to which one believes that using a particular system is free of effort.
3. Enjoyment; The extent to which one enjoys and is pleased when using the system.

Many researchers have tried to apply TAM in combination with other existing constructs to provide better understanding of trust in a website. Heijden et al. (van der Heijden, Verhagen, &

³ TRA will be discussed more in section 2.2.8

Creemers, 2003) combine TAM and perceived risk of a website to create a new conceptual model for anticipating online purchase intention. In another attempt to incorporate TAM for modeling online trust, Corritore et al. (Corritore, Kracher, & Wiedenbeck, 2003) suggest three perceptual interrelated factors that form trust toward a website. Those are credibility, ease of use and risk. They built the model based on a literature review and no empirical evidence is offered to validate the model. Chen and Barnes (Y. Chen & Barnes, 2007) borrow some constructs from McKnight (2002), Koufaris and Hampton-Sosa (Koufaris & Hampton-Sosa, 2004) and also include TAM to represent a “conceptual model of online trust and purchase intention”. They find that perceived usefulness, perceived security, perceived privacy, perceived good reputation, and willingness to customize are the important antecedents to initial trust online. In a different approach Gefen and Straub (Gefen & Straub, 2003) first examine the effect of social presence⁴ on trust. Then, they compare the effect of the TAM beliefs on intention to purchase with that of trust. They find that the latter is more effective than the former. They don’t consider TAM as an antecedent of trust. Koufaris and Hampton-Sosa (2004) directly measure and find a positive relation between the TAM beliefs and trust. Pavlou (Pavlou, 2003) represents another conceptual model by integrating trust and perceived risk into the TAM. He suggests a customized model for customer acceptance of EC and does not attempt to show any causal relationship or correlation between TAM beliefs and trust. Gefen, Karahanna, and Straub (Gefen et al., 2003) consider trust and TAM beliefs as non-interdependent variables. They first show that the degree and impact of trust, perceived usefulness, and perceived ease of use increases as an online customer repeatedly visits a website. They also show that new customers are influenced by their trust toward the online vendor and not by their TAM beliefs. In other words, they suggest TAM beliefs do not play a major role when building initial trust.

2.2.4 Marketing

Several theories and concepts are borrowed from marketing literature to demonstrate the antecedents of online trust. Papadopoulou et al. (Papadopoulou, Andreou, Kanellis, & Martakos, 2001) incorporate McKnight’s construct with the idea of relationship marketing. Bitner (Bitner, 1995) identifies the functions of making, enabling and keeping promises for creating a service

⁴ Social presence will be discussed in 2.2.8

encounter and building relationship with the customer instead of putting too much stress on sales. Wanninger et al. (Wanninger, Anderson, & Hansen, 1997) apply Bitner's idea to an EC context and introduce "electronic servicescape". Papadopoulou and colleagues (Papadopoulou, Andreou, Kanellis, & Martakos, 2001) suggest that having an "electronic servicescape" leads to online customers' trusting behavior. In a similar work, Papadopoulou et al. (Papadopoulou, kanellis, & Martakos, 2003) integrate the servicescape construct with McKnight's and introduce a model of trust building. Jarvenpaa et al. (Jarvenpaa, Tractinsky, & Vitale, 2000) refer to the marketing literature in which trust has been studied in terms of salesperson and seller organization. Then they argue that since the salesperson is often missing in EC context, the merchant organization would be the primary cause of trust or distrust. They suggest that perceived size and perceived reputation of seller organization are two main antecedents of trust. Also they have borrowed their measures from the marketing field (Doney & Cannon, 1997). Again from relationship marketing a market orientation concept has been applied to EC. As mentioned before it puts the customer in the focal point of the organization as opposed to sales and revenue. Corbitt et al. (Corbitt, Thanasankit, & Yi, 2003) believe perceived market orientation is an important determinant for online trust. Kim and Prabhakar (Kim & Prabhakar, 2004) use social network theory from marketing to examine if online trust can be transferred between online customers. Social network theory states that "...trust can be transferred from one individual to another. That is, an individual's initial trust level in an entity would be influenced by others" (Kim and Prabhakar, 2004 P. 53). Then they find out that word of mouth has a significant effect on transferring online trust.

2.2.5 Cultural approach

In the organizational domain, Doney et al. (Doney, Cannon, & Mullen, 1998) combine Doney and Cannon's (1997) trust building model with Hofstede's cultural dimensions and propose a model for interaction between trust and culture. In another cross cultural study Luo (Luo, 2002) shows that in a collaborating team the cultural distance between alliance parties influences the level of trust. The effect of culture on building trust also has been noticed in the EC domain. To the best of my knowledge, no theory or model has been well acknowledged in the literature to show the relation between cultural dimensions and online trust. However, some studies have been done to demonstrate cross cultural differences. Liu et al. (Liu, Marchewka, & Ku, 2004)

compared the relationship between privacy concerns, trust, and behavioral intention among online customers in the US and Taiwan. They could not find any significant difference between the two groups. Hitosugi (Hitosugi, 2009) tries to integrate McKnight's construct, Hofstede's cultural dimensions, and subjective norms to propose a model for interacting culture and initial trust. The results show that a person with high uncertainty avoidance has a more trusting disposition and forms trusting beliefs more easily than a person with low uncertainty avoidance. Cyr (D. CYR, 2008) considers more specific components of website design (information design, navigation design, and visual design) along with cultural background (Canada, Germany, and China) as the independent variables. The results show that various website design components build different trust level across the cultures affirming that cultural background affects perceived trustworthiness of a single website. Carlin (Carlin, 2009) combines cultural dimensions and e-shopping aspects to create a questionnaire. Data analysis leads to different website design suggestions for building trust among US and Chinese online customers. In a more specific study, Bodmer (Bodmer, 2009) looks at differences in attitudes between women in the United States and in Switzerland regarding online purchasing. In her study cultural differences do not influence perceptions of trust and online shopping behavior of American and Swiss females. Gefen and Heart (Gefen & Heart, 2006) compare Israel and US online customers. In their research model familiarity and predictability affect trusting beliefs (ability, integrity, and benevolence). They find that the trusting beliefs are almost the same across the cultures. However, the effect of predictability and familiarity on trust beliefs may vary across the cultures.

2.2.6 Cognitive Psychology approach

Benedicktus (Benedicktus, 2008) looks at psychological distance and trust. He finds that (a) images of physical assets of the online vendor and (b) customer's familiarity with the online vendor's location reduce the psychological distance and increase trust. Shu-Chen et al. (Shu-Chen, Wan-Chiao, & Sung, 2006) utilize the Elaboration Likelihood Method (ELM) in their study. ELM says the degree of elaboration likelihood depends on the extent to which one carefully evaluates the arguments. People who are low in elaboration rely more on peripheral cues such as third party opinion or famous endorser. Yang and colleagues argue that different website design and information design should be considered to persuade online customers with various levels of elaboration. Lindgaard (2007) suggests that background color and color

combinations might influence users' subsequent opinion of, and satisfaction with, a site. Pelet & Papadopoulou (2011) focus on color and trust as well. They borrowed McKnight's construct to investigate the effect of color components on each of the trust typologies. Based on previous research they look at three principal components of color:

1. "Hue (or chromatic tonality), which is the attribute of the visual sensation defined according to the color denominations such as blue, green, red etc.
2. Saturation, which is provides the proportion of chromatically pure color contained in the total sensation
3. Brightness, which corresponds to the component of an illuminated surface according to which the surface seems to emit more or less light." (Pelet and Papadopoulou, 2011, P.6/23)

They find that color has a significant effect on trust in an online vendor.

Stewart & Malaga (2009) claim the positioning of a company's link among others' links has a significant effect on online customers' judgments. Their study shows that unknown companies may benefit from an association effect if their link is surrounded by well-known companies' links.

In a recent study John, Acquisti, & Loewenstein (2011) show that people share sensitive information with unprofessional websites more than professional ones. Their counterintuitive results might not be applicable in the EC domain for following reasons. First, the authors collect participants' email addresses as the only identifiable piece of information which could link the responses to the corresponding respondents. Hence, sharing information with either of the websites does not involve significant risk. Second, John and colleagues use "affirmative admission rates" (e.g. the rate of participants who admit conducting an immoral or illegal behavior and give affirmative answers to intrusive questions) as a measure of willingness to share sensitive information with each of the websites. In the EC paradigm, when people face questions about sensitive personal information (e.g. Credit Card No., Home address, etc.) their concerns are not about intrusiveness of the questions. They have to decide on the trustworthiness and reliability of the website. At this point the professional look of the website plays an important role. In the context of John et al.'s (2011) study, participants have to decide if the website developers are going to use (if they are able) the shared information to incriminate them.

The unprofessional and incompetent look is a clue that conveys both lack of intention and lack of capability of abusing the shared information. Security and privacy

As an explicit sign of trustworthiness many researchers look at the effect of privacy and security issues on online trust (e.g. What items of personal information are collected by the website and how the online vendor is going to use, disseminate, and protect this information.). Liu et al. (2004) investigate the interaction between trust and four dimensions of a company's information practices suggested by the Federal Trade Commission. The dimensions are: (a) Notice: online users should know that their information is collected (b) Access: users should have access to their information on the website. (c) Choice: users should have the choice to allow or not allow the company to use their information. (d) Security: users should be assured that their personal information is kept securely. They find that all of four dimensions are related positively to trust level. Chen & Barnes (2007) find that a higher level of perceived security and privacy leads to a higher degree of initial trust. Chellappa & Pavlou (2002) also find a significant relationship between consumers' perceived information security and trust in EC transactions. Another way of convincing online users about trustworthiness of the website is having third party seals as a sign of having security and privacy practices in place. Lee and Turban (Lee & Turban, 2001) don't find a significant level of perceived effectiveness of third-party seals on trust in Internet shopping. No (No, 2007) by creating an actual risky situation finds that: (a) The presence of third party seals does not affect individuals' behavior. (b) There is a gap between self-reported and actual privacy behavior in respect of sharing personal information. (c) The priorities of privacy practices from users' point of view are not exactly the same as that of online vendors. Hui et al. (Hui, Teo, & Lee, 2007) also do a field observation and find similar results: (1) A privacy statement induces more subjects to disclose their personal information but a privacy seal does not; (2) A monetary incentive has a positive influence on disclosure; and (3) An information request has a negative influence on disclosure.

2.2.7 Theory of information

Grabner-Kraeuter (2002) initiates his work by introducing two types of uncertainty based on the theory of information, and system-dependent and transaction-specific uncertainty. He says: "System-dependent uncertainty comprises events that are beyond the direct influence of actors and can be characterized as exogenous or environmental uncertainty. ...Transaction-specific

uncertainty can be seen as a kind of endogenous or market uncertainty that results from decisions of economic actors and is caused by an asymmetric distribution of information between the transaction partners” (Grabner 2002, P.45). He believes that institutional-based trust serves to reduce system-dependent uncertainty and clues like user-friendliness and effective navigation design reduce the transaction-specific uncertainty.

2.2.8 Social psychology

Trust is usually needed when two interactive parties are present, trustor and trustee. Having this in mind, one can expect social psychology to be a major source of theories to explain trust. Pranjali Gupta (Gupta, 2002) applies attribution theory to find out what kind of information is attributed to trustworthiness of the website by online customers even though they visit the website for the first time. He hypothesizes that interactivity of “product information” and “category knowledge” (defined as information relevant to that particular product and service cluster which helps potential consumers to understand the product, and provides a broad description of the features, benefits, and other related information). He finds partial support for his hypothesis. Gefen (2000) relies on Luhmann’s theory of trust and power and hypothesizes that more familiarity with an EC vendor and its procedures increases trust toward the vendor and willingness to interact and purchase from the website. Gefen & Straub (2003) examine the relationship of social presence and trust. Social presence is defined as: “The extent to which a medium allows a user to experience others as being psychologically present” (Gefen and Straub, 2003 P.11). They find that social presence affects trust significantly. In a similar work Gefen & Straub (2004) measure the impact of social presence on the component of trust (integrity, predictability, benevolence, and ability). Liu et al. (2004) use the Theory of Reasoned action (TRA) to create their hypothesis of different perception and concerns about privacy across cultures. TRA says one's attitudes, perceptions, and subjective norms will influence his/her actions in a particular manner when, s/he believes that his/her behavior will result in or be linked to a specific outcome. In other words, the expected outcome creates social pressure which either discourages or encourages certain behavior. It is noteworthy that TAM was built on TRA and the research in which TAM is used (section 2.2.3) for developing hypotheses have their roots in social psychology and they can be placed in this section as well. McKnight et al. (D. H. McKnight et al., 2002) refer to TRA for reasoning how trust beliefs lead to trust intention which

leads to trusting behavior. McKnight's construct which has received great attention is partially based on TRA. Jarvenpaa et al. (Jarvenpaa et al., 2000) refer to TRA to explain how intention leads to behavior when developing their model. They also refer to exchange theory, balance theory, and planned behavior theory all of which are in the social psychology domain. Premazzi et al. (Premazzi et al., 2010) refer to social exchange theory to justify participants' willingness to share their personal information with a website. Social exchange theory posits that one's participation in social transactions is decided after a cost and benefit analysis.

2.2.9 Model of trust in EC (MoTEC)

MoTEC is offered by Egger (Egger, 2003). He started development of the model in 2000 (Egger, 2000) and the final version was released in 2003. He uses a Human Computer Interaction approach to develop the model and tries to pay more attention to human factors than technical and operational issues. Since he employs previous research from various approaches (e.g. psychology, marketing, TAM, security and privacy) to develop the model I use a separate section to explain MoTEC.

The model includes 4 dimensions,

1. Pre-interactional filters: It considers user psychological characteristic like propensity to trust and institutional trust of IT and the internet. Also the width and depth of a user's knowledge about the product and industry is included in this dimension.
2. Interface Properties: Appeal and professionalism of the interface in addition to TAM parameters. Perceived system reliability and the degree of relevance to the user (e.g. localized, customized) are discussed in this dimension.
3. Informational Content: Company identification data such as values, contact, achievements, partnership in addition to details about product and service; Information by which an online customer can reduce his/her perceived risk as associated with security mechanisms and privacy issues.
4. Relationship Management: pre-purchase interactions such as quality of help and responsiveness. Post purchase interaction including order processing, fulfillment, and aftersales services.

2.3 Shortcomings in the literature

2.3.1 No risk

Almost all of EC and trust researchers agree that an online purchase is a risky behavior and online customers are in a risky situation. Just to name a few, McKnight et al. (D. H. McKnight et al., 2002) say that one engages in three risky behaviors when buying online (a) sharing personal information with the online vendor which could expose one to the risk of loss of privacy, misuse of shared information, and identity theft; (b) conducting online financial transactions could lead to not receiving purchased goods and services in addition to the inherent risk of sharing Credit Card information; (c) the advice given by the online vendor might be misleading in regard to the product or service specifications. Lee and Turban (Lee & Turban, 2001) state:” Trust is an especially important factor under conditions of uncertainty and risk.” (Lee and Turban 2001, P. 77). Jarvenpaa et al. (Jarvenpaa et al., 2000) say: “Trust is interwoven with risk, and both are based on perceptions (Jarvenpaa et al. 2000 P.49). Gefen (2000) argues:” . . . trust relates to the unknown future actions of others, and these are inherently more dynamic, general, complex, risky and less specific (Gefen 2000, P.727). In spite of the consensus of the researchers that risk is a prerequisite of trust, very few researchers create an actual risky situation in their experiments. For the purpose of this study more than 90 articles and dissertations were reviewed and only two of them actually ask the participants to make a risky decision (e.g. Premazzi et al. 2010 and No 2007). Hence there might be some concern about the reliability of achieved results. When there is no risk involved, (e.g. just comparing two websites or filling out a questionnaire) it’s unlikely for the participants to employ enough resources to come with the best results. At most, they have a good guess about what they would have done in a real situation.

Premazzi et al. (2010) create a risky situation by including a registration page in a fictional website. Participants are then offered the opportunity to register on the website in exchange for receiving monetary and or nonmonetary gifts. The requested information in the registration page includes name, address, city, state, zip code, e-mail, phone number, social security number counterpart for Italy, and credit card type, number, and expiration date.

No (2007) creates a risky situation by offering participants the opportunity to order a free gift through an experimental website in appreciation of their participation. The process of ordering the free gift involves sharing sensitive personal information.

2.3.2 Self-report

Another shortcoming in the EC and trust literature is over reliance on self-report data. The associated issues with self-report data are well documented in experimental psychology literature. Feldon (Feldon, 2010) conducts an experiment and clearly shows that self-report data is largely inaccurate. In another article Podsakoff et al. (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) conduct a review on the method biases in behavioral research. Pertaining to self-reports they say: "Some methods effects result from the fact that the respondent providing the measure of the predictor and criterion variable is the same person. This type of self-report bias may be said to result from any artifactual covariance between the predictor and criterion variable produced by the fact that the respondent providing the measure of these variables is the same." (Podsakoff et al. 2003, P. 881). In addition, the only two articles that I found in the EC and trust literature in which participants faced an actual risky situation report a gap between self-reported and actual behavior (Premazzi et al., 2010; No, 2007)

2.3.3 Confusing concepts

Papadopoulou and Martakos (2008) conduct a critical literature review and find an inconsistency between conceptual definitions and measurements. They categorize EC and trust studies into three distinct groups:

1. Some researchers ignore the multidimensionality of trust and approach it as an unidimensional phenomenon both in the conceptual and empirical level.
2. Some researchers acknowledge the multidimensionality of trust in the conceptual level but not in the empirical level; that is, they just use a single scale to measure all accepted constructs or beliefs.
3. The third group includes those who treat trust as a multidimensional construct both in the conceptual level and the empirical level.

The above lack of consensus leads to conceptual and operational confusion in the literature and hinders the accumulation of knowledge about online trust. At the same time, in many cases, trust measurements are inconsistent with the conceptual definitions (Papadopoulou & Martakos, 2008).

There is also a lack of consensus in the relationship of trust belief (benevolence, competence, integrity, and predictability) and trust. Some researchers look at them as antecedents and others look at them as underlying dimensions of trust.

The distinction between dimensions of trust has not been clarified enough in the literature. Even if a researcher can imagine a fine difference between competency and integrity, participants barely differentiate between these two when assessing a website. Hence, usually a strong correlation is observed between these two constructs.

Categorization of inputs (outputs) is often used to improve understanding complex processes and might be able to show a strong correlation between those input categories (independent variables) and the actual output (dependent variable). However, it neither shows the comprehensiveness of the considered inputs, nor clarifies how the inputs are processed to outputs.

2.3.4 No reasoning systems approach in the literature

Many researchers acknowledge that granting trust to an online website inherently is a risky decision in which possible benefits and/ or costs are associated with trusting behavior (i.e. sharing personal/ financial information)⁵. In other words, collected implicit and explicit data leads to a judgment on the level of trustworthiness of a website. The decision to actually trust is taken according to personal and situational conditions (More details are provided in section 2.4.3). To the best of my knowledge, surprisingly, no one has applied the theory of two reasoning systems (Sloman, 1996) to the domain of EC and trust (More details are provided in section 2.4.1).

2.3.5 Unconfirmed implicit assumption

According to decision making theories there are two parallel processes involved in decision making, deliberative and intuitive. The former talks about hard evidence and plausible reasons for making a decision as opposed to the latter, which is about gut feelings, impressions, and

⁵ Furthermore, since one does not know all the possible outcomes and corresponding probabilities, online trust can be studied as a decision making under ignorance. However, this approach is beyond the scope of this project.

intuition in regards to a subject, with no strong logic or explicit reasoning (more details are discussed in section 3.1).

Apart from recent psychological approaches to EC and trust in which researchers do not insist on trust concepts, typologies, or constructs, the majority of the literature implicitly assumes online trust involves deliberative decision making. By default, if the antecedents and or components (benevolence, competence, integrity, and predictability) of a decision (trusting behavior) are spelled out, the decision is considered to be deliberative. A clear example would be the research stream on privacy and security issues and their effect on trust (please refer to section 0).

Also, studies in which self-reporting is used as a means of collecting data, (almost the whole literature; see sections 2.3.1 & 2.3.2) participants are required to fill out questionnaires, and report their perceptions of trust and its components or antecedents (e.g. Likert scale). Employing these types of instruments for data collection shows the researcher's assumption of those variables being measurable or comparable and participants deliberatively deciding to trust a website. In spite of the popularity of this implicit assumption, no empirical confirmation is available.

2.4 Trust as intuitive decision making

As the main point of this thesis, I borrow a decision making theory which was introduced in 1996 by Steven A. Sloman, (1996). He believes there are two reasoning systems, associative and rule based serving complementary functions. Interestingly, he believes these two systems can simultaneously generate different results for the same given problem. Research shows that interpersonal trust and more specifically initial interpersonal trust is led by one of those two systems named intuition. In section 2.4.3 interpersonal trust and trust in EC are compared.

2.4.1 What are intuitive and deliberative decision making?

According to Sloman (1996), the deliberative (rule based) system deals with firm rules that apply to any and all statements with the same symbolic structure. Those rules have both logical structure and a set of certain variables. For example the conjunction rule of probability says $P(A) \geq P(A \& B)$. Where $P(A)$ represents the probability of event A. So the rule says the probability of two events cannot be more than probability of either of them alone. The rule is also productive meaning that given a new event C one can infer that $P(A \& B) \geq P(A \& B \& C)$.

The intuitive (associative) system, on the other hand, is associative, and operates based on similarity and temporal structure. According to observations, frequencies, and correlations among the various features of the world it establishes regulations of its environment. For example, in their famous study of the conjunction fallacy, Tversky & Kahneman (1983) give their participants the following paragraph as a description of a hypothetical person named Linda:

“Linda is 31 years old, single, outspoken and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in antinuclear demonstrations.” (Tversky and Kahneman, 1983 P. 297)

Then, they asked the participants to rank order eight statements about Linda, including the following two, according to the statement's probability.

“Linda is a bank teller. (T)

Linda is a bank teller and is active in the feminist movement. (T & F)” (Tversky and Kahneman, 1983 P. 297)

Although many of the participants are graduate students with knowledge of probability and decision making, more than 80% of the respondents rank the probability of (T&F) higher than (T). Sloman infers that people associate the characteristics in the paragraph with a woman who is a feminist too; In spite of the fact that the probability of (T&F) is always equal to or less than that of (T).

The introduction of two different systems does not mean that they solve mutually exclusive problems. On the contrary, they are overlapping domains with differences depending on decision makers' experience, knowledge, and skills about the situation. The systems are specialized to solve different kinds of problems, however when a person is given a problem both systems might try to solve it and offer solutions which are not necessarily the same. If one wants to know the source of an offered solution a rule of thumb is the level of awareness. When the person is only aware of the result and not the process the likely source is the intuitive process. On the other hand if both result and process are known to the person the likely source is the deliberative process (Sloman, 1996). The characteristics of each process are listed in Table 2 .

Characterization of Two Forms of Reasoning

Characteristic	Associative system	Rule-based system
Principles of operation	Similarity and contiguity	Symbol manipulation
Source of knowledge	Personal experience	Language, culture, and formal systems
Nature of representation		
Basic units	Concrete and generic concepts, images, stereotypes, and feature sets	Concrete, generic, and abstract concepts; abstracted features; compositional symbols
Relations	(a) Associations (b) Soft constraints	(a) Causal, logical, and hierarchical (b) Hard constraints
Nature of processing	(a) Reproductive but capable of similarity-based generalization (b) Overall feature computation and constraint satisfaction (c) Automatic	(a) Productive and systematic (b) Abstraction of relevant features (c) Strategic
Illustrative cognitive functions	Intuition Fantasy Creativity Imagination Visual recognition Associative memory	Deliberation Explanation Formal analysis Verification Ascription of purpose Strategic memory

Table 2 Characterization of Two Forms of Reasoning (reproduced from Sloman, 1996; P.7)

Sloman believes some reasoning problems do not draw on both sources; for example when there is no highly reliable and predictive construct and causal relationship at hand, many forecasters use intuitive system. At the other extreme, some reasoning problems lead people to two contradictory responses i.e. they feel the response is appropriate but not strong enough to act upon. For instance when someone says: "Technically, a whale is a mammal". The associative (intuitive) system perceives that a whale as a fish and the rule based (deliberative) system's result is different.

Sloman says that because of its speed and efficiency, the intuitive reasoning often neutralizes the deliberative system. He concludes: "... even when a person is attempting to be rule governed, associative responses encroach on judgment. The force of the evidence is to support not only the conclusion that people have and use two computationally distinct systems of reasoning but also that the associative system intrudes on the rule-based one. (Sloman, 1996, P. 15)

2.4.2 Interpersonal initial trust and decision making theory

A considerable body of research confirms Sloman's claim that intuitive reasoning runs parallel to deliberative processing and plays a significant role in social interactions. Following are some

examples related to the purpose of this study. Intuitive thoughts operate nonconsciously through accessing prior knowledge, heuristics, stereotypes, expectancies, scripts, and schemas (Bargh & Chartrand, 1999). Intuitive processes play an essential role in the communication of social perceptions (e.g., S. M. Andersen, Reznik, & Manzella, 1996), judgments and interpersonal evaluations (e.g., Glaser & Banaji, 1999), stereotyping (e.g., Devine, 1989), emotional appraisals (e.g., Lazarus, 1991), persuasion (e.g., Chaiken, Liberman, & Eagly, 1989), goal-directed behavior (e.g., Shah, 2005). Research by Andersen and her colleagues (e.g., S. M. S. Andersen & Baum, (1994); S. M. Andersen & Cole, (1990); S. M. Andersen, Glassman, Chen, & Cole, (1995)) found that people who encounter someone for the first time are immediately judgmental: new people are compared to one's memory of known people and similarities evoke the same affection and expectation toward and from new people.

Huang & Murnighan (2010) show that interpersonal trust (distrust) happens automatically before any conscious and deliberative thinking. More specifically facial clues and signals are shown to play an important role in people's trusting behavior. For example, smiling influences the decision to trust in economic games (Scharlemann, Eckel, Kacelnik, & Wilson, 2001). A face can provide information about whether an individual is someone to approach or avoid, trust or distrust (van 't Wout & Sanfey, 2008). The trustworthiness of someone is immediately and reliably judged based on one's face (D. Berry & Brownlow, (1989); D. S. D. Berry & McArthur, (1986); Brownlow, (1992)). Willis & Todorov (2006) show that people are able to judge the trustworthiness of faces very quickly (within 100 ms) and that this judgment is unlikely to change even if more time is provided. It suggests that people are efficient in judging the trustworthiness of faces.

It should be noted that when forming initial trust, due to limited available information the disposition to trust receives more weight by a decision maker. Axelrod, (2004) finds a significant effect of disposition to trust in initial trust formation.

2.4.3 Similarity of initial interpersonal trust and initial trust in EC

Looking at EC and trust literature one can find several works in which authors show a relationship between trust and website appearance or trust and TAM parameters (e.g.

sections 2.2.3 and 2.2.6). In addition to the previously mentioned studies that show a significant effect of appearance on trust, the following studies are noteworthy. Li, Rong, & Thatcher (2009), Wang & Emurian (2005), Dennis, Merrilees, & Jayawardhena (2009), Gregg & Walczak (2010), Lindgaard (2007), Lindgaard, Fernandes, Dudek, & Brown (2006), find that appearance is related to trust. More specifically, they find out that it takes less than one second for online users to form a first impression about the website.

Section 2.4.1 reveals a functional similarity between a person's and a website's appearance. They both lead to a quick and automatic judgment for which there is no logical or analytical justification. People generalize their perception about the website to anticipated future behavior of the company as they do when meeting a person for the first time.

2.5 Summary

As discussed throughout this chapter, several important factors have been overlooked in the literature:

- In spite of general acceptance that trust in an online vendor involves decision making, no research was found that looks at trust by utilizing the theory of two reasoning systems.
- A majority of studies implicitly assume that initial trust is built deliberately however; not enough evidence was offered to confirm this assumption.
- Almost all the studies in the literature have failed to create a risky decision setting as the major condition for trust operationalization. They relied on self-report data to measure trust and validate their proposed constructs.

Looking at decision making theories and studies in regard to interpersonal initial trust which were discussed in this chapter, I noticed the analogy of trust formation between the interpersonal and EC contexts. Based on this analogy three hypotheses are developed in next chapter to address mentioned issues in EC and trust literature.

3 Hypothesis development

As discussed in the previous chapter, there are several shortcomings in the current literature. In this section I try to address those shortcomings and look at the question of initial trust from a decision making viewpoint. Based on the approach four hypotheses are developed.

3.1 Initial trust in EC: intuitive or deliberative decision making?

Several research studies were introduced in section 2.3 the psychological trust formation process. More specifically, interpersonal trust was discussed in detail when trustee and trustor don't have any prior information about each other (section 2.3.2). A number of studies shows that interpersonal initial trust (distrust) forms in a few seconds even before a trustor consciously starts gathering and analyzing available information (Huang & Murnighan, 2010). There is a consensus that the underlying process of the trust judgment is intuitive. Deliberation simply cannot deliver a result in a short available period of time to make an initial trust judgment.

Facial appearance plays an important role in quick and reliable judgment (van 't Wout & Sanfey, 2008). People's faces and website appearances play a similar role in the formation of initial trust. A growing number of studies approach websites in the same way that psychologists look at human faces (e.g. Li et al. (2009); Y. D. Wang & Emurian (2005); Dennis et al. (2009); Gregg & Walczak (2010)). Although there has not been a direct comparison so far, the results show considerable similarities (Lindgaard et al., 2006). If, by means of intuition and in spite of possible false signals, people can truly predict trustworthiness of unknown others merely based on facial appearance (D. Berry & Brownlow, (1989); D. S. D. Berry & McArthur, (1986); (Brownlow, (1992)), it is plausible to assume that the same process is utilized when building initial trust in an online vendor.

In addition to the studies confirming utilization of intuition in initial trust in EC, there are studies that counter the hypothesis that initial trust formation is a deliberative process. For example, in an attempt to study the relationship between deception and trust, Grazioli & Jarvenpaa, (2000) manipulate the following items (Table 3) in a genuine commercial website. They used experienced internet users (four and half years of experience) who had purchased items online and were unfamiliar with the introduced commercial website as well.

Item	Deception	Detection
Seal	A well-known third-party seal (Bureau of Better Business) was accurately reproduced and inserted in the home page of the fraudulent site. The third-party seal was linked to a faithfully reproduced report by the BBB that stated that the company's business record is satisfactory. The forged URL of the report suggested that the report was stored on a BBB server. The report was itself linked to a variety of authentic BBB resources.	Exploration of the BBB site led to a searchable database. Searching for the name of the company revealed that the company was not registered with the BBB and there was no report on them.
Warranty	The warranty offered by the store was modified so as to make it extreme (e.g., complete refund, no questions asked, no time limit).	The warranty is simply too good to be true. For instance, no expiration date was specified.
News clip	False quotes from professional magazines were created. The quotes stated that the site was excellent both by itself and by comparison with the competition. The quotes had links to the actual web sites of the quoted magazines.	Following the links to the magazines and searching the databases of article revealed that the quoted articles did not exist.
Physical location	A generic picture of a store was inserted in the site with a caption that identified it as the company's store, together with a randomly selected Seattle address. The real company had no physical store.	The picture did not contain any identifiable sign. The store address was in Seattle, WA while the store phone number had a California area code.
Size	The size of the company and the sales	Based on the information presented

	were grossly exaggerated (by one order of magnitude): “Our company has been in business over 5 years , serving over twenty-five thousand customers. ” [The words in boldface here were in boldface and in high-contrast color]	above the stores should be selling approximately fourteen computers a day, 365 days a year. The store’s current inventory included only five computers.
Customer testimonials	Existing endorsements from customers were substantively inflated by adding hyperboles and taking out negative comments. Made-up names and domiciles (city) were added that were missing or incomplete in the original site.	One person (same name and address) is quoted twice.

Table 3 website manipulations, Grazioli et al. (2000)

The results showed no significant difference between participants in the control group, who visited the genuine website and the treatment group who visited the forged website in regard to intention to purchase. In the other words participants in the treatment group failed to detect the deceptions.

The clues for detecting the deception are spelled out in Table 3 and follow a clear logic (both process and results are known, Sloman (1996). All the altered pieces of information (except Size) are explicit yet people fail to detect them. According to Sloman (1996) a reasoning or decision process can be either deliberative or intuitive. Hence, a possible explanation for participants failing to detect the fraudulent website is that the deliberative thinking process is either not exploited, due to lack of risk, or is overruled while the participant is building initial trust in an unknown website.

Based on what is found in trust and EC literature and decision making theories, the following hypothesis is introduced:

H1: When facing an unknown website, people rely on their intuitive decision making process in deciding whether to trust or distrust the online vendor.

3.2 Self-report, actual behavior and presence of risk

According to the discussion in section 2.3.2 the self-report has shortcomings regardless of the differences between experimental settings and where the results are applied. In the EC domain, models and constructs are often validated by means of self-report data (e.g. Gefen, 2000).

According to Feldon (2010) and Podsakoff et al. (2003) these results are largely inaccurate and biased. This issue is even bigger when studying trust since it is not operationalized in the absence of risk which often does not exist in self-reported data collection methods. One faces the risk while deciding about actual trusting behavior and relying on the other party who may deceive the trustor. Being in an actual risky situation leads to more cautious and less trusting behavior in comparison with a self-report situation where there is no risk involved.

This prediction is only examined in two previous studies of trust in EC (Premazzi et al., 2010) and No, (2007) that observe a difference between actual behavior and self-reported behavior. So I hypothesize the following:

H2: There is a difference between self-reported and actual behavior in regard to initial trust.

3.3 Situational decision about trust in EC and risk

As decision making theories are applied to initial trust in EC and compared and combined with existing trust constructs interesting results appear which are worth testing. Tversky & Kahneman (1974) introduce the availability bias. They explain that: “There are situations in which people assess the frequency of a class or the probability of an event by the ease with which instances or occurrences can be brought to mind” (P.1127). Based on this theory, for people who have had successful previous experiences with an unknown website the subjective probability of undesirable results is less than the subjective probability of undesirable results for people who have never purchased from an unknown website. Hence we expect to see more evidence of trust among the first group. Also, in McKnight and Chervany’s (1996) construct of trust situational decision making about trust is defined as: “The extent to which one intends to depend on a non-specific other party in a given situation” (P. 38). Having a successful previous experience with an unknown website, according to the availability bias, increases one’s subjective probability of

success in future trials which in turn leads to higher intention to depend on unknown parties in the internet. Hence the following hypothesis arises:

H3: There is a difference in terms of trusting behavior between those who have never purchased from an unknown website and who have previous satisfactory experiences with an unknown website.

4 Research methodology

The study was as an in-lab experiment using a live operating website and involved an actual risky situation wherein participants were asked to provide personal information to the previously unknown website. In addition, self-reports were requested as the first task and reported as part of the debriefing questionnaire administered at the end of the experiment. Analyses were performed using logistic regression to investigate the research hypotheses.

4.1 An overview of the study

The study consists of a preliminary questionnaire, one or two task(s) (depending on the condition), and a concluding questionnaire. A total of 6 experimental conditions were designed to test the hypotheses as shown in Table 4 (2 manipulated websites \times 3 decision making methods). In the following paragraphs all categories of manipulation are explained in detail.

		Thinking manipulation		
		Control	Intuitive	Deliberative
Website manipulation	Full Manipulation (FM) Inferior	FMC	FMI	FMD
	Partial Manipulation (PM) Superior	PMC	PMI	PMD

Table 4 Experimental conditions

4.2 Subjects

A total of 241 students participated in the study. According to Bellman, Lohse, & Johnson, (1999), student subjects are reasonably representative of online consumers in general because online consumers tend to be more educated and younger than the general population. Therefore, this study considers student subjects as an appropriate sample. The participants consist of undergraduate and graduate students in a large Canadian university.

4.3 Procedures

The researcher sent an email to potential subjects among students at the University of Waterloo and invited them to participate in a study about electronic commerce. Over two weeks, 245 students completed the experiment in a computer lab. Four subjects were dropped because of misinterpretation of the task or missing information due to human error. The final sample consisted of 241 subjects.

Research participants were invited to a computer lab and randomly assigned to one of three experimental groups (AI, AII, and AIII). Then, they were asked to read carefully and follow the corresponding instructions (Appendix AI, AII, AIII). The first section was the preliminary questionnaire (Appendix B) developed to collect demographic information, internet usage data, and attitudes toward online purchases.

The second section was a hypothetical situation of a student who was directed to an unknown bookstore in Australia via a search engine and had to purchase a certain book as a course requirement. Participants were asked to find the book on the website and decide if they would buy the book. To prevent collecting information from any external sources, they were also informed that they were unable to navigate away from the introduced website. This section was included to make participants more familiar with the website and prepare them to face the risky situation of providing personal information to the previously unknown website. Participants in the intuitive thinking condition were required to perform a resource depletion task prior to navigating and evaluating the website. As part of website manipulation (details are discussed in section 4.4) participants were offered an opportunity to receive a C\$20 gift by the company

management in appreciation of sharing their personal information and creating an account with the website. The create account page is illustrated in Appendix C.

The third and last section required participants to fill out a concluding questionnaire (Appendix D). This questionnaire asked if participants had previous knowledge about the website, their disposition to trust, their self-reported decision about purchasing the book, and manipulation checks. At the end, all the participants were debriefed and learned that no gift will be sent to them and received a C\$10 bill in appreciation of their participation.

4.4 Website manipulation

A 17 year old, live and operational Australian online book store (bookworm.com.au) was selected as the raw material of the experiment. The genuine website was altered by installing two Google Chrome extensions (mutually exclusive) on machines in the computer lab. Hence, participants visited two different versions of the website, partially manipulated (PM) and fully manipulated (FM). The latter was inferior from a deliberative point of view. So, none of the participants visited the original website.

4.4.1 Why a bookstore? Why a live website?

In terms of the product, books are regarded as low price and low touch items, which creates a useful setting for potential online customers (Gefen & Straub, 2003). Virtually all of the participants (university students) buy books online and visit many electronic bookstores so they are comfortable with and at the same time alert about web vendors of books. In the literature, the usual way of using a website as the experiment material is to develop it from scratch. This was not desirable for the purpose of this research for following reasons:

- Almost all of the online bookstores have a dynamic search engine which searches within a data base using various search criteria such as book title, author name, year of publication, etc. It's hard to reproduce such a data base and search engine. In general, the dynamism of an online bookstore is not easy to imitate.
- The intuitive clues of trustworthiness emerge through time as visitors navigate through a website and provide verbal or behavioral feedback about information design, navigation design and even aesthetics which in turn lead to corrections and improvements. If a website is not debugged based on many visitors' perceptions and interactions, then its

intuitive value is not clear to the experimenter. Hence an unknown variable is added to the process of trust which can hinder interpretation of collected data.

4.4.2 List of manipulations

Intuitive pieces of information by definition are hard to address and explain. Consequently, it's next to impossible to measure and manipulate them. So altering intuitive clues is not an available option. Instead, deliberative information has to be manipulated. In a sense manipulations in this study were similar to those of Grazioli & Jarvenpaa, (2000) (Table 3).

4.4.2.1 Survey on trustworthiness criteria

Grazioli and Jarvenpaa conducted their experiment in 2000 and validation of the manipulations referred to even older studies. To explore if online customers' criteria of trustworthiness have changed since the late 1990's the following open question was asked of a different group of 51 students at the University of Waterloo:

“Suppose that you are navigating an unknown website, (i.e. a website that you find through a search engine and did not know about in the past) what are the most important things within the website that you would check prior to any transaction? Try to write down at least 4 items.”

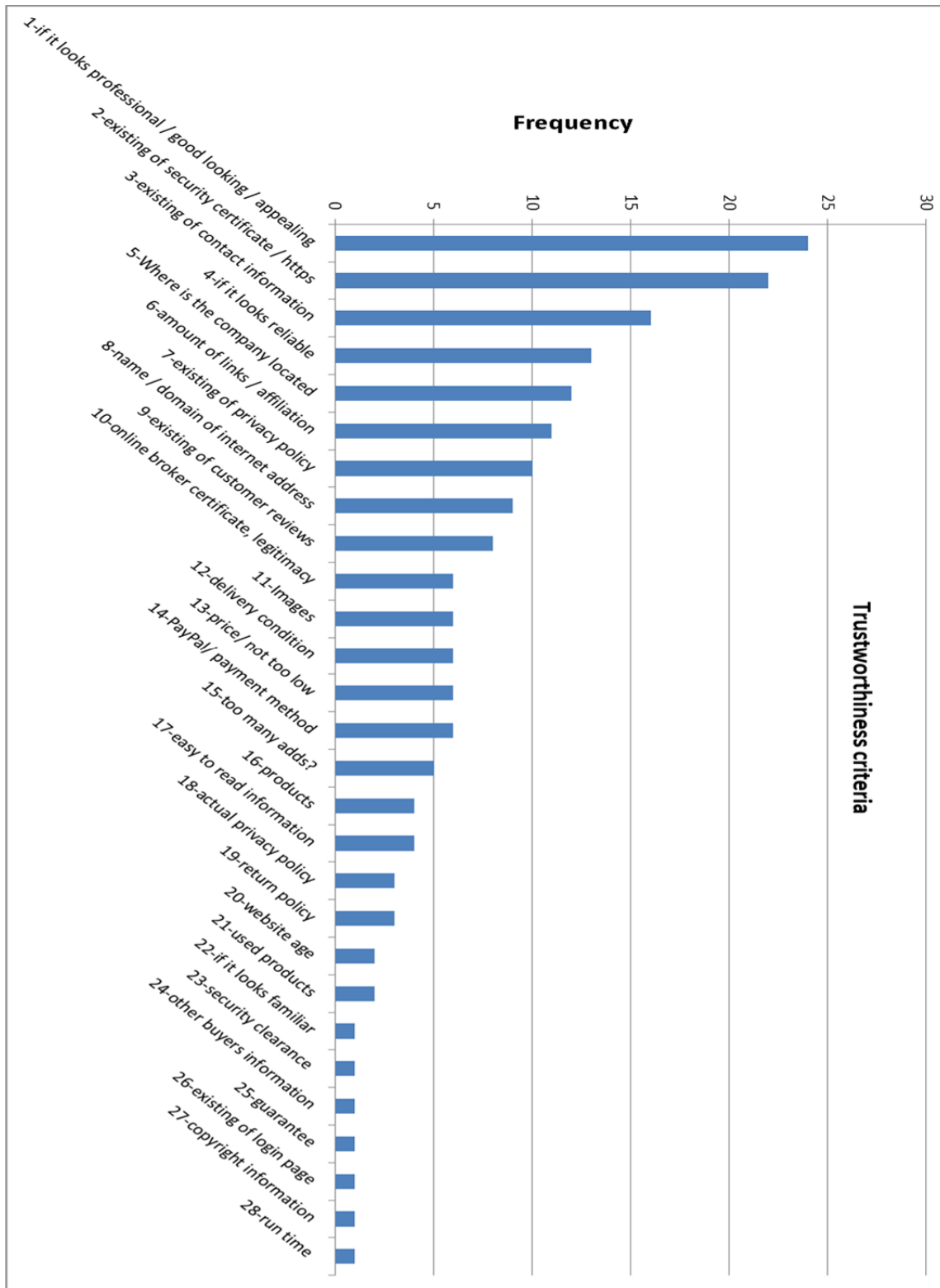


Figure 1 trustworthiness criteria

Figure 1 shows the cited items and corresponding frequencies⁶. Focusing on tangible and alterable items, below is the list in descending order of the number of citations.

1. 2-Existence of security certificate / https
2. 3-Existence of contact information
3. 5-Location of the company
4. 7-Existence of privacy policy
5. 9-Existence of customer reviews
6. 14-Payment method

Items 1, 2, 3, and 5 appeared in Grazioli’s study as well (Table 5). However, size and warranty (Survey question was about items within a website so News is omitted) are not found in the survey results. It is noteworthy that size does not play a major role in online bookstores because they are distribution channels. Also books are not usually subject to warranty. Thus, the return policy was altered instead. Also two items of “existence of privacy policy” and “payment method” were added to the list of manipulations. (Complete list of manipulations is found in Table 6)

Our survey items	Grazioli’s items
2-Existence of security certificate / https	Seal
Not replicated in our results	Warranty
Not applicable for initial trust	News clip
3-Existence of contact information / 5-Location of the company	Physical location

⁶ Interestingly, the most cited item is "looking professional and looking good" and "looking reliable" also is cited considerably; both of which are inherently intuitive. More than 50% of respondents cite either or both of these items.

Not replicated in our results	Size
9-Existence of customer reviews / lower rank in our study	Customer testimonials

Table 5 website manipulations, Grazioli et al. (2000) & our study results

Based on the survey and Grazioli et al.(2000) the following list of manipulation was created and applied to the basic material (bookworm website)

Item	Partial manipulation	Full manipulation
Payment method (shop with confidence box in all pages)	The same as original	Removed
Security (securePay logo at the bottom of all pages)	The same as original	Removed
Security (GEOTRUST) box	The same as original	Removed
Currency exchange condition	Australian Online Bookshop has no control over, and makes no warranty related to, the currency conversion used by the issuer of your credit card (same as original)	Australian Online Bookshop has no control over , and makes no warranty related to, the currency conversion used by the issuer of your credit card (some words were bolded)
Return policy	<ol style="list-style-type: none"> All returns must be sent prepaid - we do not accept C.O.D. deliveries. (same as original) Send returns to: Australian Online Bookshop 8 Devon Road, Bassendean, Western Australia, 6054, Australia. We will only refund shipping charges if we have sent the wrong item or if the item sent is defective. (same as original) 	<ol style="list-style-type: none"> All returns must be sent prepaid - we do not accept C.O.D. deliveries. (bolded) Removed. No actual mailing address was found in this version
Privacy policy	The same as original	Removed privacy and security pages. Neither was available nor mentioned anywhere

Contact information	The same as original. Physical address shows up in the bottom of all pages	Removed
Disclaimer tab	The same as original	Was bolded
FAQ page	The same as original	Removed
Contact tab in home page	The same as original	Renamed and changed to create account
Account tab in home page	Create account was added under this tab	The same as original
Advertisement box on the left hand in all pages	The text was changed to” GIFTS NOW AVAILABLE you can create an account in our website and receive a C\$20 gift”	The text was changed to” GIFTS NOW AVAILABLE you can create an account in our website and receive a C\$20 gift”
Customer testimonials via Facebook	Subjects could not navigate away	Subjects could not navigate away
Create account page (not in original) details are provided in (section 4.4.3)	Added to original	Added to original

Table 6 manipulations list

4.4.3 Create account page – actual risky situation

This part technically is one of the website manipulations, however due to its critical and differentiating role it is presented separately. As discussed in section 2.3.1 and 2.3.2, a major critique of EC and trust literature is the absence of risk while measuring trust and over reliance on self-reports. To counter these problems a simulated risky situation was created by means of website manipulation. An advertisement was placed in all pages of the website offering an opportunity to visitors to create an account on the website and receive a C\$20 gift by mail. Essentially, participants were offered a gamble of unknown probability (α) of winning a C\$20 gift or facing many problems of sharing sensitive personal information with unknown people (probability = $1 - \alpha$). The subjective amount of α is directly related to one’s judgement about the trustworthiness of the website as well as other factors such as personal disposition to trust that are controlled through randomization.

4.4.3.1 Survey on Sensitive personal information

Sensitive personal information has been investigated by a few studies (e.g. Hui et al.,(2007). Hui and colleagues find that phone number, e-mail address, SSN, credit card expiration date, and credit card number are considered to be sensitive personal information. To validate and update these items another survey was conducted with a separate group of 58 students at the University of Waterloo as respondents using the following question:

“Would you please assign a sensitivity number from 1-100 to any of the following pieces of information? The most sensitive piece of information would be the closest to 100 and the least would be the closest to 1. More sensitive information means you are more cautious about sharing that piece of information with others.”

Home address	Date of birth	Cell phone number	Home phone number
Driver’s license number	Social Insurance Number (SIN)	Credit card number	Email address
Full name	Health record	Political party membership	Tax return
Driving record			

The mode of assigned numbers to each piece of information was calculated. Then calculated modes of all pieces of information were sorted descendingly. The list is shown in Table 7

	Rank	Mode (of perceived % of importance) ⁷
SIN	1	100-
Credit Card No.	2	100-
Tax return	3	100-
Health record	4	90-100
Driver's license No.	5	80-90
Driving record	6	70-80
Cell phone No.	7	60-70
Home address	8	60-70
Home Phone No.	9	60-70 & 30-40 (Two modes)
Date of birth	10	10-20%
Full name	11	10-20%
Email address	12	10-20%
Political member	13	10-20%

Table 7 sensitive personal information ranking

Date of birth was not ranked as being sensitive (i.e., it had less than 50% importance) personal information in my survey. Moreover, it is hard to justify requiring date of birth in an online “create account” page (Appendix C). The following pieces of information were required for the first step of creating an account:

- Full name
- Phone
- Email address
- Shipping address
- Postal code
- Country

⁷ For example, The number of respondents who put the perceived % of importance of Driver’s license No. between 80%-90% was the biggest among those of the other ranges listed in Table 7. So the range of 80-90 was chosen as a mode for perceived % of importance of Drivers’ license No.

For the last item, a dropdown list of countries shows up including Canada. If another country is chosen an error message appears:

”Your IP address indicates that you have chosen a wrong country from the list please try again”.

As soon as Canada is chosen from the list the create account page expands to ask for a highly sensitive piece of information as the second step of creating the account. The participant is required to share one of the following:

- Driver’s Licence Number
- Health Card Number
- SIN Number

The justification is: ”A unique piece of personal information is needed to prevent multiple account creation by an individual.”

Please note that this last requirement is not visible until “Canada” is chosen. So, technically we required two categories on personal information with low and high sensitivity in a way that one might decide to create an account at the first step and avoid doing that in the second step. At the bottom of the page one can click on two buttons, “Create account” and “No thanks”. The former verifies the format of entered data to minimize the number of random inputs. If an error is detected in any of the fields, a message pops up (e.g.: email address in not valid). If no error is detected then full name and email address are saved. The latter saves all the entered data without verification. Hence, we can be more flexible in measuring and distinguishing between two possible levels of trust: (A) trust to share the first group of personal information items and (B) trust to share both first and second group of personal information items including highly sensitive items.

4.5 Thinking manipulation

Except for the control group who made the decision to trust with no decision making manipulation, the other two groups were manipulated to make the decision by utilizing different processes of thinking, one intuitive and the other deliberative. All the participants were required to fill out the concluding questionnaire after doing the assigned tasks. However, only the

deliberative group was informed in advance that they would have to justify their decision at the end of the study.

4.5.1 Control

Subjects in the control condition were randomly assigned to visit the FM or PM version of the website. They were required to navigate the websites considering the scenario described in section 0. Like the other two conditions, they were offered the option to share their personal information with the website to receive a C\$20 gift. They were not required or informed (in advance) to do any extra task or answer any question. They were asked to navigate the websites and decide if they want to share their personal information.

4.5.2 Deliberative

Subjects in the deliberative group were randomly assigned to visit the FM or PM version of the website. They were asked to perform the same task using the same scenario as the control group. However, the participants in the deliberative group were told in advance to be prepared to justify their decisions by providing logical and plausible reasons for their choice. Since people are more likely to use a deliberative process when they are accountable for their decisions (Lerner & Tetlock, 1999), subjects in this group were expected to use a deliberative process.

4.5.3 Intuitive

Subjects in intuitive group were randomly assigned to visit the FM or PM version of the website. Prior to performing the main task, subjects in the intuitive condition were required to perform a resource depletion task (see appendix AIII). According to Muraven & Baumeister, (2000) resources needed for self- regulation activities such as deliberative decision making resemble a muscle. People have a limited capacity when intensely performing these activities in a short period of time. A resource depletion task depletes the resources needed for deliberative decision making. Hence, resource depleted subjects were expected to use an intuitive process to decide which website to choose. After performing the resource depletion task, subjects did the same task as the control group.

4.6 Measurement

Trust was measured both by asking for self-reported behavior in the concluding questionnaire and by observing the actual behavior of sharing sensitive personal information. In the concluding questionnaire (Appendix D) all the participants were asked if they would buy the book from the website. This measure has been widely used in the literature (refer to 2.3.2). On the other hand, creating an account in the website is considered as trusting behavior or actual trust toward the website. Provision of sensitive information is used by No, (2007) and Premazzi et al., (2010) as the measure of trust in an online vendor.

When individuals are requested to share important personal information, they are expected to use every available resource and review all needed information for assessing the trustworthiness of the website and make a decision about sharing personal information. For the purpose of this study if a subject (doesn't) share his/her personal information with a website he/she (doesn't) actually trust the website.

5 Research analysis and results

In this section, the data obtained through the experiment is analyzed and the results of the study are summarized. The analysis examines the interaction among risk, thinking processes, and the level of trust evidenced by the participants' behavior. Since the dependent variable (trust) is dichotomous, a logistic regression was used as the analytical tool for the tests of hypotheses. Normal logistic regression assumes that individuals with success probability of 50% are the most sensitive ones to the changes in the independent variable. In other words, the probability distribution is symmetric around 50% of success probability. However, there is no reason to believe that the probability of trusting an unknown website against available information is symmetric around 50%. On the contrary, individuals with a 50% probability of success (merely chance) are not very sensitive to the variation in available information. The threshold subjective probability of trust is much more than chance. Hence, a skewed logistic regression was used to relax the constraint of symmetric probability distribution around 50%.

5.1 Descriptive statistics

A total of 245 students participated in the in-lab experiment. The demographic information of the participants is shown in Table 8.

	Characteristics	N (%)
Gender	Male	175 (71.42%)
	Female	70 (28.57%)
Age	< 21	133 (54.28%)
	21 – 30	104 (42.44%)
	>30	7 (2.85%)
School year	First	63 (25.71%)
	Second	76 (31.02%)
	Third	36 (14.69%)
	Fourth	33 (13.47%)
	More than fourth	7 (2.85%)
	Graduate	30 (12.24%)
Internet usage per day	X=< 2 (hours)	26 (10.61%)
	2 < X < 5	72 (29.38%)

	5 < X < 10	112 (45.71%)
	10 < X	35 (14.28%)
Online shopping attitude		
Average number of purchase per month	0	16 (6.53%)
	1	141 (57.55%)
	2	40 (16.32%)
	3	22 (8.98%)
	>3	26 (10.61%)
Average spent amount per purchase	No online purchase	17 (6.94%)
	Monthly amount =<5	15 (6.12%)
	5 < Monthly amount =<10	20 (8.16%)
	10 < =<30	73 (29.79%)
	>30	120 (48.98%)
Average satisfaction (out of 10)	7.395918	
Unknown website		
Previously purchased from	63 (25.71%)	
Happy with your purchase	52 (82.54%)	
Have previously seen the introduced website	11(4.49%)	The results were not changed after excluding these participants

Table 8 demographic information

More than two thirds of the participants (71.42%) were male. The mean age was approximately 21.41 years, and the age range was from 17 to 41 years. About 88 percent of the respondents were undergraduate students. Of the participants, about 93 percent reported that they have made monthly online purchases such as ordering goods and services. About 88 percent of respondents reported more than C\$5 online purchase per month. Their average satisfaction of online purchases was 7.4 (Likert scale 1-10). One quarter of the participants (N=63) had previously purchased from an unknown website with which 82 percent (N=52) reported they had had satisfactory experiences.

5.2 Manipulation checks

The collected click stream provides a reliable and rich source of data to observe participants' behavior. First, in regard to resource depletion task which was required from intuitive group, the click stream data shows that only two participants failed to do the task and neither of them

created account. No significant change was observed after removing corresponding data. According to decision making theories the intuitive group is expected to spend less time making a decision about trust than the deliberative group. The participants' navigation time was calculated (in seconds). A one-tail Z-test shows the intuitive group had a marginally significant lower mean navigation time compared with the deliberative group.

z-Test: Two Samples for Means

	<i>I duration</i>	<i>D duration</i>
Mean	224.3547468	253.7690556
Known Variance	9183.579	17021.68
Observations in the condition ⁸	75	72
Hypothesized Mean Difference	0	
<i>z</i>	1.552730756	
$P(Z_{\alpha} \leq z)$ one-tail	0.060243736	

Table 9 Z-test Intuitive and deliberative groups mean of navigation time

An F-test for heterogeneity of variances in the intuitive vs. deliberative groups indicates a significant) difference between the variances of two samples. ($F(71, 74) = 1.85, p < .005$)

⁸ In Table 9 and 10, "Observations in the condition" refers to the number of allocated participants in each condition (e.g. Intuitive 75/84 and Deliberative 72/76) for which clickstream data was successfully captured. Please refer also to Table 12.

F-Test: Two Samples for variances

	<i>I duration</i>	<i>D duration</i>
Known Variance	9183.579	17021.68
Observations in the condition ⁹	75	72
Hypothesized variance Difference	0	
F	1.853490888	
P(F=>F _{α/2})	0.004604	

Table 10 F-test Intuitive and deliberative groups variance of navigation time

Since assignment to the two groups was random, these results provide evidence of a successful manipulation of the decision making approach between deliberative and intuitive groups in regard to navigation behavior while visiting the website. An F-test and a Z-test were also conducted to compare the control group with each of the two treatment groups showing a marginally significant difference between the control and deliberative group but no difference between intuitive and control groups.

F-Test: Two Samples for variances z-Test: Two Samples for Means

Control vs. Deliberative	P(F<=f) one-tail	0.066693868	P(Z<=z) one-tail	0.331397592
Control vs. Intuitive	P(F<=f) one-tail	0.136080289	P(Z<=z) one-tail	0.111406862

Table 11 control vs. treatment groups mean and variance of navigation time

5.3 Self-reported trusting behavior

Participants were introduced to a hypothetical situation (Appendix AI, AII, AIII) in which they needed to purchase a book for a course. However, they could not find the book anywhere but in

⁹ Ibid

an Australian online bookstore which offers the book. They were required to navigate the website and let the experimenter know if they would purchase the book from the website.

Four of the 245 participants failed to complete the concluding questionnaire, thus this analysis is based on 241 responses. A total of 41 percent (99/241) of participants self-reported that they would buy the book from the website. Table 12 shows the number of participants whose self-reports indicate that they would trust the unknown website and buy the book from it.

Website \ Thinking	Intuitive (No. of trust/ obs.)	Deliberative (No. of trust/ obs.)	Control (No. of trust/ obs.)	Total
Partial Manipulation (PM)	23/43=53.5% PMI	20/40=50% PMD	14/39=35.8% PMC	57/122 = 46.7%
Full Manipulation (FM)	11/41=26.8% FMI	15/36=41.6% FMD	16/42=38% FMC	42/119=35.3%
Total	34/84=40.4%	35/76=46%	30/81=37%	99/241=41%

Table 12 self-reported trust results

As stated in section 2.3.1, risk can significantly affect trusting behaviour. In a no-risk situation there is not enough motivation for people to utilize available resources for decision making about trust. To examine if there is any significant difference between trust levels in the two website manipulations when there is no risk involved, a skewed logistic regression was conducted on self-report data from the concluding questionnaire (Appendix D). The results are shown in Table 13. There is no significant difference ($P=0.078$) across the two website manipulations in regard to probability of trust

Dummy independent variable	β	SE	P value
Full / partial manipulation	-.364	.207	0.078
Intuitive thinking	-10.427	4.384	0.017
Deliberative thinking	-10.271	4.536	0.024
Control (no thinking manipulation)	-10.551	4.589	0.021

Table 13 self-report trust logistic regression (No risk)

5.4 Actual behavior (risky situation)

From 245 participants, 239 account creations were collected. Six participants were dropped because the setup procedure was not properly performed by the experimenter (4 participants) or the participants did not click on any designated buttons in the create account page (2 participants).

In total only 14 (%5.8) participants across the conditions actually shared all the required information to create account. This means they shared one of the following highly sensitive pieces of information: SIN, Heath card number, driver’s license number. An additional 37 participants shared some less sensitive information such as their cell phone number and home address (section 4.4.3). Sharing this information was considered as showing a level of trust in the website (Table 7 sensitive personal information ranking). The number of actual trust in each condition is shown in Table 14.

Decision making Website	Intuitive (No. of trust/ obs.)	Deliberative (No. of trust/ obs.)	Null – control (No. of trust/ obs.)	Total
Partial Manipulation PMI	9/44=20.45%	8/39=20.512%	11/39=28.21%	28/122=22.95%
Full Manipulation FMI	8/41=19.51%	5/36=13.89%	10/40=25.00%	23/117=19.65%
Total	17/85=20.00%	13/75=17.33%	21/79=26.58%	51/239=21.34%

Table 14 Actual trusting behavior

Skewed logistic regression was used to assess whether website manipulation or any decision making processes have a significant effect on trust. The results in Table 15 show that website manipulation has no significant effect on trust. In other words, in risky situation participants didn’t really care about deliberative information which is presented on the website. So H1 is supported.

It is very unlikely that a website presents the same level of trustworthiness both from intuitive and deliberative viewpoints. On the other hand, we have already verified that the thinking manipulations were successful (section 5.2). Hence, it is not highly surprising that trusting

probabilities in various decision making conditions are significantly different. In fact this affirms the manipulation check results in section 5.2.

A quick look at Table 14 reveals that the control group has the highest percentage of trust among all the three decision-making groups. The question is which of the other two deviates less from control group. Looking at the coefficients of the dummy variables in Table 15, the intuitive condition has a smaller difference from the control group than the deliberative condition¹⁰. So participants in the intuitive thinking condition are more similar to those of control condition in regard to trusting behaviour and H1 is supported again.

Dummy independent variable	β	SE	P value
Full / partial manipulation	.219	.315	.487
Intuitive thinking	-5.945	.563	<0.0001
Deliberative thinking	-6.137	.406	<0.0001
Control (no thinking manipulation)	-5.584	.382	<0.0001
Constant	4.677	.600	<0.0001

Table 15 actual trust logistic regression (risky situation)

Evidence of the difference in trusting behaviour in self-report (no risk) and risky decision-making modes was explored by comparing trust results between the two data sets. Another skewed logistic regression was used to examine the difference between probability of trust in the self-report condition and that in the actual behaviour condition involving account creations and provision of personal information. Supporting H2, the results in Table 16 show a significantly ($\beta=-0.944$, $P=0.000$) higher probability of trust in the no-risk condition than in the risky condition. ($\beta= -0.944$) means the probability of trust reduces when moving from self-report to

¹⁰In logistic regression β_i (coefficient of x_i) is defined as the impact of x_i on the probability of success (trust = 1). I am interested in examining which of the two processes of thinking generates the closest result (closest success probability) to the control group. Considering that for any single observation only one of the three dummy variables is equal to 1, closer β_i s produce closer success probabilities.

risky situation. In addition, the absolute value of β is bigger than that of the constant which shows a strong impact of dummy variable (risk / no-risk) on dependent variable (trust).

Dummy independent variable	β	SE	P value
Risk / self-report	-.944	.184	<0.0001
Constant ¹¹	-.361	?	?

Table 16 risk and no risk logistic regression

5.5 Previous experience and trust in risky situation

In the concluding questionnaire (Appendix D) participants were asked if they have purchased from an unknown website and if yes, were they happy with the purchase. Across conditions there were 63 participants with past experience of purchasing from an unknown website. Of these, 11 reported that they were not happy with their experience. Among the remaining 52 participants 10 actually trusted the website and created an account. Collected data is reported in Table 17.

	Number	Actual trust	%
No past experience	176	39	22.16
Successful past experience	52	10	19.23
Unsuccessful past experience	11	2	18.8
Total	239	51	21.34

Table 17 actual behaviour and past experience

The number of people with unsuccessful previous experience is not adequate for a powerful test. A skewed logistic regression was conducted to test if there is any significant difference between the group with successful previous experience and the group with no previous experience with an unknown website in terms of actual trusting behavior. The results indicate that successful past

¹¹ The SE and P value of the constant was not included in STATA results. They don't play a critical role in the analysis though.

experience with an unknown website is not a strong predictor of trust in another unknown website. (Table 18)

Dummy independent variable	β	SE	P value
Successful past experience	-.177	.500	0.721
Constant	-1.256	17.234	0.942

Table 18 successful past experience logistic regression

6 Discussion

Many studies have been done to find what factors influence initial trust in EC. However, none of them has actually tested the theory of two reasoning systems in the context of trust in EC. Also, almost all of them have failed to observe participants' behavior in risky decision situations, focusing instead on self-reported behavior which is virtually riskless. By conducting an in-lab experiment and simulating a risky situation, this study investigated whether individuals' decision making about initial trust is deliberative or intuitive, how risk affects the decision making process and trusting behavior and, whether a previous successful transaction with an unknown website increases the probability of trust in another unknown website.

6.1 Summary of findings

Analyses of 241 self-report decisions and 239 risky situation decisions offer several interesting findings. Table 19 summarizes the study's findings.

Hypothesis	Self-reported	Risky situation
H1: When facing an unknown website, people tend to rely on their intuitive decision making process in deciding whether to trust or distrust the online vendor.	----	Supported
H2: There is a significant difference between self-reported and actual behavior in regard to initial trust.	Supported	
H3: There is a significant difference in terms of trusting behavior between those who have never purchased from an unknown website and those who have previous satisfactory experiences with an unknown website	----	Not Supported

Table 19 summary of study findings

6.1.1 Hypothesis 1

Looking back to Table 15 actual trust logistic regression (risky situation) reveals the decision making manipulation was quite effective in the risky situation where the β s of the dummy variables in Table 15 are significantly different from zero. In other words, probability of trust is significantly different among decision making conditions. Considering that the trustworthiness of a website, most probably, is not the same for intuitive and deliberative conditions, the significant difference between decision making conditions actually confirms the success of the thinking manipulations. Interestingly, the coefficient of the website manipulation dummy variable is not significant ($\beta=0.219$, $P=0.487$) suggesting that in the risky condition website manipulation had no significant effect on probability of trust, thereby indicating that a deliberative process was not used.

A closer look at the β s in Table 15 indicates more reliance on an intuitive process than a deliberative one in producing a final decision. $\beta_{\text{intuitive}}$ is closer to β_{control} than $\beta_{\text{deliberative}}$. It means that subjects in the intuitive condition have a probability of trusting more similar to that of the subjects in the control condition than subjects in the deliberative condition. This implies that in risky situations intuition has a more important role than deliberation, which is counter to prevailing thought.

The coefficient of website manipulation in Table 13 is marginally significant ($\beta=-0.364$, $P=0.078$). According to experiment design (more discussion in section 6.3) there might be more than one speculation for this fact and none of them is conclusive.

First, the participants were supposed to declare their hypothetical intention to purchase in concluding questionnaire at the end of the experiment when they had already navigated the website to make the decision about creating the account. Hence they had had enough time to deliberately evaluate the website and find out about the manipulations at the time of revealing their decisions. This theory does not exactly explain why the coefficient of website manipulation is not significant in risky situation while both decision were taken at the same time (e.g. when filling out the concluding questionnaire). Furthermore, if some level of interaction exists between the two tasks (e.g. hypothetical purchase and create account) why there is a significant difference in level of trust between the two situations?

Second, when people are asked “would you purchase from the website?” they understand it as “how do you evaluate the website?” So, all the participants in all the conditions were pushed to rely more on deliberation in no risk situation. Then they memorized their decision outcome and went through the next section (e.g. create account). When participants encounter the “create account” page which involves sharing sensitive personal information and the related risk that comes with it, their approach toward the website switches from that of an analyst to a customer deciding on trusting an EC site in a risky situation. The question of “how do you evaluate the website?” disappears and the bias toward deliberation has gone. As a result they can not detect the inferior website in risky situation. This theory has its own drawbacks as well. It predicts the lowest level of trust to be in fully manipulated website within deliberative condition as it is the case in risky situation (Table 14). However, the exact opposite was observed. In fact, the highest level of trust among all decision making conditions happened in deliberative group.

Another noteworthy point in the results (Table 14, risky situation) is the highest (Table 15 biggest value of β , $P=0.000$) level of trust in control group across all the others. In a very recent study Unger & Stahlberg, (2011) show that people become risk averse under ego-depletion (e.g. when facing real risk). This effect might have lowered the level of trust among the participants in intuitive group. According to their findings, coefficients of control and intuitive conditions could have been even closer showing more reliance on Intuition.

6.1.2 Hypothesis 2

As discussed in section 2.3.1 and 2.3.2 reliance on self-reports and the absence of risk in the decision setting are shortcomings of the trust and EC research. One of the goals of this study was to validate and compare the results of self-report / no-risk condition with a risky situation in terms of trusting behavior. In section (6.1.1) it was shown that the underlying decision making processes for these two conditions are not the same. In this section, based on the results in Table 16 risk and no risk logistic regression the self-reported and observed trusting behavior are compared. As indicated in Table 16 the two conditions are significantly different ($\beta = -0.944$, $P=0.000$) in terms of level of trust which provides strong support for H2. The results in sections 6.1.1 and 6.1.2 question the existing constructs of trust in EC, which have been validated based on self-report (no-risk) data, in two ways. First, since the underlying decision

process in a risky situation (intuition) is fundamentally different from the decision process in a no-risk situation (deliberation), the hypothesized trust components (system trust, situation based trust, etc.) and their interrelations need to be examined again under risk. Second, those components that were shown to have an important role in a trusting decision might have gained their significance due to an unrealistically inflated rate of trust in the no-risk condition.

6.1.3 Hypothesis 3

An example of trust constructs which might not be valid in a risky situation is situational decision making to trust which is introduced by McKnight and Chervany (1996). The construct is defined as: “The extent to which one intends to depend on a non-specific other party in a given situation” (P. 38).” In an EC context this would be the extent to which one intends to depend on a non-specific (unknown) e-vendor in an online purchasing situation. On the other hand the availability heuristic (Tversky & Kahneman, 1974) in the same context would predict that those who have had a previous successful experience with an unknown website will assign higher subjective probability of trustworthiness to another unknown website. People with previous success are expected to show a higher level of trust in an unknown website than those with no previous experience with an unknown e-vendor (H3). However, the results in Table 18 do not show a significant difference between these two groups ($\beta = -.177$, $P = 0.721$) and H3 is not supported.

6.2 Implications

The findings of this study have several practical implementations for e-vendors and online start-ups who are seeking to expand their market quickly and efficiently. Current literature suggests that stating a privacy policy, using third party seals and other explicit clues about trustworthiness improve the level of trust among first time visitors (Palmer et al., (2000); Spiekermann et al., (2001)). However, according to the findings of this study those pieces of information do not play a crucial role in building initial trust. Instead, the results of this study show that online customers rely on intuition and gut feeling more than on deliberative and analytical thinking. Thus, an online vendor might want to pay more attention to implicit clues which actually trigger those underlying processes. For example, reliable intuitive results are actually based on similar previous experiences with trustworthy or un-trustworthy websites. A mental model of a qualified

website is built according to the lessons learned from those experiences. Then a newly visited unknown website is compared with the model to find out the extent to which the website meets the modeled criteria of trustworthiness. Hence, one way of developing a trustworthy website might be to use benchmarking. Closely examining and probing a few well-known and successful online vendors in the same industry might be a good start. The best practices in navigation design, information design, and aesthetic design could be studied and emulated.

The results also show that observing online users' behavior is much more effective than asking for feedback and comments. The feedbacks and comments are limited to plausible and logical points about the website which were shown to be noncritical. Click stream analysis in which users' navigation patterns are revealed could be the most valuable source of feedback.

6.3 Limitations and future research

There are several limitations of this study. First, the findings of this study are specific to a particular customer group and thus could limit the generalizability of the findings. The participants of the experiment were all university students from Canada. Therefore, their perceived trustworthiness of a website might not represent customers in other ages, occupations and countries. In addition, compared to others, students usually have more computer skill and more online transaction experiences such as ordering goods, subscribing to services or registering on websites for online services. Therefore, students may not be completely representative of the entire online customer population. A possible avenue for future research might be to look at more diverse participants to ensure the generalizability of the results.

Second, in regard to experiment design some changes might be considered for future replications. (A) Another questionnaire should be added right after the first task (hypothetical purchase) to collect the hypothetical decisions of participants before they are involved in further tasks. In this way the researcher could better measure hypothetical decision results. (B) A benefit of the previous change is separating the click stream before and after the first task. This creates two sets of click streams each of which is completely dedicated to either no risk or risky conditions. (C) To impair the deliberative decision making, other methods such as time pressure illusion or concurrent task might be utilized to rule out competing explanations. (D) The results don't show a significant interaction effect between decision making and website manipulations

which could have been a perfect support for the first hypothesis. More effective inducement for deliberative thinking might alleviate this issue. (E) Due to technical limitations participants could not be stopped from going back and forth between the concluding questionnaire and the website. This might provide the opportunity to collect deliberative reasons in favor of an intuitive decision which was made beforehand. Better control over navigation would alleviate this problem.

Third, the findings are specific to the particular e-commerce site (i.e., a bookstore) and the particular task (i.e. creating an account). Although the task of creating an account to receive a free gift is similar to the ordering process in real e-commerce sites, it is less risky than the typical online transaction because it does not involve money exchange and revealing financial information. As a result, participants' behavior on other kinds of websites and real purchases might be different.

Fourth, findings of the study do not specify what pieces of information were actually used by participants to make decision about trusting the website. Several explicit pieces of information were removed with no significant effect on trust level revealing the neutral role of those items in trusting decision. An extension of this research would be to examine the pages that were visited most frequently and correlate them with trust or distrust. In addition to such a static observation of behavior (i.e. most visited webpages) it would be interesting to examine the dynamic navigation (i.e. navigation path of people who trust / distrust the website) and correlate the path with the trust decision.

Fifth, "situational decision making to trust" was not confirmed in the risky situation. Since the results show differences in both utilized decision process and level of trust between no-risk and risky situation, an important question for future research is whether other existing trust constructs remain valid under risk and uncertainty.

Sixth, another possibility for future research might be applying recent findings in decision making theory to empower deliberative judgment against intuitive one (Simmons & Nelson, (2006); Alter et al., (2007); Song & Schwarz, (2009)). Some methods could be investigated to encourage online customers to override intuitive judgment and validate the online vendor deliberately.

Seventh, this new approach might apply to different cultures as well. The target markets around the world have various cultural paradigms. Studies show that people in different cultures have various preferences toward website design (D. Cyr et al., (2005); Simon, (2001); D. Cyr & Trevor-Smith, (2004)). Cultural differences might lead to different required clues for building trust. Some information might be crucial in one market and worthless in another.

7 Conclusion

This study has addressed three research issues: (1) which decision making process (intuitive vs. deliberative) is relied on when deciding whether to trust an unknown website? (2) how the presence of risk changes the decision making process and actual trusting behavior? (3) whether the existing trust construct (i.e. situational decision making to trust), which has been validated by self-report / no-risk data, is valid in risky situations.

Based on the in-lab experiment involving 241 participants, this study found that individuals, in a near real life situation where risk is present, are more likely to rely on their intuition when building trust in an unknown website. On the other hand, it was shown that in self-report / no-risk situation both decision making process and its result are significantly altered. Individuals in this situation deliberate more and also show more levels of trust. Finally, the construct of “situational decision making to trust” was shown not to be valid when risk is involved.

Despite the limitations mentioned earlier, in general, the results of this study broaden our understanding of initial trust in EC and its relationship with risk. The findings show that intuition (and not deliberation) is the dominant decision making process when trusting an unknown website in a risky situation. The results are significantly different when risk is not involved in terms of the level of trust. In the no risk / self-report condition, the level of trust is significantly higher than in the risky situation. In addition, one of the well-established constructs, “situational decision making to trust”, was not confirmed by the collected data in the risky situation. The results are not consistent with extant EC and trust literature and clarify the crucial role of risk in decision making to trust. Hence, the studies that have measured and validated trust and related constructs without using an actual risky situation might need to be reconsidered.

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Appendices

Appendix AI Instructions for Control Group

Instructions – group code: PMC, FMC

Thanks for your participation in my study of online customers' attitude and preferences about Electronic Commerce websites.

SECTION 1 (preliminary questionnaire)

Instructions:

- a. Please click on “preliminary questionnaire” on the top left of your screen (in the bookmark bar).
- b. Fill out the questionnaire. (You can find your group code on the top of the instruction page)
- c. Click on submit when you are done with the questionnaire.

SECTION 2 (background)

During my research on Electronic Commerce I came upon an Australian online bookstore. It seems that it is trying to expand its market to North America. I'm interested in predicting their success in the new target market based on your evaluation of the website. To put yourself in a customer's shoes, assume that you are required to have a text book for one of your courses. The book store at the university has run out of stock, you could not find the book in any of the well-known on-line book stores, and a search has led you to this unfamiliar website (address below), which provides the book. **The researcher is not affiliated with the website and has not had any past experience with it.**

SECTION 3 (EXPLORATION OF SITES)

Starting Instructions:

1. Book name: Digital Marketing: Strategies for Online Success by Parkin, Godfrey

Note: For purposes of the study, your navigation is limited to the website which is introduced by the researcher.

2. Please take a look at the introduced website and let us know, in concluding questionnaire, if you would buy the book from it. It's not important how fast you finish. Take your time and make the best decision.
3. Coincidentally, a promotion is going on in the website (GIFTS NOW AVAILABLE, gift box at the left side of the screen). If you trust the website and feel comfortable, then create an account on it. If you create an account, a gift will be sent to your address by the website marketing team. After you enter required information click on "create account" and section 3 will be terminated.
4. If you decide not to create an account on the website and are done with the task in item 3, please click on "No thanks" in "create account" page and section 3 will be terminated.
5. Please click on the link on the screen and you will proceed to section 4

SECTION 4 concluding questionnaire

Instructions:

- 1- Please fill out the questionnaire.
- 2- Click on submit.
- 3- Raise your hand and inform the researcher that you are done with the study.

Appendix AII Instructions for Deliberative Group

Instructions – group code: **PMD, FMD**

Thanks for your participation in my study of online customers' attitude and preferences about Electronic Commerce websites.

SECTION 1 (preliminary questionnaire)

Instructions:

- a. Please click on “preliminary questionnaire” on the top left of your screen (in the bookmark bar).
- b. Fill out the questionnaire. (You can find your group code on the top of the instruction page)
- c. Click on submit when you are done with the questionnaire.

SECTION 2 (background)

During my research on Electronic Commerce I came upon an Australian online bookstore. It seems that it is trying to expand its market to North America. I'm interested in predicting their success in the new target market based on your evaluation of the website. To put yourself in a customer's shoes, assume that you are required to have a text book for one of your courses. The book store at the university has run out of stock, you could not find the book in any of the well-known on-line book stores, and a search has led you to this unfamiliar website (address below), which provides the book. **The researcher is not affiliated with the website and has not had any past experience with it.**

SECTION 3 (EXPLORATION OF SITES)

Starting Instructions:

1. Book name: Digital Marketing: Strategies for Online Success by Parkin, Godfrey

Note: For purposes of the study, your navigation is limited to the website which is introduced by the researcher.

2. Please take a look at the introduced website and let us know, in concluding questionnaire, if you would buy the book from it. **Please note that you will be asked about the reasoning for your choice.** It's not important how fast you finish. Take your time and make the best decision.
3. Coincidentally, a promotion is going on in the website (GIFTS NOW AVAILABLE, gift box at the left side of the screen). If you trust the website and feel comfortable, then create an account on it. If you create an account, a gift will be sent to your address by the website marketing team. After you enter required information click on "create account" and section 3 will be terminated.
4. If you decide not to create an account on the website and are done with the task in item 3, please click on "No thanks" in "create account" page and section 3 will be terminated.
5. Please click on the link on the screen and you will proceed to section 4

SECTION 4 concluding questionnaire

Instructions:

- 1- Please fill out the questionnaire.
- 2- Click on submit.
- 3- Raise your hand and inform the researcher that you are done with the study.

Appendix AIII Instructions for Intuitive Group

Instructions – group code: PMI

Thanks for your participation in my study of online customers' attitude and preferences about Electronic Commerce websites.

The survey consists of two unrelated tasks:

- 1- Color and name matching
- 2- Web navigation

Task 1: Color and name matching:

Please click on “Task 1” on top left of your screen (bookmark bar)

You can see six color names in the bottom of the screen. In the middle of screen, you will be shown color names with wrong font color e.g, “RED” with green font. You are supposed to click on word “GREEN” at the bottom of the screen. Do your best for higher score.

Task 2:

SECTION 1 (preliminary questionnaire)

Instructions:

- a. Please click on “preliminary questionnaire” on the top left of your screen (in the bookmark bar).
- b. Fill out the questionnaire. (You can find your group code on the top of the instruction page)
- c. Click on submit when you are done with the questionnaire.

SECTION 2 (background)

During my research on Electronic Commerce I came upon an Australian online bookstore. It seems that it is trying to expand its market to North America. I'm interested in predicting their success in the new target market based on your evaluation of the website. To put yourself in a customer's shoes, assume that you are required to have a text book for one of your courses. The book store at the university has run out of stock, you could not find the book in any of the well-known on-line book stores, and a search has led you to this unfamiliar website (address below),

which provides the book. **The researcher is not affiliated with the website and has not had any past experience with it.**

SECTION 3 (EXPLORATION OF SITES)

Starting Instructions:

1. Book name: Digital Marketing: Strategies for Online Success by Parkin, Godfrey

Note: For purposes of the study, your navigation is limited to the website which is introduced by the researcher.

2. Please take a look at the introduced website and let us know, in concluding questionnaire, if you would buy the book from it. It's not important how fast you finish. Take your time and make the best decision.
3. Coincidentally, a promotion is going on in the website (GIFTS NOW AVAILABLE, gift box at the left side of the screen). If you trust the website and feel comfortable, then create an account on it. If you create an account, a gift will be sent to your address by the website marketing team. After you enter required information click on "create account" and section 3 will be terminated.
4. If you decide not to create an account on the website and are done with the task in item 3, please click on "No thanks" in "create account" page and section 3 will be terminated.
5. Please click on the link on the screen and you will proceed to section 4

SECTION 4 concluding questionnaire


Instructions:

- 1- Please fill out the questionnaire.
- 2- Click on submit.
- 3- Raise your hand and inform the researcher that you are done with the study.

Appendix B –Preliminary questionnaire

1. Student Number?
2. Gender?
3. Age?
4. What year are you in?
5. What is your major?
6. Average time spent using the internet per day?(in hours)
7. Average number of on-line purchases per month?
8. Estimated average amount spent per on-line purchase? (in dollars)
9. To what extent are you satisfied with the online purchases that you have made? (likert 10 points)

Appendix C – Create account page



Search for Books
You can search on Author, Title or ISBN

OpenSearch is also supported. [Install](#)


Home Shop New Releases Account About Us Company Finding Books Create an Account Search

Shop Categories

- Australian Fiction
- Australian Subjects
- Australian Children's Books
- Audio Books
- Children's Books
- Health
- Other Fiction
- Other Subjects

GIFTS NOW AVAILABLE

You can create an account in our website and receive a \$20 gift.



Subscribe to Newsletter

First Name

Email

Account / Checkout

New Customers

Username

Password

Confirm Password

Full Name

Phone

Will be given to shipping company

Email

Shipment information will be sent to this address

Shipping Address

Postal Code

Country

Choose ID


- Choose from the list
- Driver's License Number
- Health Card Number
- SIN Number

Returning Customers

Username/Email

Password

[>Forgotten your username or password?](#)



No items in your shopping cart.

New Customers:
Please enter a username and password of your choice and your email address, then click 'create user'. You will then be asked to complete your order.

Appendix D - concluding questionnaire

1. Student Number?
2. Have you seen the introduced bookstore before this survey?
3. Have you previously bought or sold from/to the bookstore?
4. Have you ever purchased from an unknown website (with no prior information from any source)? (Y/N)
 - 4.1. If Yes, were you happy with your purchase?
5. I would purchase from this website Y/N Why? (Please explain in less than 100 words)...
6. Did you create an account on the website? Y/N
 - 6.1. If No, do you have any specific reason(s)? (explain in less than 100 words)
 - 6.2. If Yes, do you have any specific reason(s)? (explain in less than 100 words)
7. Do you have any suggestions to improve this website? (please explain in less than 150 words)