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## E-commerce: the role of familiarity and trust

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### Abstract

Familiarity is a precondition for trust, claims Luhmann [28: Luhmann N. Trust and power. Chichester, UK: Wiley, 1979 (translation from German)], and trust is a prerequisite of social behavior, especially regarding important decisions. This study examines this intriguing idea in the context of the E-commerce involved in inquiring about and purchasing books on the Internet. Survey data from 217 potential users support and extend this hypothesis. The data show that both familiarity with an Internet vendor and its processes and trust in the vendor influenced the respondents' intentions to inquire about books, and their intentions to purchase them. Additionally, the data show that while familiarity indeed builds trust, it is primarily people's disposition to trust that affected their trust in the vendor. Implications for research and practice are discussed. © 2000 Elsevier Science Ltd. All rights reserved.

*Keywords:* E-commerce; Trust; Familiarity; Internet; Motivation

### 1. Introduction

E-commerce is growing at an exponential rate. The credit card company Visa, for example, reports that its clients' Internet purchases reached the \$13 billion mark this year, accounting for approximately 1% of its total charge activity. This figure is expected to reach the \$100 billion mark and 11% of its total transactions by the year 2003 and is expected to be one of the major activities of credit card companies in the future [41]. This forecast is anything but farfetched, given that only as far back as 1996 Internet commerce was only between \$500 and \$600 million [3]. Among the most popular items of E-commerce, according to the Better Business Bureau are books, CDs, and subscriptions to

magazines [45]. Amazon.com has been a major player in this market since its foundation in 1995. Amazon.com claims to sell millions of different book titles, CDs, and DVDs to more than 6.2 million customers in over 160 countries.

A major factor influencing the successful proliferation of E-commerce, identified by major corporations, the Federal Administration and the Better Business Bureau, is people's trust in Internet vendors (i.e. in companies that sell their goods through the World Wide Web interface). In the words of the Better Business Bureau, there is a necessity of "promoting trust and confidence on the Internet" [45]. In fact, the Better Business Bureau claims that a major reason people do not buy online is their concern regarding online payments security, reliability of companies, and the lack of a privacy policy.

On the face of it, there is good reason to believe, as the Better Business Bureau claims, that trust should be

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a major issue in E-commerce. Trust, in general, is an important factor in many social and economic interactions involving uncertainty and dependency [20,25,37] — especially those concerning important decisions [28] and new technology [10]. Trust has also been shown to be an important aspect of Web-surfers' decision to download software from the Web [13]. However, just how important trust is in the context of E-commerce, and whether its relative importance varies with different tasks, remain open questions. Answering these is the first objective of this study.

If trust is indeed an important aspect of E-commerce, then understanding antecedents of this trust should be a prime concern of E-commerce website owners. Research on trust in other domains, however, has focused on trust that is typically built up in a gradual manner through ongoing interactions (e.g. [4,19,20,25,35]). Through these ongoing interactions, people acquire beliefs concerning the ability, integrity and intentions of the trusted party, which, in turn, affect their trust in that party [16,30,31,36]. This type of trust-building prescription, however, requires extensive ongoing two-way interactions to build trust, a prerequisite typically missing from interactions on the Web. Accordingly, the second objective of this study is to examine whether another type of trust antecedent — one not based on extensive previous two-way interactions — is applicable to the unique Web environment. One such antecedent, suggested in Luhmann's [28] theory of *Trust and Power*, is familiarity. Familiarity, according to this theory, is a prerequisite of trust because it creates a framework and understanding of the environment and the trusted party within which the expectations of trust can be explicated.

In this study, the effects of respondents' familiarity with an E-commerce vendor and its processes as well as the respondents' trust in the vendor are examined in the context of inquiring about and buying books on the Internet in one of the most popular book-selling sites on the Internet, namely Amazon.com. The proposed model examines how this familiarity affects trust in the vendor, and how both familiarity and trust affect intentions to inquire about books and intentions to purchase books from Amazon.com. The research model further compares the effects of familiarity on trust with those of another trust antecedent that is not dependent upon extensive interactions, namely people's overall socialized trusting disposition [31,38]. The data show that familiarity — even in the limited context of interacting through a PC and not directly with other people — influenced trust, albeit not as strongly as the respondents' disposition to trust. Both familiarity and trust proved major factors influencing book purchase intentions and, to a lesser degree, book inquiry intentions. As suggested by Luhmann [28], the effect of trust was stronger on important decisions (in this case,

purchasing a book using a credit card) than on less important ones (just inquiring about a book).

The remainder of the paper is organized in five sections. The first section reviews the concepts of trust and familiarity, according to Luhmann [28]. Next, a set of research hypotheses is presented and the research method used to test the proposed model is discussed. Finally, the analysis and results of this study are presented, followed by a discussion of its implications.

## 2. Literature review

### 2.1. The importance of trust

Interacting with other individuals, who are inevitably independent and not fully predictable, combined with an inborn need to understand the actions of others, presents people with an overwhelming complexity. The impossibility of controlling the actions of others or even just fully understanding their motivation makes this complexity so staggering that it can actually inhibit intentions to perform many behaviors. Since people need, nonetheless, to interact on a continuous basis under such unpredictable circumstances, they apply a variety of methods for reducing this crushing complexity. Without these complexity reduction methods people could not interact with others on more than a onetime and uncommitted manner, and probably would not wish to, either. Trust is one of the most effective of these complexity reduction methods (but not the only one), and is thus a focal aspect in many interactions with other people [28]. This is especially the case in interactions that are not fully governed by rules and regulations [10], themselves complexity reduction methods.

Trust, in a broad sense, is the confidence a person has in his or her favorable expectations of what other people will do, based, in many cases, on previous interactions. Although another party's (person or persons) previous behavior cannot guaranty that that party will behave as one expects, previous interactions in which that party behaved as expected increase trust, that is the belief that the other will behave as one anticipates. Through this trust — i.e. by discarding many of their possible, yet unfavorable, behaviors — people reduce the complexity of understanding others into manageably comprehensible units, making an otherwise unjustifiable *belief about the future* subjectively justifiable [26,28]. Without trusting others in this manner, people would be confronted with the incomprehensible complexity of considering every possible eventuality of every person around before deciding what to do. Such complexity would be so overwhelming that, in many cases, people would choose to refrain from doing a thing. Trust is not the only complexity reduction

method; rules are also substantial techniques for reducing complexity. However, even when there are rules, trust is essential because there is no guaranty that other people will fully abide by them [10]. Trust, of course, does not really enable people to control or even anticipate without error the behavior of others, but it does make it possible for people to create a comprehensible organization of their interactions with others. Consequently, according to Luhmann [28,29] trust is a prerequisite of behavior and is no less than a “basic fact of social life” ([28], p. 4).

The relative importance of trust, however, depends upon the nature and the complexity of the interaction with other people. The greater the dependence upon other people and one’s own vulnerability to their misconduct, the greater the need to trust [9,28,37]. Trust is, therefore, by its very nature, complex, multidimensional [6,12,44], and context-dependent [28,37]. The early psychology and sociology studies on trust defined it as a set of beliefs that other people would fulfil their expected favorable commitments [4,9,28]. Recent business research has taken a comparable stand, defining trust as the expectation that other individuals or companies will behave ethically [20], dependably [25], and will fulfil their expected commitments [28,38,39] under conditions of vulnerability and interdependence [37].

It should come as no surprise that under these circumstances, trust has a substantial effect on business relationships in general [8,10,11,17,24,32]. It reduces the need for extensive negotiations [10], detail-resolution [10,17], comprehensive legislation and enforced regulation [10], and tight organizational control [1,10]. Trust encourages long-term orientation [10,12,33], increases the acceptance of interdependence [39,43], and creates commitment [32,33,43]. Trust also reduces perceived risk [10,33], can reduce transaction costs when warranted [10,42], and is to some extent important in almost any contractual agreement because of possible opportunistic behavior of the other party [42]. In short, trust determines the nature of the social and business order [4,10,26,28] as well as the quality of business relationships [10,24,32]. The observation that people need to trust in order to partake in an activity with another person and would rather refrain from any activity with others whom they do not trust [4,28] further supports these observations.

Accordingly, trust in business “is the salient factor in determining the effectiveness of many relations” ([43], p. 229), and is a prime motivator of behavior in general [23,36,39]. Its importance is not only in its role in defusing concerns of opportunistic behavior but also because by defusing such concerns it reduces the need to invest in contractual counter measures [10,17]. Conversely, the lack of trust creates control-oriented and defensive communication that degrades communication

effectiveness and distorts crucial information [15], and results in an overall discouragement of the willingness to take risks [10,28].

These effects of trust, especially the willingness to engage in activities where a person is exposed to risk without the ability to control the related behavior of others, and its importance in successful adoption of new technology [10], make trust a potentially important precondition for E-commerce. A fact the Internet and credit card industries are apparently well aware of [2,27].

## 2.2. Familiarity and trust

Another way people subjectively reduce uncertainty and simplify their relationships with others is familiarity. Familiarity is an understanding, often based on previous interactions, experiences, and learning of what, why, where and when others do what they do [28]. As such, familiarity and trust are distinctly different. Familiarity deals with an *understanding* of the *current* actions of other people or of objects, while trust deals with *beliefs* about the *future* actions of other people (though these beliefs may be, and often are, based on familiarity, as will be explained later) [28]. For example, familiarity with Amazon.com — one of the largest book selling Internet vendors — would be the knowledge of how to search for books and information about them, and how to order these books through the website interface. Familiarity in this context is a specific activity-based cognizance based on previous experience or learning of how to use the particular interface. Trust in Amazon.com, on the other hand, might entail providing credit card information based on the guaranty-less favorable belief (i.e. trust) that the information will not be inappropriately used in some, even unknown, way in the future.

Accordingly, familiarity and trust complement each other as complexity-reduction methods. Familiarity reduces uncertainty by establishing a *structure* [28]; trust reduces uncertainty by letting people hold “relatively reliable expectations” ([28], p. 19) about other people’s favorable future actions [17,28]. In the case of using Amazon.com, familiarity would reduce complexity through an understanding of how to inquire and buy books through the site (structure of the interface) and what the procedure involved is (structure of the interaction). Trust, on the other hand, would reduce other aspects of complexity by a priori ruling out unethical behavior, such as misuse of credit card information. Trust and familiarity, however, are not of equal importance, explains Luhmann [28], because trust relates to the unknown future actions of others, and these are inherently more dynamic, general, complex, risky and less specific. In the case of Amazon.com, for example, users’ trust should be more

important when buying books than when inquiring about books, not only because the consequences of credit card misuse deal with the future, but also because the nature of potential credit card misuse is more complex and risky.

Though familiarity and trust are distinctly different, they are related. The reason for this is that trust in another person or organization is built when the other person or organization behaves in accordance with one's own favorable expectations of them. Since these favorable behavioral expectations (trust) are naturally context-dependent, understanding the given context involved (familiarity) is often an important antecedent [28]. Conversely, without familiarity with the context, trust cannot be adequately anchored to specific favorable behaviors and thus cannot be as strongly conferred. Familiarity creates this background, and is, therefore, "the precondition for trust" ([28], p. 19). In the case of Amazon.com, for example, people's familiarity with the concept of secure Internet communications could enable them to entertain specific beliefs concerning the security measures they expect from the vendor (trust). Conversely, buyers who are not aware of eavesdropping on the Internet (lack of familiarity) have no reason to hold such expectation (trust), or even be aware that they should, and, accordingly, their trust would not be as strongly conferred.

Another reason that familiarity can build trust is that familiarity not only provides a framework for future expectations, but also lets people create concrete ideas of what to expect based on *previous* interactions [4,17]. The reason for this is that familiarity gauges the degree that prior experience has been understood. Since in many cases prior experience is the basis of trust [4,20,24,25,44], familiarity can both create trust, when the experience was favorable, or ruin trust, when not [28]. In the case of Amazon.com, for example, people familiar with Amazon.com had probably previously bought from the site and in the process had likely noticed that the vendor behaved in accordance with their favorable expectations: respecting privacy, correctly charging their credit card account, keeping them updated on the status of their orders, etc. Since behavior in accordance with favorable expectations builds trust [28], the more familiar people are with such a vendor, the more their favorable expectations are likely to have been confirmed, and, accordingly, the more they should be inclined to trust the vendor.

### 2.3. Disposition to trust

Another antecedent of trust that is not built in a gradual manner through ongoing interactions is people's disposition to trust. This disposition is not part of Luhmann's [28] theory, and is introduced here as a means of assessing the relative importance of fam-

ilarity on trust. Disposition to trust is a general, i.e. not situation specific, inclination to display faith in humanity and to adopt a trusting stance toward others [31]. The former inclination deals with the belief that people in general are trustworthy; the latter deals with the belief that better results will be obtained by giving people credit and trusting them, regardless of whether this trust is justified [31]. This tendency is not based upon experience with or knowledge of a *specific* trusted party [31], but is the result of an ongoing lifelong experience [38] and socialization [10]. It may be likened, to some extent, to naïveté. As an antecedent of trust, disposition to trust is most effective in the initiation phases of a relationship when the parties are still mostly unfamiliar with each other [38] and before extensive ongoing relationships provide a necessary background for the formation of other trust-building beliefs, such as integrity, benevolence, and ability [31].

### 3. Research model

The focus of the study was on Amazon.com. This well-known Internet vendor was among the pioneers of E-commerce, and has a very well known and popular website. Among the E-commerce activities Amazon.com supports, its original and still most popular is book-selling. There are two major activities involved in this type of book-selling site: inquiring about books and purchasing them. Inquiring about books provides information about how many copies of the book have been sold, what readers and the author wrote about it, and other value-added information that contributes to many people's decision whether to purchase the book. Purchasing books involves marking books that had just been previously inquired about and then navigating to a checkout page where the buyer's name, address, credit card, postage method, and other important information is provided.

As in commerce, in general, E-commerce, such as that on Amazon.com, forces people to deal with the complexity of interacting with organizations and thus face the necessity to reduce this complexity before taking part in the interaction. The basic assumption of this study is that the complexity-reduction mechanisms suggested by Luhmann [28] apply also to E-commerce, and, hence, that familiarity and trust address important aspects of this complexity. This section details the derived hypotheses.

Trust, according to Luhmann [28], reduces complexity by ruling out possible, but undesirable and unfavorable, future actions of other people or organizations. In the case of a website like Amazon.com, by trusting, people would rule out undesirable behaviors during both book inquiry and book purchase activities. During book inquiry, trust would rule

out behaviors such as deliberately providing misleading information about the number of books sold and their ratings. During book purchase, trust would rule out behaviors such as misusing the provided credit card information. Trust would be essential in both cases because of the lack of a guaranty that the vendor will refrain from such undesirable — and, in accordance with other trust literature, unethical — behaviors exposes people to extensive complexity. Extending Luhmann's [28] theory implies that trust should be a prime mechanism people would employ to reduce this additional complexity, and thus influence their decision to E-commerce with the vendor. The Better Business Bureau's findings and industry reports discussed in the Introduction section further support this idea. It is thus hypothesized that trust will influence people's intentions to take part in both major book-selling activities on the Internet:

**H1.** Increased degrees of trust in an E-commerce vendor will increase people's intentions to inquire about products on that vendor's website.

**H2.** Increased degrees of trust in an E-commerce vendor will increase people's intentions to purchase products on that vendor's website.

Another aspect of complexity people encounter on websites, and information systems in general, is interface complexity, such as: how, what, where and when to get the information system to do what is required. Familiarity — knowledge of the vendor, and understanding its relevant procedures and technology — should alleviate some of this complexity, and, extending Luhmann's [28] theory, result in increased use. Conversely, people who are overwhelmed by the complexity of an Internet vendor's interface are likely to give up on purchasing or inquiring at the site all together, if only because they do not understand how to do so. Familiarity, thus, addresses a different type of complexity than trust does. Many Internet vendors seem to recognize the importance of increasing familiarity and, accordingly, have special Web pages "about us" and other pages explaining the various procedures involved in using the site. Amazon.com is no exception to this phenomenon: it, too, contains detailed explanations of who they are and how to use the site. The next hypotheses suggest that such familiarity should increase people's willingness to take part in the two primary activities in book-selling sites: purchasing books and inquiring about them.

**H3.** Increased degrees of familiarity with an E-commerce vendor and its procedures will increase people's willingness to inquire about products on that vendor's website.

**H4.** Increased degrees of familiarity with an E-commerce vendor and its procedures will increase people's willingness to purchase products on that vendor's website.

In addition to its effect on behavioral intentions, familiarity can also influence trust, in two ways. First, familiarity can build trust when the vendor shows trustworthy behavior or ruin it if the vendor does not. Second, familiarity provides a framework within which specific favorable expectations from the trusted party can be made. In this study, we deliberately chose a company that had, based on the Better Business Bureau (and our own extensive favorable interactions with them), shown behavior in accordance with people's expectations. It was thus assumed, in accordance with the first explanation, that familiarity with Amazon.com, reflecting previous successful interactions in which favorable expectations from the vendor had been confirmed, would increase people's trust in the vendor. It was further assumed that also among people who had not previously used Amazon.com, familiarity, based in this case on the favorable experience of others, should create trust. (This type of assumption is probably a cornerstone of the Better Business Bureau service: reporting to the public about unresolved customer complaints about vendors.) Albeit, in the latter case, neither familiarity nor its effects on trust should be as strong as with first hand familiarity.

This hypothesized influence of familiarity on trust is also in accordance with the second reason why familiarity should increase trust (by providing a framework). Increased familiarity means a better understanding of what is happening during the interaction with the vendor through the website. Consequently, increased familiarity should improve people's ability to maintain clear beliefs of what constitutes their expectations of favorable vendor behavior.

**H5.** Increased degrees of familiarity with an E-commerce vendor and its procedures will increase trust in the vendor.

Trust is also determined by a general trusting disposition that is the product of a lifelong socialization process. This disposition is especially influential when the trusting party has not had extensive personal interaction with the specific organization or person in questions [31,38]. Therefore, also a trusting disposition should influence people's trust in the vendor:

**H6.** The stronger people's disposition to trust is, the more they will trust an E-commerce vendor.

The model does not assume a relationship between familiarity and trusting disposition because trusting

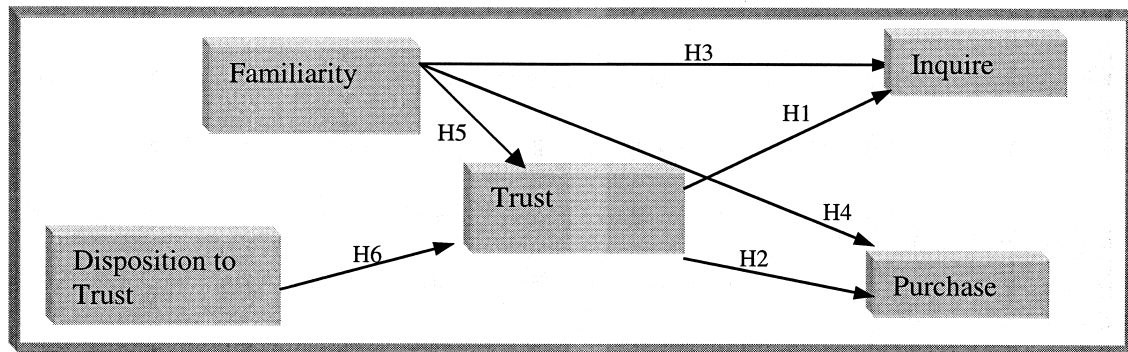


Fig. 1. Research model.

disposition is the product of lifelong socialization. It is unlikely, given the nature of Amazon.com and given the way the study was operationalized, that any type of familiarity with Amazon.com should have an effect on a par with a lifelong acquired disposition. Consequently, such a relationship was excluded from the research model. The entire set of hypotheses is presented in Fig. 1.

#### 4. Research method

##### 4.1. Instrument development

The questionnaire used in this study was developed in two stages. In the first stage, a set of items reflecting the activities involved in inquiring about and then purchasing books from Amazon.com was created by carefully monitoring the activities involved in these activities, combined with interviews with experienced Internet book buyers. The objective of this was twofold: to create items dealing with as many of the activities involved in these activities as possible, and to create a set of items reflecting important aspects of familiarity with these activities and with Amazon.com. Finally, items reflecting respondent trust in the vendor, and items reflecting a general disposition to trust were created based on the description of the meaning of these in the literature [31,33].

The entire set of items was then examined by two independent judges who did not take part in the previous item creating sessions. The judges were asked to evaluate whether each item represents the construct it is supposed to reflect, and whether each construct is

comprehensively represented by the items associated with it. This enabled the assessment of the content validity of each scale. The judges were also asked to evaluate whether each item was worded in a clear manner. Only minor changes in the wording of the items were required at this stage. All the items were assessed on a 7 point scale ranging from strongly agree (1) to strongly disagree (7). The items are presented in Appendix A. The questionnaire also collected demographic data.

##### 4.2. Pilot study

Next, a pilot study was conducted by administering the questionnaire to a sample of 145 students. The objective of the pilot study was to rigorously examine the statistical validity of the constructs in pre-LISREL tools: MTMM, Cronbach's Alpha, and factor analysis. The pilot study followed exactly the same procedure as would be later used to collect the entire dataset. Students attending a lecture in an Internet-connected computer-equipped classroom at a Business School in the Mid-Atlantic region of the United States were asked to participate<sup>1</sup>. The students, each of whom had an Internet-connected PC attached to their desk, were instructed to log onto the Internet, navigate to *www.amazon.com*, and, once there, to search for the textbook of the course they were taking. The students were not rewarded for filling out the questionnaire. Nonetheless, all the 145 students who took part in the study completed the task successfully and then filled out the questionnaire. The response rate was 100%, but since 12 questionnaires were later discarded because of missing data, the effective response rate was approximately 91%. In all, 133 useable questionnaires were collected and analyzed at this stage. The nature of the research and the research model were not discussed with the students before filling out the questionnaire.

The respondents were mostly in their early 20 s ( $n = 87$ ), late 20 s ( $n = 21$ ), or early 30 s ( $n = 7$ ). About

<sup>1</sup> The topics being taught in these Internet-connect classrooms (Database Analysis and Design, and Visual Basic) were not related to the Internet, to Internet security, or to Internet programming.

42% of the students had previously bought from Amazon.com ( $n = 56$ ). About 49% of the respondents were women ( $n = 65$ ) and 42% were men ( $n = 56$ ). Twelve respondents did not declare their gender. The students were a mix of senior year undergraduate business students and MBA students. Except for age demographics, there was no significance difference between the graduate and undergraduate students in any of the constructs (Wilks' Lambda = 0.98892,  $p = 0.904$ ), and so the data were combined for the analysis.

The discriminant and convergent validity of the scales were then examined using the MTMM method, based on [40] and [7]. This was done by examining the item correlation matrix and by examining a factor analysis with a VARIMAX rotation. In the correlation matrix, the items correlated much higher with other items reflecting the same construct than with other items. In the factor analysis all the items loaded strongly (above 0.70) only on the factor associated with the construct each reflected and weakly on all the other factors, showing the convergent and discriminant validity of the constructs. The reliability of the constructs was then assessed using Cronbach's  $\alpha$ . All the items showed  $\alpha$  levels above the 0.70 threshold recommended by Nunnally [34]: purchase intentions 0.78, inquiry intentions 0.91, trust in the vendor 0.90, familiarity with the vendor and the process 0.91, and disposition to trust 0.85.

The content validity of the familiarity scale was further assessed at this stage by examining its correlation with self-reported book purchase at the Amazon.com site in the past. A familiarity scale with high content validity should show increased self-assessed familiarity with the procedure of purchasing and inquiring about books the more the respondent actually bought books from Amazon.com. Indeed, the self-reported number of times respondents had bought books at Amazon.com was very significantly correlated with the familiarity scale ( $r = -0.3539$ ,  $p < 0.001$ ),<sup>2</sup> showing that the more respondents bought books at Amazon.com the more familiar they felt with the procedure involved and with the vendor.

#### 4.3. Additional data collection

Based on the promising results of the pilot study additional data were collected from another 89 MBA students using exactly the same procedure and questionnaire. All the 89 students filled out the questionnaire. As in the pilot study, some questionnaires were discarded because of empty answers, yielding another 84 usable questionnaires (effective response

rate of 94%), and a total sample size of 217. The respondents of the entire dataset were mostly in their early 20 s ( $n = 110$ ), late 20 s ( $n = 54$ ), or early 30 s ( $n = 21$ ), with some in their late 30 s ( $n = 9$ ) and 1 in the 40 s. The percentage of respondents who had previously bought from Amazon.com was higher than in the pilot ( $n = 108$  or 50%), probably because all the respondents in the latter data collection were MBA students. Half the respondents were women ( $n = 97$ ) and half men ( $n = 96$ ), 24 respondents did not declare their gender.

The data were examined again to assess the convergent and discriminant validity of the scales, their reliability, and unidimensionality. The factor analysis of the entire dataset (with 217 data points) after a VARIMAX rotation is presented in Table 1. The factor analysis shows the same five distinct factors as the pilot study showed, with item communalities all above 0.66 and extracting over 76% of the variance. All the items loaded very highly (above 0.70) on their respective factors and below 0.30 all the other factors, well within the 0.40 threshold suggested by Hair et al. [18]. All the reliability coefficients (Cronbach's Alpha) are above the 0.80 recommended threshold [34]. The content validity of the familiarity scale was again assessed by examining its correlation with self-reported book purchase at the Amazon.com site, again showing significant correlation ( $r = -0.4160$ ,  $p < 0.001$ ) and thus showing content validity also with the complete sample. The correlation matrix of the entire dataset is shown in Appendix B. In accordance with the MTMM principle, each item shows a higher correlation with items reflecting the same construct than with items reflecting other constructs.

Finally, a confirmatory factor analysis (CFA) was run using LISREL 8. The CFA indicated that several items had shared residual variance, and, accordingly these were dropped in order to achieve unidimensionality and good fit indexes in LISREL, too (the dropped items are marked as such in Appendix A). It is not unusual that items are dropped during a CFA because a CFA also examines unidimensionality and that the residual variance of the items do not significantly overlap, none of these are examined by factor analysis or by Cronbach's Alpha [14]. The resulting CFA showed that all the remaining items loaded significantly and highly on their assigned constructs. The CFA also showed that the overall models' fit indices were good: RMR 0.044, GFI 0.93, AGFI 0.89 and NFI 0.94. All the LISREL reliability coefficients, shown in Table 2, are also within the 0.80 recommended threshold [34].

#### 4.4. Hypotheses testing

The hypotheses were then analyzed also using LISREL 8. LISREL enables the estimation of the

<sup>2</sup> The negative correlation coefficient is because familiarity was measured from 1 (strongly agree) to 7 (strongly disagree).

Table 1  
Results of factor analysis with VARIMAX rotation of the questionnaire items combined with descriptive statistics of the constructs

	Familiarity	Disposition to trust	Intended inquiry	Trust	Intended purchase	Item communality
Fam1	<b>0.86421</b>	-0.01478	0.17243	0.05361	0.14837	0.80170
Fam4	<b>0.86133</b>	0.03995	0.19881	0.05001	-0.06891	0.79026
Fam2	<b>0.84207</b>	-0.00442	-0.00634	0.04692	0.27405	0.78645
Fam3	<b>0.82612</b>	0.00403	0.14831	0.05242	0.06626	0.71162
Fam5	<b>0.81535</b>	0.12573	0.05458	0.05470	0.16984	0.71543
Dis1	0.09339	<b>0.84423</b>	-0.04934	0.18377	0.08168	0.76432
Hum2	0.02510	<b>0.84112</b>	0.06684	0.14972	0.05185	0.73768
Hum1	-0.00823	<b>0.83010</b>	0.08400	0.23285	-0.00295	0.75042
Hum3	0.02013	<b>0.79238</b>	0.10102	0.06537	0.02963	0.64363
Dis2	0.01799	<b>0.76331</b>	-0.04598	0.16498	0.19124	0.64887
Inq3	0.15843	0.06957	<b>0.88187</b>	0.07909	0.26309	0.88311
Inq1	0.18158	0.02709	<b>0.86860</b>	0.05860	0.22517	0.84230
Inq2	0.15774	0.04205	<b>0.85636</b>	0.17770	0.17954	0.82382
Tr1	0.00650	0.30804	0.09084	<b>0.84648</b>	0.08933	0.82770
Tr2	0.14820	0.29069	0.09717	<b>0.82666</b>	0.21179	0.84413
Tr3	0.07796	0.18807	0.14305	<b>0.80698</b>	0.23756	0.76957
Buy3	0.21378	0.01129	0.29935	0.16358	<b>0.76846</b>	0.75273
Buy1	0.26927	0.13644	0.19708	0.20639	<b>0.76260</b>	0.75412
Buy2	0.06321	0.17187	0.25019	0.17823	<b>0.74183</b>	0.67820
Eigenvalue	6.37	3.64	2.18	1.35	0.99	
Construct Mean (standard deviation)	3.32 (1.11)	3.38 (1.13)	3.19 (1.48)	3.33 (1.04)	3.18 (1.34)	
Cronbach's Alpha	0.93	0.89	0.91	0.89	0.82	

measurement model (item loading onto constructs) together with the entire structural model (hypotheses) [5,18]. In this manner, the estimated coefficient of each path and of each item-loading are more accurate because each is estimated given all the other correlations and item-loadings [5]. The analyzed model is presented in Fig. 2. The hypotheses are indicated with arrows. Item loadings are presented in Appendix A. The data show that all the measurement items loaded significantly on their respective latent constructs and did not share significant residual variance with each other. The insignificant  $\chi^2$  at 80.53 with 69 degrees of freedom ( $p = 0.16$ ) shows very good model fit [21], and indicates that the constructs are distinct and unidimensional [14]. Construct reliability coefficients, presented in Table 2, are also above the 0.80 threshold [34]. The other fit-indices — GFI=0.92, AGFI=0.88, NFI=0.93, and RMR=0.041 — all show good model

fit and values that are well within their accepted thresholds, of above 0.90, 0.80, 0.90, and below 0.050, respectively. The ratio of  $\chi^2$  to degrees of freedom is also well below the recommended maximum ratio of 3:1. The SMC values — the percent of explained variance, the equivalent of  $R^2$  in linear regression [5] — show that the model explained 17% of the variance of intended inquiry, 42% of intended purchase, and 33% of trust.

All the hypotheses were supported. Trust affected both intended inquiry ( $t = 3.15$ ) and intended purchase ( $t = 4.82$ ), supporting H1 and H2, respectively. Trust, itself, was affected by people's disposition to trust ( $t = 5.45$ ), supporting H6, and by familiarity ( $t = 2.04$ ), supporting H5. Familiarity also affected both intended inquiry ( $t = 2.88$ ) and intended purchase ( $t = 4.21$ ), supporting H3 and H4, respectively. A comparison of the standardized path coefficients ( $\gamma$ s) shows that dis-

Table 2  
Descriptive statistics of the constructs using items left after the CFA

	Familiarity	Disposition to trust	Intended inquiry	Trust	Intended purchase
Cronbach's Alpha	0.89	0.86	0.89	0.87	0.81
Mean (standard deviation)	3.24 (1.51)	3.39 (1.16)	2.58 (1.23)	3.35 (1.14)	3.03 (1.41)
Construct reliability [31]	0.89	0.86	0.94	0.82	0.81



position to trust had a much stronger effect of trust ( $\gamma=0.53$ ) than familiarity did ( $\gamma=0.17$ ), possibly because not all the respondents had extensive previous interactions with Amazon.com. Intended inquiry and intended purchase were modeled as correlated in the research model based on the observation that the two activities are often related, an observation supported by the data ( $t = 3.91$ ). Familiarity was not significantly correlated with disposition to trust ( $t = 1.37$ ).

Next, an alternative, fully saturated, model was studied. The saturated model replicated the model in Fig. 2 but added to it paths from disposition to trust toward intended inquiry and intended purchase. The  $\chi^2$  of the saturated model at 80.37 with 67 degrees of freedom ( $p = 0.13$ ) is not significantly different from the  $\chi^2$  of the original model ( $\Delta\chi^2=0.16$  with 2 degrees of freedom) and the  $t$ -values of the additional paths are also insignificant ( $t=-0.40$  and  $0.17$ , respectively). This shows that disposition to trust plays an indirect role in influencing people’s E-commerce intentions, at least with regard to this dataset.

**5. Conclusions**

The data support the basic assumption of the study: both trust and familiarity influence E-commerce, as implied from Luhmann’s [28] theory. Specifically, the data show that both trust in an Internet vendor and familiarity with the vendor and its procedures influence two distinct aspects of E-commerce intentions in book-selling sites: inquiry and purchase. The influence of familiarity and trust are especially strong on people’s intentions to purchase. Second, the data show that trust and familiarity are distinctly different constructs,

and that trust is significantly affected by familiarity, and not only by people’s socialized disposition to trust. The research model thus shows that E-commerce can be assessed in the context of a complex social environment based on Luhmann’s [28] theory. Under such circumstance, both trust and familiarity influence behavioral intentions. The role of trust confirms industry reports [2,27,45], discussed above, the role of familiarity extends them.

The research model, extending Luhmann’s [28] theory to E-commerce, introduced trust as the central aspect of E-commerce. Industry reports also highlight its central importance [2,27,45]. In this context, familiarity was introduced primarily as an antecedent of trust, while its role in increasing E-commerce was not as emphasized as that of trust. Apparently, however, the importance of familiarity might be greater: familiarity influences both purchase intentions and inquiry intentions only slightly less than trust does. This role of familiarity highlights an additional antecedent of E-commerce that has not previously been emphasized, though widely used, by the industry.

The influence of familiarity on trust is a potentially important extension to existing trust-models [24–26,30–33,36,37]. The addition of familiarity to these models suggests a possible new way that Internet vendors can increase trust in them, though the weak effect shows that despite its potential much more research needs to be done. Nonetheless, that familiarity based on non-personal superficial interactions through a standardized machine interface — and not based on socially rich human interactions as appears in Luhmann’s [28] theory — influences trust is in itself another interesting contribution of the study.

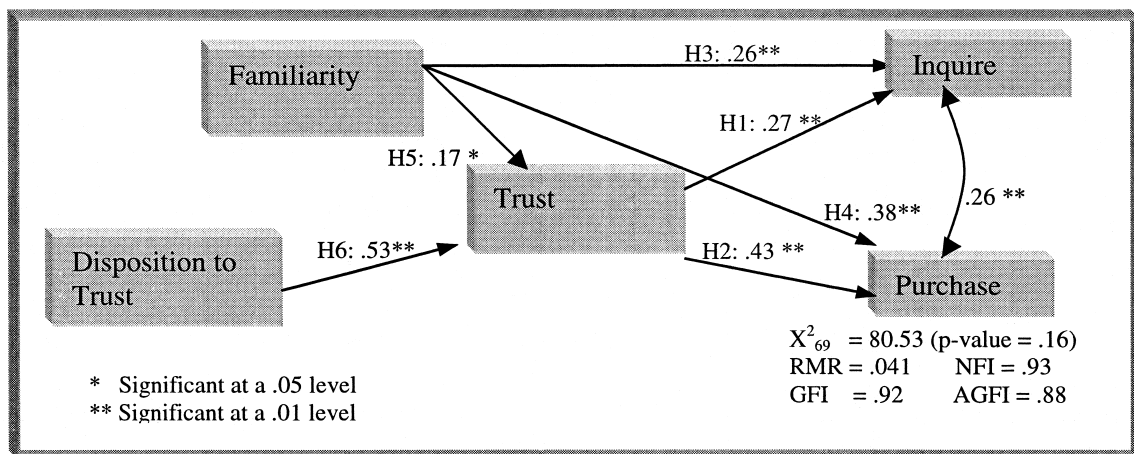


Fig. 2. LISREL analysis of the research model showing standardized coefficients.

### 5.1. Limitations and the need for additional research

Even when limiting the discussion to the limited context of the Internet and E-commerce, familiarity is a broad term. While being familiar with an Internet vendor and with related procedures are important aspects of familiarity, additional aspects of familiarity also need to be examined. Likewise, since the study analyzed a well-known website, it is unclear whether the results can be generalized to lesser-known websites. A replication of the study may be necessary to examine this issue. Additional research is also needed to examine cross-cultural effects of familiarity and trust, because both are learnt and, as such, both are culture- and experience-dependent [28]. Moreover, the strong effect of disposition to trust on trust further suggests that there might be strong cross-cultural effects worth considering, especially given that this disposition is an important aspect of culture [10,38].

Additional research could also examine other settings and other types of E-commerce, because trust and domain familiarity are context-dependent and thus their detailed effects may be related to specific goods and services. Perhaps the topic that demands the most attention is methods website owners can apply to build people's familiarity and trust. The data show that, as hypothesized, familiarity and trust are important aspects of E-commerce. Additional research should examine methods of increasing people's sense of familiarity, and other methods that build trust, such as the role of trust-related beliefs — ability, integrity, and intentions [30] — as trust-building methods.

### 5.2. Implications for practitioners

The study not only confirms the Better Business Bureau's observation that trust is an important aspect of E-commerce, but also qualifies this observation. Trust is indeed important but more so when it comes to actually purchasing products than when it comes to using E-commerce as a means of obtaining information. Perhaps no less important, the study identifies another, only slightly less important, aspect influencing E-commerce, namely familiarity. This research shows that it, too, is an important factor influencing E-commerce, and provides a theoretical explanation why.

The latter effect is a potentially important contribution of the study because it provides guidelines on how companies engaging in E-commerce can build potential customers' trust through increased familiarity with the company and its E-commerce procedures, as many companies apparently strive to do. This study confirms the importance of doing so, but implies that the 'about us' section should be placed in a noticeable part of the presentation and not just as a hyperlink to an adjacent secondary page.

Given that it is probably easier to create familiarity through education and exposure, than it is to build trust through repeated favorable interactions, increasing E-commerce through familiarity may yet prove to be an option the industry may wish to consider. Indeed, the online retailing industry, including Amazon.com, has recognized the importance of increasing website recognition, and is investing extensively in advertising in order to increase recognition of their websites [22].

Another important implication of this study is the relative importance of trusting disposition. The study shows that this disposition has a major influence on people's trust. Since this trusting disposition is built over a lifelong period [38] and reflects social influence over extended periods of time [10] it follows that there might be a cross-cultural difference in trust. If so, companies should expect to see different degrees of trust — and consequently a different rate of E-commerce adoption — in different cultures. Thus, there may be a need to emphasize trust-building mechanisms, for example through increased familiarity, in societies known to display lower degrees of trust.

### 5.3. Implications for research

This study contributes to research in several ways. First, the study shows the important role of *both* familiarity and trust in E-commerce. In fact, the extent of explained variance in E-commerce purchase intentions implies that familiarity and trust are possibly among the most important antecedents of people's intentions to partake in this activity.

Second, the study shows that engaging in E-commerce has several distinct aspects, and should not, therefore, be considered as a single activity, especially as familiarity and trust affect the behavioral intentions of these activities differently. Third, the study empirically corroborates previous non-empirical suggestions about the implied effects of people's disposition to trust on to their initial trust in scenarios that lack extensive interaction in social and organizational setting [31,38].

Perhaps no less important, this study takes this observation a step further and shows that familiarity, too, contributes to this initial trust. In other words, not only general lifelong experience and cultural background contribute through a trusting disposition to trust, but also topics well within the control of the parties involved, such as familiarity, contribute to increased trust. This extends previous analyses on the importance of trust [24–26,30–33,36,37], showing that trust can be increased not only through extensive interactions with other people or people in organizations, but also through familiarity — even with a standardized PC interface.

**Appendix A. Questionnaire item**

The table below shows the entire set of items used in the analysis. All the items loaded on their respected factor in a factor analysis (see Table 1 above) but some had to be dropped in the LISREL

CFA because of shared residual variance. The dropped item is marked as such in the third column. The table presents the LISREL loadings and associated error terms of the items that were retained after the CFA and used in the hypotheses testing phase.

Code	Item	Loading (Error)
<b>Familiarity with Amazon.com</b>		
Fam1	I am familiar with searching for books on the Internet	0.88 (0.22)
Fam2	I am familiar with buying books on the Internet	0.80 (0.36)
Fam3	I am familiar with Amazon.com	0.77 (0.41)
Fam4	I am familiar with the processes of purchasing books on the Internet	Dropped
Fam5	I am familiar with inquiring about book ratings at Amazon.com	0.81 (0.34)
<b>Trust</b>		
Tr1	Even if not monitored, I'd trust Amazon.com to do the job right	0.84 (0.29)
Tr2	I trust Amazon.com	0.98 (0.04)
Tr3	I believe that Amazon.com are trustworthy	Dropped
<b>Using the Website</b>		
Inq1	I would use Amazon.com to inquire what readers think of a book	Dropped
Inq2	I would use Amazon.com to find out about the author of a book	0.90 (0.19)
Inq3	I would use Amazon.com to inquire about book ratings	0.98 (0.03)
Buy1	I would use my credit card to purchase from Amazon.com	0.83 (0.32)
Buy2	I would not hesitate to provide information about my habits to Amazon.com	Dropped
Buy3	I am very likely to buy books from Amazon.com	0.84 (0.30)
<b>Disposition to Trust</b>		
Dis1	I generally trust other people	0.89 (0.20)
Dis2	I tend to count upon other people	0.75 (0.43)
Hum1	I generally have faith in humanity	0.82 (0.33)
Hum2	I feel that people are generally reliable	Dropped
Hum3	I generally trust other people unless they give me reason not to	0.61 (0.63)

## Appendix B. Correlation matrix

	Tr1	Tr2	Tr3	Buy1	Buy2	Buy3	Inq1	Inq2	Inq3	Fam1	Fam2
Tr1	1.0000										
Tr2	0.7798	1.0000									
Tr3	0.6936	0.7387	1.0000								
Buy1	0.3134	0.4844	0.4143	1.0000							
Buy2	0.3762	0.3679	0.4014	0.5912	1.0000						
Buy3	0.2248	0.3513	0.4384	0.6917	0.5578	1.0000					
Inq1	0.2150	0.2619	0.3261	0.3785	0.4129	0.4865	1.0000				
Inq2	0.2655	0.3360	0.3533	0.4046	0.3730	0.4569	0.7267	1.0000			
Inq3	0.2345	0.3023	0.2926	0.4398	0.4548	0.4644	0.8301	0.7978	1.0000		
Fam1	0.0640	0.2195	0.1544	0.4009	0.2136	0.3725	0.1833	0.2040	0.1934	1.0000	
Fam2	0.0918	0.2080	0.1534	0.3249	0.2208	0.2603	0.2868	0.2730	0.2888	0.6145	1.0000
Fam3	0.1105	0.1747	0.1341	0.2887	0.0912	0.2251	0.2989	0.3171	0.2971	0.6625	0.6747
Fam4	0.1107	0.2227	0.2246	0.2922	0.2613	0.3338	0.2781	0.2018	0.2528	0.6438	0.6367
Fam5	0.0982	0.2175	0.1759	0.3715	0.2392	0.3496	0.3190	0.3107	0.3167	0.7568	0.7035
Dis1	0.4203	0.4442	0.3482	0.2514	0.2085	0.0965	0.0705	0.0982	0.1044	0.0573	0.0921
Dis2	0.4284	0.3788	0.2853	0.2223	0.3113	0.1420	0.0906	0.0759	0.1175	0.0604	0.0197
Hum3	0.3171	0.3185	0.3580	0.2133	0.1764	0.1705	0.1922	0.1697	0.1687	0.0350	0.0320
Hum1	0.4593	0.4727	0.3645	0.2148	0.2404	0.1246	0.1199	0.1849	0.1706	0.0117	0.0022
Hum2	0.4251	0.4295	0.3465	0.2154	0.2011	0.1056	0.0858	0.1727	0.1189	0.0394	0.0574

	Fam3	Fam4	Fam5	Dis1	Dis2	Hum3	Hum1	Hum2
Fam3	1.0000							
Fam4	0.6436	1.0000						
Fam5	0.7207	0.6756	1.0000					
Dis1	0.0596	0.2221	0.0498	1.0000				
Dis2	0.0545	0.1348	-0.0011	0.7017	1.0000			
Hum3	0.0909	0.0920	0.0639	0.5731	0.4921	1.0000		
Hum1	0.0536	0.1023	-0.0169	0.7040	0.6210	0.5809	1.0000	
Hum2	0.0728	0.1060	0.0327	0.6764	0.5605	0.6678	0.7155	1.0000

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