FOCUSING ON CONSUMER-TO-CONSUMER

TRUST IN ELECTRONIC COMMERCE WITH AGE AND GENDER FACTORS

A Thesis Presented to the Faculty of the Graduate School

University of Missouri

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science

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by

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JULY 2009

The undersigned, appointed by the Dean of the Graduate School,
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FOCUSING ON CONSUMER-TO-CONSUMER
TRUST IN ELECTRONIC COMMERCE WITH AGE AND GENDER FACTORS

Presented by Hyun Shik Yoon

A candidate for the degree of Master of Science

And hereby certify that in their opinion it is worthy of acceptance.

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DEDICATION

To my wife, Eun Suk Jung, who always gives me everything she can do.

To my son, Yule and my daughter, Lynn, who mean everything to me.

To my parents, who give unconditional love.

To my sister and brother, who always trust and support me.

To Sang. S. Kim, who is my role model.

ACKNOWLEDGEMENTS

A great deal of thanks goes to my committee, whose guidance, advice, and support

helped make this thesis experience a truly positive one.

Thesis Chair: Dr. Luis G. Occeña,
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Committee Members: Dr. Alec C. Chang,
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Special thanks to Dr. Occeña, who has provided an immense amount of encouragement and support in the pursuit of my academic and professional endeavourers. I can never thank you enough for all your help.

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TRUST IN ELECTRONIC COMMERCE WITH AGE AND GENDER FACTORS

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ABSTRACT

Electronic commerce (e-commerce) is a continuously evolving phenomenon. Since prior researches show that general lack of trust in e-commerce is a significant factor in inhibiting online purchases, the importance of trust in building and maintaining consumer relationship in e-commerce environment is widely recognized in the Information Systems literature. A key challenge for researchers is to identify antecedent variables that engender consumer trust in e-commerce including business-to-consumer (B2C) and consumer-to-consumer (C2C). Even though C2C has been found to be more popular than the B2C e-commerce counterpart, main stream tends to focus on B2C e-commerce without making a distinction between B2C and C2C e-commerce. A model of consumer-to-consumer e-commerce trust had been developed and which we tested in this study.

This study expected that two main influences : internal facts including natural propensity to trust [NPT] and perception of web site quality [PWSQ], and external facts including other's trust of buyers/sellers [OTBS] and third party recognition [TPR] would affect an individual's trust in C2C e-commerce. This research extended this model of an individual's trust in C2C e-commerce to include age and gender as control variables.

CHAPTER 1: INTRODUCTION

The Internet has become an essential business platform for trading, distributing and selling products between organizations, among organizations and consumers, and even between consumers. Electronic commerce (e-commerce) is a continuously evolving phenomenon. When it comes to consumer's convenience, e-commerce enables consumers to shop or do transactions 24 hours a day, all year around from almost any location. It provides consumers more choices and allows them to have quick comparisons. Moreover, it allows consumers to interact, exchange ideas, and to compare experiences with other customers in the electronic communities. While media attention of e-commerce has declined in focus, academic research of e-commerce appears to have increased.

Though the Internet offers a range of advantages that collectively have been shown to be important enough to attract massive interest, recent surveys demonstrated that the penetration rate of Internet shopping remains low [1]. A global Internet usage survey [2] reports the proportion of users making online purchases remains at 15% since 2001. The low Internet shopping penetration is commonly explained by the lack of trust in this new

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shopping mode. For instance, eMarketer [3] identified general lack of trust in vendor as a significant factor inhibiting online purchases. Princeton Survey Research Associates [4] also suggested that lack of trust is emerging as one of the critical obstacles to success in e-commerce. Trust is a central elementary in many commercial activities, especially, when the trusting party depends on, yet lacks control over how the trusted party will behave, and can serve as a substitute for formal agreements in commercial exchanges [5]. Therefore, trust should be even more important in e-Commerce than in traditional commerce because of the lack of rules and regulation in e-Commerce and because purchasing services and products by using online typically are not immediately verifiable. Moreover, online transactions lack the assurance provided in traditional settings through formal proceedings and receipts [6, 7]. Indeed, research has shown that high levels of consumer trust encourage online purchase intentions [6, 8] and help retain online customers [7], while the lack of it is the main reason individuals do not shop online [9].

Recently, however, C2C has been found to be more popular than its B2C e-commerce counterpart. However, the main stream literature tends to focus on the B2C e-commerce area without making a distinction between B2C and C2C e-commerce.

A typical C2C e-commerce is using online websites such as Amazon.com, Craigslist, or online auction such as e-Bay to sell or buy some products. C2C e-commerce can also take place in online communities, chat rooms, third-party consumer listing services, and web-based discussion forums. For example, one consumer recalled a recent C2C e-commerce transaction conducted in a web-based discussion forum. He indicated to the other participants that he had a car part to sell. Another participant indicated a need for that part. They exchanged address information through the forum. Once the seller received the check from the buyer, he sent the part to him. While the payment and product were sent via postal mail, all interaction regarding the transaction was completed within the web-based forum. Whereas B2C e-commerce refers to an online transaction involving an established business enterprise such as Sears, JC Penny, Macy's, Wal-Mart, etc.

Differences have been found between C2C e-commerce and B2C e-commerce in previous research suggesting that B2C e-commerce methods cannot be utilized in C2C e-commerce [10]. C2C e-commerce has thus proven to be a distinct area of research, requiring new models of operation.

This study aims at confirming the result of the previous research by

Jones and Leonard [32] on trust in e-commerce, extending the model by adding age and gender as control variable, and providing empirical investigation and evidence of the predictive power of the research model. On the theoretical side, we advance existing literatures on e-commerce by integrating the diverse trust literature and proposing an integrative model of consumer trust in e-commerce. On the practical side, we identify key drivers for consumer trust in e-commerce. The results provide Internet merchants important guidelines to build consumer trust strategies that help maintain long-term customer relationships in the online environment.

This thesis is structured as follows. Chapter 2 presents a review of prior literature on trust and e-commerce. Chapter 3 develops an integrative model for explaining trust formation through synthesis. Chapter 4 describes the research methodology and discusses the statistical results. Finally, Chapter 5 concludes with a discussion of the managerial and research implications of the studies and directions for future research.

CHAPTER 2: THEORETICAL BACKGROUND

Trust is an important concept. However, it is understood in a very vague and unsystematic way. In this part, we fist discuss the definition of trust, then we address three theoretical perspectives of trust, and finally we review prior literatures on trust in consumer-based electronic commerce.

Definition of Trust

Mayer, Davis, and Schoorman [11] defined trust as, "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party". This contemporary definition is widely recognized and the most frequently cited. It embeds two critical components of trust: confident expectations and a willingness to be vulnerable. Barber [12] outlines the view that concepts of trust are anchored by the expectation of the persistence and fulfillment of the moral social order, the expectation of technically competent role performance, and the expectation that partners in interaction will carry out their fiduciary obligations and responsibilities. Lewis and Weigert [13] further suggested that

trust is an expectation set within particular contextual parameters and constraints. Precisely, Boon and Holmes [14] conceived trust as the reliance upon another person under uncertain environmental states and in risky situations.

Parallel with Mayer et al's [11] definition, risk is a necessary condition for trust to arise. Without the vulnerability to the risk of opportunism, there is no need to trust. On the other hand, trust can be developed without the existence of perceived risk. Theoretical speaking, one does not need to risk anything before building trust. Indeed, the relationship between trust and risk is rather complex and interactive in nature. According to McGuire [15], the relationship between trust and risk involves the complexities of parallel processing, bidirectional causality, and reverberating feedback that are typical in cognitive and social organizations. In a recent critical review on trust in electronic commerce, Gefen et al. [16] have summarized three commonly hypothesized relationships of trust and risk: (1) trust and risk are independently affecting behavior, (2) risk is the consequence of trust, and (3) risk is the moderating effect of trust and behavior. Despite the importance of risk in the model of trust, only very few frameworks available guide research in trust and risk. The key focus of the current study is to explore factors driving trust formation in

Internet shopping. Since risk is only a condition for trust to arise in accordance with the contemporary definition, the construct of risk will not be part of this research model.

Three Theoretical Perspectives of Trust

Deutsch [17] suggested that trust is made in situations where the following exist: (1) course of action in the future is ambiguous, (2) outcome occurrence relies on the behavior of others, and (3) strength of the harmful event is greater than that of the beneficial event. Obviously, these situational parameters can be found in the context of Internet shopping. First, there is a time lapse between product order and product delivery. Second, consumers cannot physically check the quality of the products before placing an order, and they cannot fully monitor the safety and security of sending sensitive personal and financial information through the Internet. Finally, the harmful event (like the divulgence of personal information and the financial loss) is more damaging than the benefits derived. Indeed, the notion of trust has been examined in various contexts over the years, for instance, in bargaining [18], industrial buyer–seller relationships [19], distribution channels[20], partner cooperation in strategic alliances [21], and the study of market research [22].

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According to Lewicki and Bunker [23], these studies have adapted three different theoretical perspectives in investigating trust, including (1) the views of social psychologists, (2) the views of personality theorists, and (3) the views of sociologists. Because our aim is to get a more in-depth understanding of trust, each of the three perspectives of trust is examined with specific focus on the context of Internet shopping.

Perspective 1: The views of social psychologists

Social psychologists scrutinized trust at the interpersonal and group levels. Specifically, they focused on the transactions between individuals. Lewicki and Bunker [23] investigated trust as an expectation about the behavior of others in transactions. Mayer et al. [11] reviewed prior studies on trust and identified three most frequently cited attributes building trustworthiness of a trustee. The three attributes include ability, benevolence, and integrity. Ability refers to the skills, competencies, and characteristics of the trustees. Benevolence is the extent to which a trustee is believed to do good to the trustor. Integrity refers to the consistency of the trustee's past actions and credible communications. The social psychological perspective guides us to consider the interpersonal trust between Internet shoppers and

Internet merchants. In traditional buyer–seller relationships, interpersonal trust plays an important role for establishing transactional behavior [19]. Because of the technological foundation of Internet shopping, consumers assess the perceived trustworthiness of Internet merchants on the basis of factors pertinent to the online environment, security, and privacy.

Perspective 2: The views of personality theorists

Personality theorists studied trust as a belief, expectancy, or feeling that is deeply rooted in the personality. They focused on the specific developmental and social contextual factors that shape the readiness of trust. In other words, they investigated how people with different developmental experiences, personality types, and cultural backgrounds vary in their propensity to trust. This dispositional trust addresses primarily the general propensity to be willing to depend on others [11]. Because disposition to trust reflects a personality trait that is stable over time and across situations, propensity to trust is also applicable to the context of Internet shopping. This disposition to trust will influence how consumers form trust in Internet shopping.

Perspective 3: The views of sociologists

Sociologists delved into the issue of trust as an institutional phenomenon. Individuals tend to generalize their trust to large organizations made up of individuals with whom they have low familiarity, low interdependence, and low continuity of interaction. Sociologists focused on how institutions and incentives were created to reduce anxiety and uncertainty associated with transactions among relative strangers [24]. Lane and Bachmann [25] emphasized the role of institutions such as legal framework and industry association for trust building. Similarly, Markus and Soh [26] stated the importance of structural influence, including structural assurance, in the study of electronic commerce. The institution-based perspective leads us to include factors that help maintain social order in the online environment.

Furthermore, trust emerges through a transference process. As suggested by Milliman and Fugate [27], trust can be transferred from one trusted party to another person or group with which the trustor has little experience. Coleman [28] urged that trust in a known third party serves as an important basis for trust in an unknown party. In the context of Internet shopping, because most Internet shoppers do not know Internet merchants well enough to establish an online transaction, a trusted third party should

play an important role in promoting trust.

Trust in Consumer-Based Electronic Commerce: A review of the Recent Key Literature

Trust has been found to have an influence on a customer's willingness to purchase online [5], and Mayer et al. [11] offered it as an influencer of the overall transaction outcome. Gavish and Tucci [29] studied one form of C2C e-commerce – online auctions – in terms of the number of fraudulent activities occurring. Their results indicated fraudulent activity levels well above those reported by auction site operators, providing validity to customers' hesitation to trust in that environment. Dimensions of consumer trust in ecommerce, in general, have also been proposed [3]. Jones and Leonard researched two areas that can influence a person's trust in C2C e-commerce: Internal and external [32].

CHAPTER 3: RESEARCH MODEL AND HYPOTHESES

The Internet offers consumers a new channel for shopping. Consumers can access a virtually unlimited selection of products, brands, and sellers. They can switch brands or try different products in a single click. However, this new mode of shopping incorporates a higher degree of perceived risk than traditional shopping mode. Thus, Internet shoppers have to first develop the belief of trust before they actually engage in an exchange relationship with Internet merchants. In this study, we adopted the definition of trust proposed by Lee and Turban [31] and defined consumer trust in Internet shopping as "the willingness of a consumer to be vulnerable to the actions of an Internet merchant in an Internet transaction, based on the expectation that the Internet merchant will behave in certain agreeable ways, irrespective of the ability of the consumers to monitor or control that Internet merchant".

This research focuses on C2C e-commerce trust and its influencers, and proposes that both internal (i.e., natural propensity to trust (NPT) and perception of web site quality (PWSQ)) and external (other's trust of buyer/seller (OTBS) and third party recognition (TPR)) factors influenced it. Moreover, most of the recent researches related to this topic are focusing on

young generation as subjects. According to Jones and Leonard [32], a different group may produce different results. Therefore, this research replicates and extends the field of study to test whether C2C e-commerce depends on gender and age as control variables. The research model is presented in Figure 1.
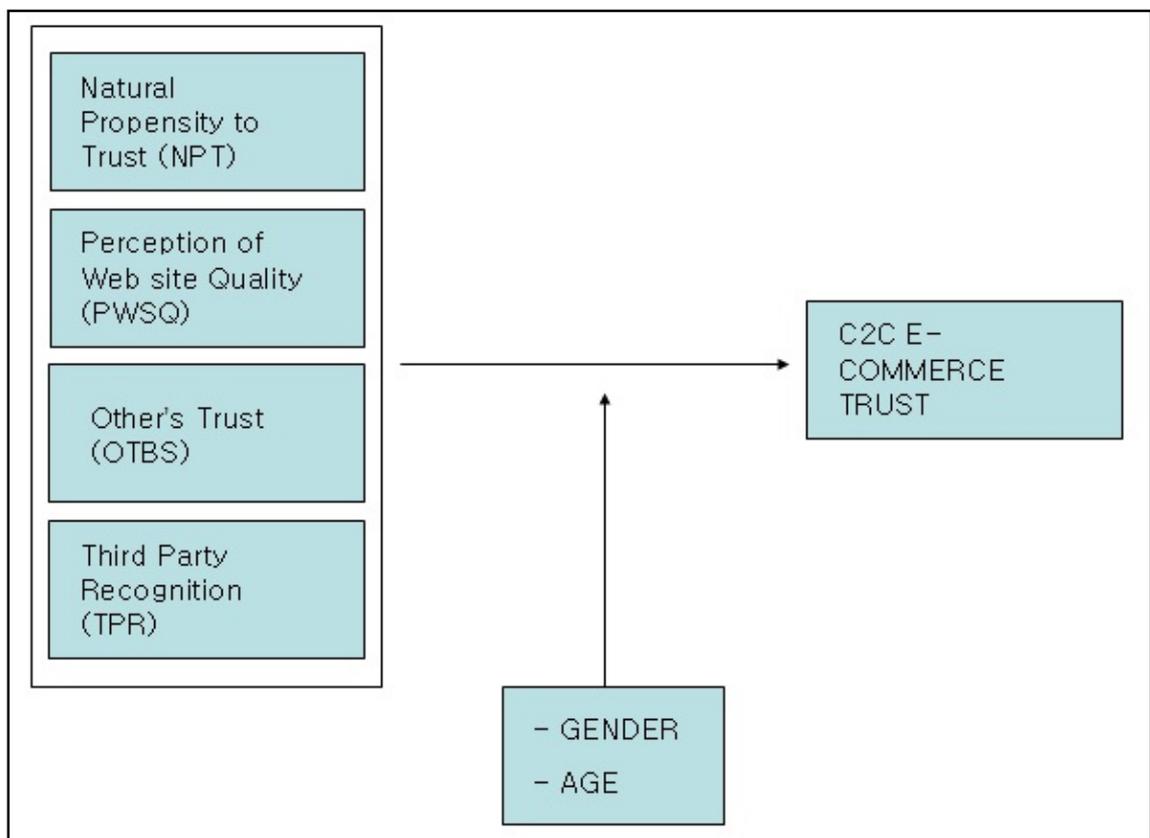

Figure 1. Consumer-to-Consumer Trust Model

Natural Propensity to Trust – NPT

Natural propensity to trust (NPT) is an individual's general willingness to depend on others. One's NPT refers to an individual's faith in humanity and trusting stance [32].This disposition of trust is stable over time and across situations. Hofstede [55] urged that propensity to trust is a stable within-party factor that affects the likelihood the party will trust. People with different cultural backgrounds, personality types, and developmental experiences vary in their propensity to trust. In the context of Internet shopping, we believe individuals with higher tendency of trust are more likely to trust this new mode of shopping. "Propensity to trust is a rather new concept in the Information Systems discipline, but this construct basically accounts for individual differences in the study of Internet shopping. Indeed, its inclusion has important implications for both theory and practice. On the theoretical side, the inclusion of propensity to trust can enhance our understanding of the role of personality traits in the consumer-based electronic commerce. On the practical side, the identification of individuals who are more likely to trust this new form of shopping can be valuable for marketing purposes."[1]

Therefore, NPT can be affected by the amount of information that the customer has about the seller at the time of the purchase as well as any

previous experiences. Many e-commerce studies have considered NPT in different settings—virtual teams, entrepreneurial Internet ventures, Internet banking, etc. These studies showed that trust propensity was an important variable in C2C e-commerce trust [32].

Kim and Prabhakar [33] studied NPT in Internet banking and found that initial trust in an electronic channel was significantly predicted by propensity to trust, structural assurance, and word-of-mouth referrals. Gill et al. [34] examined antecedents of trust intention. They not only found that trust intention was predicted by perceived ability, benevolence, and integrity of the trustee, but also that NPT was correlated with trust intention when trustworthiness information was ambiguous but not when trustworthiness information was clear.

Therefore, we propose the alternative hypothesis:

- H1: A person's natural propensity to trust will influence a person's trust in C2C e-commerce

Perception of Web Site Quality – PWSQ

Web site quality is important for web sites to gain competitive advantages over other web sites and attract more customers. While a

salesperson is generally absent or peripheral to the settings of the e-commerce web site, the primary object of trust becomes the organization itself. The organization's image reflected by its site is hence critical to customer's perceived level of trust. Quality perception has proven to be associated with risk perception.

McKnight et al. [35] suggested that an individual's perceptions of the environment would affect his or her risk and safety assessment. Even after a consumer has made a positive transaction with another, any initial concerns regarding the atmosphere could remain and prevent further transactions [36]. Therefore, objective trust could be very important in a C2C e-commerce environment. Objective trust is the set of social signals that are widely accepted as bearing trust. An example is an individual's trust of a police officer based on the fact that he or she wears a uniform [37]. One signal which can invoke (or waive) objective trust is the perceived quality of a web site. In order for e-commerce buyers and sellers to thrive both must alter their perception of people with whom they transact. One factor is through the appearance of the web site. Consumers will view it as a proxy for the owner of the site. Hampton-Sosa and Koufaris [40] showed that a web site appeared to influence a person's initial trust of the site owner in B2C e-commerce. In

addition, this initial trust has been shown to impact a person's intention to purchase. Since, most e-commerce consumers have not met prior to their transaction, the initial trust developed from the perceived quality of the web site is very important [32].

Schlosser et al. [34] performed an experimental study using two web sites (high- and low-investments). The high investment site utilized a sophisticated design including images and text and an enhanced zoom feature. The low investment site utilized the default gray backgrounds and a limited zoom feature. While the appearances of the sites were different, the content of each site was identical. The results showed that the site affected respondents' online purchase intentions. Presumably the increased level of online purchase intention indicated that the respondents had more trust in the web site owner. Thus additional investment may increase the trust level of consumers. Everard and Galletta [38] performed an experimental study to determine whether a consumer's perceived quality of an online store affected his or her trust. Eight different versions of a web site were provided to reflect flaw factors (style, incompleteness, and language). The participants were given tasks to complete and then a series of questions to answer on completion of their tasks. The study showed that the participants' perception

of the web site quality affected their trust of the online store (a B2C environment). A consumer's web site is likely to have been created by the consumer. In this sense, the flaw factors would reflect directly on the owner of the site [32].

Based on these studies, we propose the following alternative hypothesis:

- H2: A person's perception of web site quality will influence a person's trust in C2C e-commerce

Others' Trust of Buyer/Seller - OTBS

Reputation is conceptualized as the consumer's perception of a store's reputation, where "reputation" is defined as the extent to which buyers believe a selling organization is honest and concerned about its customers [41]. Moreover, reputation is the degree to which the buyer believes in the seller's honesty [42]. In the online environment, reputation systems have been developed to allow bidirectional communication feedback, on a large scale.

The marketing literature argues that reputation is a valuable asset that requires a long-term investment of resources, effort, and attention to customer relationships; a good reputation also signals past forbearance from opportunism [43]. Firms with a good reputation are perceived to be reluctant

to jeopardize their reputational assets by acting opportunistically. The costs of untrustworthy behavior are perceived to be higher for firms that already have a good reputation, particularly if the network of buyers is small or there is a high chance of communication or interaction among the buyers. In the Internet marketing context, Quelch and Klein [44] argue that Internet consumers will favor sites that represent a merchant with which the consumer is already familiar from traditional channels. McKnight et al. [35] asserted that reputation can play a role in categorizing an individual as trustworthy. Individuals with a common goal tended to perceive each other positively. Also, an individual could be perceived as trustworthy and reliable because of his or her actions or because he or she was a member of a competent group [32]. Therefore, a good reputation would lead one to develop trusting beliefs about an individual regardless of any firsthand knowledge of the individual.

Koufaris and Hampton-Sosa [40] showed that online auction reputation-feedback systems had been successful in building reputations in an online environment. Web sites, such as eBay, allowed both buyers and sellers to rate their transaction experiences. Reputation of the seller has been found to influence a consumer's trust, with higher ratings leading to higher levels of trust, and being a discriminant of where to buy [32]. In an online auction, seller

reputation was found to affect the auction price and the probability of making a sale, with a higher seller reputation producing a higher selling price [35]. Most research on reputation involved formal feedback mechanisms and online recommendation agents [32]. Wang [45] studied movie ratings given by institutions and consumers. He found that web users perceived institution ratings as more credible than those of consumers. However, if the consumer was already interested in a movie, positive consumer reviews enhanced the consumer's behavioral intent, whereas expert endorsements did not. Yamamoto et al. [46] studied the effectiveness of sharing information concerning buyers' and sellers' reputations in online transactions. They tested the effectiveness using computer simulation instead of human subjects and the simulation results indicated that a positive reputation could be more effective than a negative reputation.

Reputation can also be built, or lost, without a traditional reputation system. It is still a word-of-mouth concept, but in an electronic world. Online chat rooms, discussion boards, and emails are a few examples of such feedback mechanisms [32]. Smith et al. [47] also found that peer recommendations affected decision-making in online shopping, regardless of the peer recommender's personal characteristics.

Hence, we propose the alternative hypothesis:

- H3: Other's trust of a buyer/seller (i.e., reputation) will influence a person's trust in C2C e-commerce

Third Party Recognition – TPR

Third party institutions can help to deduce some of the risk of an online transaction and increase overall trust. McKnight et al. [35] referred to this as institution-based trust. Moreover, in addition to institution-based trust, Stewart [48] adapted theories from sociology and marketing and suggested that trust can be transferred. It is a fundamental requirement in conducting e-commerce. In particular, trust can be transferred from trusted individuals or trusted groups. For example, most customers may not trust the salespersons in the initial encounter, and they may feel uncertain about the claims made by the salespersons. The inclusion of the trade report allows the transference of trust, and overcomes the lack of trust of the salespersons. Similarly, in the context of Internet shopping, consumers do not have physical contact with Internet merchants; the inclusion of third-party recognition may help in promoting trust in Internet shopping. Cook and Luo [49] stated that an objective third party is needed to promote consumer trust in consumer-based electronic commerce.

Therefore, this can reduce a consumer's uncertainty when dealing with new sites or people. Institution-based trust implies that if something goes wrong, the institution will attempt to preserve trust and thus reduce the risk to the customer [50]; the institution's "signature" provides consumers with a sense of security and accountability.

Third party institutions can play many different roles. Pavlou and Gefen [16] discussed four ways: feedback mechanism (part of the others' trust of the buyer/seller construct); escrow services (holding payment until parties are satisfied with the transaction); credit card guarantees; and trust in the marketplace intermediary provided through belief in the third party institution). Another structure occurs if a third party receives the items being exchanged and then forwards them in an appropriate manner [51]. Thus the consumer can feel sure of any transactions made via the intermediary. Many consumers do not know the process of the third party (such as a seal of approval), but the appearance of a relationship increases the trust of the consumer [31]. Stewart [48] performed a study utilizing hypertext links from one organization's web site to another. Respondents believed that the two organizations had a business relationship and this influenced their trust of the linked site. This third party link may indicate that the owner of the site has met some standard

created by the third party institution.

Third party recognition provides consumers with a sense of security in Internet shopping. Cheung and Lee administered questionnaires regarding such trust to undergraduate MIS students. They found that third party recognition impacted trust. Additionally, Wakefield and Whitten [52] studied the effect of third party institution credibility on online users' assurance structures and purchase risk perceptions in B2C ecommerce. They found that third party institution credibility was positively related to the value users give to assurance structures and negatively related to purchase risk perceptions, and that the third party institution's credibility had a strong association with online users' trust of the e-retailer.

Therefore, we propose the alternative hypothesis:

- H4: Recognition of a third party by the buyer/seller will influence a person's trust in C2C e-commerce

Control Variables

Although this study focuses on consumer-to-consumer trust in electronic commerce, previous research [32] suggests that several other variables might affect attitudes and willingness to trust in e-commerce, namely, a different

group may produce different results. Accordingly, age and gender age are

added as control variables in this research.

Therefore, we propose the following alternative hypotheses:

- H5: C2C e-commerce trust will depend on age

- H6: C2C e-commerce trust will depend on gender

CHAPTER 4: METHODOLOGY

To assess the research model in Figure 1, a self-administered survey approach was used to collect data from Internet users in Columbia, Missouri. Participants were given instruments created for the constructs from Jones and Leonard [32] after obtaining permission from the authors. The survey instruments were also approved for use by the University of Missouri Institutional Review Board.

In this study, we selected residents who are older than 20 years old, and are living in the City of Columbia, Missouri for the sample population. For deployment of the survey instrument, we visited public organizations such as a public senior center, a library, a church and so on and the survey instruments were deployed in the organizations. As far as collecting those goes, the survey instruments were collected by mail or in person. Participants were asked to indicate on a seven-point Likert scale the degree to which they agreed with the statements. A copy of the survey instrument can be found in Appendix A. They were told that the survey was voluntary and their responses would be kept anonymous, being reported in the aggregate. They were asked to answer the questions about their experiences with C2C e-commerce. In addition, participants were asked to give some demographics.

The survey was administered to the sample respondents. Out of a total of 108 potential respondents, 94 chose to participate (87.04%). All respondents had participated in C2C e-commerce. 88.3% had never been the seller of a C2C ecommerce transaction. All respondents had purchased an item using C2C e-commerce. 54.3% of the respondents have used the Internet several times a day and 40.4% have used the Internet daily. No respondent had used the Internet monthly or had never done it.

The respondents' ages ranged from 20 years to 53 years. The genders of the respondents were almost equal (48.9% males; 51.1% females).

The demographic profile of participants is summarized in Table 1 and the Degree of the Internet experience among participants is summarized in Table 2.

Age	20 years old – 30 years old	34 (36.2%)
	31 years old – 40 years old	30 (31.9%)
	Older than 40 years old	30 (31.9%)
Gender	Female	48 (51.1%)
	Male	46 (48.9%)
Education	Completed elementary school	.
	Completed high school or middle school	14 (14.9%)
	Attending college or university	12 (12.8%)
	Completed bachelor degree	38 (40.4%)
	Attending or completed master or doctoral degree	30 (31.9%)
Race	African American	10 (10.6%)
	Asian American	15 (16.0%)
	Latino/Hispanic	12 (12.8%)
	Native American	.
	White	41 (43.6%)
	Multi-racial/Bi-racial	.
	Other	16 (17.0%)

Table 1. Demographic Profile of Participants

Frequency of the Internet	Several times a day	51 (54.3%)
	Daily	38 (40.4%)
	Weekly	5 (5.3%)
	Monthly	.
	Never	.
Usage of the Internet (Choose all that apply)	e-mail	94 (100%)
	Browser Website	63 (67.0%)
	News	71 (75.5%)
	Buy goods	91 (96.8%)
	Sell goods	11 (11.7%)

Table 2. Degree of Internet Experience among Participants

CHAPTER 5: DATA ANALYSIS AND RESULT

Validity and reliability of measures

For data analysis, Harman's single-factor test was used to check for any common method variance (CMV) because several variables were collected from the same source. CMV refers to the amount of spurious covariance shared among variables because of the common method used in collecting data. Such method biases are problematic because the actual phenomenon under investigation becomes hard to differentiate from measurement artifacts. Harman's single-factor test requires that all variables be entered together. It assumes that, if all variables load on one factor accounting for all of the variance or one factor accounts for a majority of the variance, there is a high level of common method variance present. Therefore, we used exploratory factor analysis (EFA) and five factors resulted with an eigenvalue greater than 1.0. The variance explained ranged from 5.952% to 91.557% of the total. This provided evidence that common method variance was not a concern [56].

Construct validity and reliability should be tested on the multi-item constructs of the model. Principal component analysis (PCA) was used to extract factors. Those with eigenvalues greater than 1.0 were retained. In

addition, varimax rotation was conducted using a 0.50 cutoff to indicate high

item correlations. Table 3 shows the result of the factor analysis for all factors.

For data analysis, SPSS (version 11.5 for Window) was used [57].

Variable	Factor	Question	Factor loading	Eigen value	Reliability (Cronbach's alpha)	
Dependent Variable	Natural Propensity to Trust (NPT)	1	.907	7.332	.9689	.8517
		2	.945			
		3	.910			
		4	.874			
		5	.897			
		6	.905			
		7	.894			
		8	.881			
		9	.880			
	Perception of Web Site Quality (PWSQ)	10	.831	2.448	.8119	
		11	.729			
		12	.721			
		13	.843			
	Others' Trust of Buyer/Seller (OTSB)	14	.939	3.784	.9506	
		15	.951			
		16	.955			
	Third Party Recognition (TPR)	17	.907	1.071	.9552	
		18	.901			
Independent Variable	Trust	19	.966	3.662	.9688	
		20	.967			
		21	.946			
		22	.948			

Table 3. Result of the factor analysis

As far as Cronbach's alpha goes, it measures how well a set of variables or items measures a single, unidimensional latent construct. Some professionals, as a rule of thumb, require a reliability of 0.70 or higher (obtained on a substantial sample) before they will use an instrument [56]. Cronbach's α is defined as

$$\alpha = \frac{N}{N-1} \left(1 - \frac{\sum_{i=1}^{N} \sigma_{Y_i}^2}{\sigma_X^2} \right)$$

Where N is the number of components (item or testlets), σ_X^2 is the variance of the observed total test scores, and $\sigma_{Y_i}^2$ is the variance of component i.

The NPT construct items loaded on one factor. The Cronbach's alpha was 0.9689. The PWSQ construct items loaded on one factor. The Cronbach's alpha was 0.8119. The OTSB construct items loaded on one factor. The Cronbach's alpha was 0.9506. The TPR construct items loaded on one factor. The Cronbach's alpha was 0.9552. The multi-item construct for C2C Trust was also tested. A Cronbach's alpha score was found to be 0.9688. Each of the constructs in the model well exceeded the recommended Cronbach's alpha threshold of 0.70 with the lowest at 0.8119 [53]. Through this result, we found there is statistically no problem with both validity and reliability.

Model testing

We tested the relationship between the construct variables and C2C trust by using regression analysis. Normal P-P Plots were reviewed in order to check heteroscedasticity [Figure 2]. In regression analysis, heteroscedasticity means a situation in which the variance of the dependent variable varies across the data. Heteroscedasticity complicates analysis because many methods in regression analysis are based on an assumption of equal variance. The plots suggested there is no problem with heteroscedasticity in data. Moreover, variance inflation factors (VIF) were examined for each of the independent variables to check multicollinearity in the model. Multicollinearity is a situation of very high intercorrelations or inter-associations among the independent variables. No multicollinearity was found in the data since all values of VIF were smaller than 3 [Table 4].
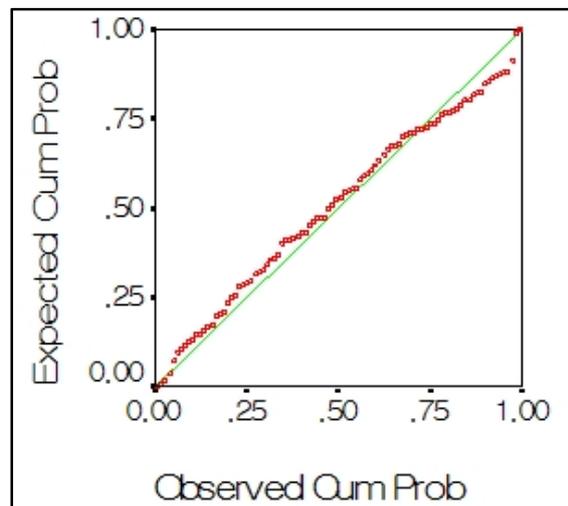

Figure 2. Normal P-P Plot of Regression Standardized Residual

(* Dependent Variable: C2C Trust)

Independent Variable	Parameter estimate	t	p	VIF	Relevant Hypothesis
NPT	-.012	-.195	.846	1	H1 not supported
PWSQ	-.443	-7.012	**.000**	1	**H2 supported**
OTBS	-.108	-1.707	.091	1	H3 not supported
TPR	-.662	-10.481	**.000**	1	**H4 supported**

*S.E.=0.63, Adjusted R²=0.629

Table 4. Regression on C2C Trust (Overall)

Table 4 shows the regression result on C2C trust using the four independent constructs. According to the result, H2 and H4 were supported. Therefore, we found PWSQ and TPR influence trust in C2C e-commerce. This study tried to find if C2C e-commerce trust will depend on age or gender as control variables. Therefore, we tried to test the relationship between the construct variables and C2C trust with age and gender factors as control variables by using regression analysis as well.

Table 5 shows the regression result on C2C trust using the four independent constructs with age factor as a control variable. According to the result, there was some different result among age. Therefore, H5 (C2C trust will depend on age) was supported.

Control variable	Age	Independent Variable	Parameter estimate	S.E.	t	p	VIF	Relevant Hypothesis
Age	20's *Adjusted R²=.865, *p=.000	NPT	.050	.051	0.748	.460	1.140	H1 not supported
		PWSQ	-.271	.075	-3.639	.001	1.082	H2 supported
		OTBS	.016	.063	.254	.801	1.105	H3 not supported
		TPR	-.819	.064	-12.879	.000	1.095	H4 supported
	30's *Adjusted R²=.646, *p=.000	NPT	.036	.109	.329	.745	1.016	H1 not supported
		PWSQ	-.551	.120	-4.598	.000	1.103	H2 supported
		OTBS	-.079	.087	-.902	.376	1.021	H3 not supported
		TPR	-.501	.111	-4.519	.000	1.091	H4 supported
	Older than 40's *Adjusted R²=.612, *p=.000	NPT	-.120	.123	-.981	.336	1.096	H1 not supported
		PWSQ	-.152	.130	-1.174	.252	1.494	H2 not supported
		OTBS	-1.148	.266	-4.315	.000	1.791	H3 supported
		TPR	-.099	.170	-.582	.565	1.728	H4 not supported

Table 5. Regression on C2C Trust with age factor

Table 6 shows the regression result on C2C trust using the four independent constructs with gender factor as a control variable. According to the result, there was no difference result between male and female. Therefore, H6 (C2C trust will depend on gender) was not supported. It means that C2C e-commerce trust does not depend on gender.

For modeling test, SPSS(version 11.5 for Window) was used [57].

Control variable	Gender	Independent Variable	Parameter estimate	S.E.	t	p	VIF	Relevant Hypothesis
Gender	Male *Adjusted R²=.574, *p=.000	NPT	-.095	.102	-.891	.378	1.071	H1 not supported
		PWSQ	-.435	.095	-4.584	.000	1.074	H2 supported
		OTBS	-.084	.112	-.754	.455	1.144	H3 not supported
		TPR	-.589	.101	-5.819	.000	1.012	H4 supported
	Femle *Adjusted R²=.679, *p=.000	NPT	.050	.080	.631	.531	1.041	H1 not supported
		PWSQ	-.477	.094	-5.093	.000	1.081	H2 supported
		OTBS	-.120	.082	-1.460	.152	1.128	H3 not supported
		TPR	-.747	.083	-9.030	.000	1.012	H4 supported

Table 6. Regression on C2C Trust with gender factor

CHAPTER 6: DISCUSSION

Natural propensity to trust – NPT

We did not find a significant relationship between person's NPT and C2C e-commerce trust (H1) in general, that is, NPT was not found significantly to affect C2C e-commerce trust. This result supported the previous research by Jones and Leonard [32].

Perception of web site quality – PWSQ

We found that PWSQ influence C2C e-commerce. This result indicated that the perception of web site quality might extend to a person's trust of C2C e-commerce in general. However, we did not find this to significantly affect C2C e-commerce in people who are in their 40's and older than 40's.

Others' trust of buyer/seller – OTBS

We could not find a significant relationship between OTBS and trust in C2C e-commerce (H3) in general. As far as those who are in their 40's and older than 40's go, OTBS might influence trust in C2C e-commerce. Perhaps, since consumers who are 20's and 30' could find so much information about

goods from other Internet sources, they do not tend to depend on Other's trust. However, in older people's case, they might depend on other's trust in that they usually do not have enough ability to search and earn some information through the Internet or other source.

Third party recognition – TPR

We found third party recognition significantly affect C2C e-commerce trust (H4). This result was consistent with the previous research [32]. Items such as a seal of approval or escrow service can influence C2C e-commerce trust. According to Jones and Leonard, consumers may prefer to use structured C2C web sites, such as eBay, to provide some recognition of standards being met. This result supported their opinion as well. However, we did not find this to significantly affect C2C e-commerce in people who are in their 40's and older than 40's.

Control variables – Age / Gender

In this study, C2C e-commerce was expected to depend on age and gender factors. However, only age factor as a control variable (H5) affected C2C e-commerce. There was no significant effect of gender (H6).

Implications for practice

The result obtained from this study shows some important implications for the management of e-commerce companies. In particular, a deep understanding of the C2C e-commerce trust and its effects can be very useful to determine those strategies and actions leading the Internet users to become real online purchasers. For example, a remarkable effort must be made to improve both perceived web site quality (H2: PWSQ) and third party recognition for e-commerce (H4: TPR). Moreover, Internet merchants should make a different strategy by target consumer's age not but gender.

The quality of a Web site influences C2C e-commerce trust. Therefore, it is very important for a web site manager such as eBay to update and make the web site maintain a high quality using technical tools.

The third party recognition should play an important role in C2C e-commerce. A web site manager can use the third-party seals of approval, such as TRUSTe or BBBOnline, to endorse their privacy seals, as users consider them important, and are more willing to provide personal information to the site because of the third party verification. The web site manager can develop and foster consumer trust more effectively with certificates from independent and trusted third parties.

Especially, an Internet merchant whose target are people older than 40 years old should consider improving the other's trust of buyer or seller (H3: OTBS). In this case, the way to establish trust is by creating communities that allow consumers to present their feedback. As far as older people go, trust can be induced through other customers' feedback and comments.

Limitations and Future research

In this study, we selected residents living in the city of Columbia, Missouri for the sample population. However, a different group such as residents living in a large city may yield different results. In the future, research may be extended by selecting samples from wider areas including both large cities and small towns.

The other limitation is that buyers and sellers were not separated in the analysis, that is, both buyer and sellers of C2C e-commerce were evaluated together in this study. In the sample size, there were more buyers than sellers of C2C e-commerce. Through a separation of these two groups in a future study, we may obtain different results.

CHAPTER 7: CONCLUSION

In this study, we found that only perception of web site quality (PWSQ) and third party recognition (TPR) influenced C2C e-commerce trust in general with the exception of the 40's and over age group. Our finding, which had a larger sample population, supported a previous research by Jones and Leonard [32]. However, as far as those who are 40's and older than 40's go, others' trust of buyers/sellers (OTBS) might influence trust in C2C e-commerce trust. Therefore, we anew found C2C e-commerce trust depends on age factor. Web site managers related to C2C e-commerce should focus on web site quality and third party institutions in order to improve trust in them and to potentially improve their transaction volume to consumers. Moreover, they have to make a different strategy by age to increase online purchase of consumers.

APPENDIX A

Survey Instruments

Informed Consent

Introduction

Please ask the investigators to explain any words or information that you do not clearly understand in this consent form. The information presented here is an effort to make you better informed so that you may give or withhold your consent to participate in the study. Research studies include only subjects who choose to participate. This study is being conducted by Yoon, Hyun Shik, majoring in Industrial and Manufacturing Systems Engineering at the University of Missouri-Columbia (MU).

Purpose of research

Electronic commerce (e-commerce) is a continuously evolving phenomenon. Especially, since prior researches show that general lack of trust in e-commerce as a significant fact causes inhibiting online purchases, the importance of trust in building and maintaining consumer relationship in e-commerce environment is widely accepted in the Information Systems literature. A key challenge for researchers is to identify antecedent variables that engender consumer trust in e-commerce including business-to-consumer (B2C) and consumer-to-consumer (C2C). Even though, however, C2C has been found to be more popular than B2C e-commerce counterpart, a main stream tends to focus on B2C e-commerce area without making a distinction between B2C and C2C e-commerce. Therefore, C2C e-commerce should be proven to be a distinct area of research, requiring new models of operation. This study aimed at proposing a theoretically-grounded integrative model of consumer trust in e-commerce and providing empirical investigation and evidence of the predictive power of the research model.

Procedures

This survey is open to all residences living in Columbia, Missouri who are over 20 years of age. As a participant in this study, you will be finish about 35 questions which will take no longer than 15 minutes to fill out. The contents of this questionnaire will include issues that most consumers using online shopping are facing. A questionnaire has been attached to this file. You will be expected to fill it out and mail this file back to the principal investigator.

Risks

Previous similar studies with these types of questions have shown to have little or no evidence of risks or discomforts on subjects while filling out questionnaire. This study is voluntary and you have the right to refuse to participate and have the right to terminate their participation at any time. If you refuse or withdraw from participation, your benefits or rights will not be affected.

Benefits

It is hoped that the results of this study will provide Internet merchants important guidelines to build consumer trust strategies that help maintain long-term customer relationships in the online environment.

Confidentiality

The results of this study will be kept confidential. The information that you provide will be completely private. The information that you provide will only be used for scientific purposes. Participant name and SSN (Social Security Number) will not be required in order to finish this survey.

Subject's Permission

I have read and understood the above description of the study. I hereby acknowledge the above and give my voluntary consent for this study. I further understand that if I participate, I may withdraw at any point during the study without penalty.

If you have any questions regarding your rights as a participant in this study or concerns you may contact the University of Missouri Campus Institutional Review Board. You may ask more questions about this study at any time. You can contact Yoon, Hyun Shik or Dr. Luis G. Occeña.

We greatly appreciate your time and assistance in this project

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Demographic Information

Please tell us your age:

_____ 20 years old – 30 years old

_____ 31 years old – 40 years old

_____ Older than 41 years old

Please tell us your educational background:

_____ Completed elementary school

_____ Completed high school or middle school

_____ Attending college or university

_____ Completed bachelor degree

_____ Attending or completed master or doctoral degree

How do you identify:

_____ Male

_____ Female

Please tell us your race/ethnicity:

_____ African American

_____ Asian American

_____ Latino/Hispanic

_____ Native American

_____ White

_____ Multi-racial/Bi-racial

_____ Other

How often do you use the Internet?

_____ Several times a day

_____ Daily

_____ Weekly

_____ Monthly

_____ Never

If you use, what do you do by the Internet? (Choose all that apply)

_____ email

_____ Browser Website

_____ News

_____ Buy goods

_____ Sell goods

Questions for Trust in e-commerce

*Source: K. Jones, L.N.K. Leonard, Trust in consumer-to-consumer electronic commerce: Information & Management 45, 2008, pp. 88-95

	Question	Answer 1: Strongly disagree 7: Strongly agree						
1	In general, people really do care about the well-being of others.	1	2	3	4	5	6	7
2	The typical person is sincerely concerned about the problems of others.	1	2	3	4	5	6	7
3	Most of the time, people care enough to try to be helpful, rather than just looking out for themselves.	1	2	3	4	5	6	7
4	In general, most folks keep their promises.	1	2	3	4	5	6	7
5	I think people generally try to back-up their words with their actions.	1	2	3	4	5	6	7
6	Most people are honest in their dealings with others.	1	2	3	4	5	6	7
7	I usually trust people until they give me a reason not to trust them.	1	2	3	4	5	6	7
8	I generally give people the benefit of the doubt when I first meet them.	1	2	3	4	5	6	7
9	My typical approach is to trust new acquaintances until they prove I should not trust them.	1	2	3	4	5	6	7
10	The C2C e-commerce site I use is of high quality.	1	2	3	4	5	6	7
11	The likely quality if the C2C e-commerce site I use is extremely high.	1	2	3	4	5	6	7
12	The C2C e-commerce site I use must be of very good quality.	1	2	3	4	5	6	7
13	The C2C e-commerce site I use appears to be of very poor quality.	1	2	3	4	5	6	7
14	A friend recommending a seller/buyer in C2C e-commerce reduces my risk in the transaction.	1	2	3	4	5	6	7
15	A person from my online community (i.e., groups with whom I interact online) recommending a seller/buyer in C2C e-commerce reduces my risk in the transaction.	1	2	3	4	5	6	7
16	An online acquaintance (i.e., one with whom I regularly chat online) recommending a seller/buyer in C2C e-commerce reduces my risk in the transaction.	1	2	3	4	5	6	7
17	I think third party recognition bodies (e.g., eBay, Verisign, etc.) of C2C e-commerce are doing a good job.	1	2	3	4	5	6	7
18	Existing third party recognition bodies (e.g., eBay, Verisign, etc.) of C2C e-commerce are adequate for the protection of C2C e-commerce buyers'/sellers' interests.	1	2	3	4	5	6	7
19	C2C e-commerce is unreliable.	1	2	3	4	5	6	7
20	C2C e-commerce cannot be trusted, there are just too many uncertainties.	1	2	3	4	5	6	7
21	In general, I cannot rely on C2C e-commerce buyers/sellers to keep the promises that they make.	1	2	3	4	5	6	7
22	Anyone trusting C2C e-commerce is asking for trouble.	1	2	3	4	5	6	7

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