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Lai Tung
Nanyang Technological University

Puay Tan
Nanyang Technological University

Pei Chia
Nanyang Technological University

Yeow Koh
Nanyang Technological University

Hwee-Lee Yeo
Nanyang Technological University

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AN EMPIRICAL INVESTIGATION OF VIRTUAL COMMUNITIES AND TRUST

Lai Lai Tung

Nanyang Business School
Nanyang Technological University

Puay Leng Jennifer Tan

Nanyang Business School
Nanyang Technological University

Pei Jin Tartrice Chia

Nanyang Business School
Nanyang Technological University

Yeow Leng Koh

Nanyang Business School
Nanyang Technological University

Hwee Lee Yeo

Nanyang Business School
Nanyang Technological University

Abstract

In the midst of promising perceived benefits, the electronic commerce (EC) environment entails greater challenges than those posed by conventional trade. In addition to privacy and security concerns, researchers and businesses alike are increasingly aware that the lack of trust for online vendors experienced by consumers constitutes a serious barrier to the widespread adoption and successful proliferation of EC. The process of building trust between consumers and vendors in the online environment thus becomes of paramount importance.

This study seeks to examine how online vendors can develop trusting relationships with consumers through the establishment of virtual communities (VCs), fast becoming a notably successful online business model with relationship-enhancing and trust-building capabilities. By integrating multi-disciplinary theories, we propose and empirically validate a model, which proposes that increased levels of involvement in VCs enhances trust building among members and vendors, in turn encouraging greater EC participation in light of lower perceived risks and greater perceived benefits of online transactions. Results indicate that these relationships as proposed in the model are significant. There is empirical support that VCs constitute a successful business model of building trust, reducing perceived risks of purchase, improving customer relationships, reducing search costs, and retaining customers, leading us to conclude that increased involvement in VCs indeed has a positive effect on EC participation.

Keywords: Electronic commerce, virtual communities, trust.

INTRODUCTION

As the Internet provides firms with the ability to conveniently and flexibly share information across organizational and geographic boundaries, electronic commerce (EC) brings possibilities and potential benefits that can be extremely enticing and rewarding. Yet, research also goes to show that low consumer confidence is rapidly becoming a primary obstacle to the success and proliferation of online businesses (Schoder and Yin 2000; Zalud 1997). In light of technological, security, and privacy concerns, many consumers do not trust most Web providers enough to engage in online transactions. Increasingly, research in the EC field

suggests that an effective way to combat Internet paranoia would be for businesses to establish a trusting relationship with their consumers (e.g., Jarvenpaa and Tractinsky 1998; Oberndorf 1996; Tan and Thoen 2000).

The focus of this study is to examine how online vendors can develop trusting relationships with consumers through the establishment of virtual communities. A virtual community (VC) is commonly defined as a social group of any size that shares common interests whether social, professional, occupational, or religious (Beamish 1995). An increasing number of studies suggest that VCs are effective as a tool for relationship-enhancing and trust-building (Figallo 1998; Hagel and Armstrong 1997; Rheingold 1993). Also, VCs have been singled out as a significant trend in electronic commerce (Hashim 1999) and proposed to be one of the most successful business models to emerge and capitalize on the Internet's capabilities. In fact, many online businesses are fast adopting VCs as their new online business model to further exploit the full potential of the Internet.

However, others have criticized VCs as "pseudo-communities" (Jones 1997; McClellan 1994) that lack "human occupancy, commitment, interaction, and living among and with others." In light of these differing views, this study seeks to integrate relevant theories to develop and empirically examine a model that describes the perceived benefits of VCs, and how they may serve to build trust, reduce perceived risks, and increase EC participation. Not only is this study significant given its pioneering effort in examining the interrelations between two central EC concepts, VC and trust, it also adds value to practitioners by highlighting the process of trust building among web consumers stemming from increased levels of involvement and interaction within VCs, which in turn leads to greater EC participation.

THEORETICAL BACKGROUND

Social Identity Theory

Social identity theory (Tajfel and Turner 1986) involves three central ideas, categorization, identification, and comparison. Categorization refers to the tendency for people to group themselves according to some common behavior or characteristics. Identification is a perception of oneness with a group of people (Blake and Fred 1989), which in turn influences the behavior and attitudes of members of the group. Comparison refers to the tendency for people to seek out others in order to evaluate the accuracy of their personal beliefs and attitudes. This theory proposes that creating a common identity will lead to common behavior (Owen 1985) and develop cohesiveness within a group of people who may not even like each other (Hogg and Turner 1985; Turner et al. 1983). In a similar vein, we reason that there is a tendency for people to develop cohesiveness within a VC regardless of face-to-face interaction.

Social Exchange Theory (SET)

Social exchange theory (SET) explains the formation of social contracts between two or more parties, where present social costs are invested in exchange for future, non-guaranteed social rewards (Blau 1964), which often include intangibles such as feelings, ideas, affection, assistance, recognition, and the like. The involvement of members in VCs is a plausible example of SET (Blau 1964; Homans 1950; Thibaut and Kelley 1959), where, despite "cold starts" (Tiwana and Bush 2000), the expected rewards of virtual discussion are deemed to exceed expected costs over time (Blau 1964) when the vendors and members provide each other with active feedback, in turn influencing mutual behavior and the willingness to contribute information, ideas, and opinions.

Commitment Trust Theory

Commitment trust theory conceptualizes that commitment and trust are key ingredients that lead directly to cooperative behaviors among exchange partners (Morgan and Hunt 1994) because of the belief that the other party will not act opportunistically. This is especially relevant to the EC environment, where it has been noted that despite the assurances of technological security mechanisms, consumers do not seem to trust the "people side" of the transactions (Marcella et al. 1998). Instead, when trust exists between trading parties, the perceived risks involved in the transaction may be substantially reduced (Blair and Stout 2000; Morgan and Hunt 1994; Noorderhaven 1996). In application to this paper, as cohesiveness and trust develop between VC members and vendors, perceived risks of EC may be reduced, hence increasing EC participation.

Trust Theories

VC and Three Perspectives of Trust

Three generally acknowledged perspectives of trust comprise individual, institutional, and relationship trust (Kini and Choobineh 2000; Rousseau et al. 1998). Individual trust stems largely from the perspective of personality theorists and focuses on the personality characteristics of an individual in determining one's willingness to trust (Bowlby 1973; Rempel et al. 1985; Rotter 1980). Institutional trust stems largely from the perspective of sociologists and economists and focuses on how individuals generalize their personal trust to institutions of little familiarity (Lewicki and Bunker 1995). Relationship trust stems from social psychologists' perspectives and refers to an expectation individuals have of others with whom they are involved in a relationship (Deutsch 1958). Kini and Choobineh contend that trust on the Internet progresses from institutional trust, with users having faith in the system processes despite little familiarity with its workings, to relationship trust when given opportunities for further interaction, which can in turn be provided by VCs.

VC and Trust Production Mechanisms

Zucker (1986) suggests three types of trust-creating mechanisms: process, characteristic, and institutional. Process-based mechanisms generally refer to social interactions (Luhmann 1979), interpersonal relationships (Anderson and Narus 1990; Moorman, Deshpande, and Zaltman 1993; Moorman, Zaltman, and Deshpande 1992) and communication (Blau 1964; Homans 1950; Morgan and Hunt 1994). Characteristic-based mechanisms build on social similarity, such as family, ethnicity (Gefen 1997), national origin, and gender (Zucker 1986). Institutional-based mechanisms generally comprise either firm-specific or trusted third-party certifications and guarantees of one's trustworthiness.

The Effect of Group Membership. In light of characteristic-based trust, group membership affects perceptions and beliefs about people and organizations and can build trust (Homans 1950; Sherif 1966). The extent of group interaction is positively correlated with the feelings and perceptions that the members feel toward each other (Blau 1964; Homans 1950). In a similar vein, we reason that belonging to a VC will increase the members' trust toward one another.

Involvement in VCs. Rousseau et al. (1998) highlight that "both the history and nature of the interaction between the parties can shape the form that the trust takes." In this paper, we highlight two factors—level of involvement in VC and time—which affect trust building in VCs. Following Wellman (1995) and Beamish (1995), we define a VC as an electronically gathered social group of any size that shares common interests whether these be social, professional, occupational or religious. In order for any VC to flourish, interaction between members is a key element of success (Rockwell 1998). In relation to trust, we posit that the higher the level of interaction and involvement of members in the VC, the higher the trust level.

Many studies indicate the importance of time in the trust-building process (Cheskin Research and Studio Archetype/Sapient 1999; Lewicki and Bunker 1995). Although we acknowledge the importance of time on developing trust in VCs, this study focuses on using level of involvement, in turn measured by the frequency of members' visits to the VC in the month prior to taking the survey.

HYPOTHESIS AND CONCEPTUAL MODEL

VCs and Trust

In light of the social identity theory, VCs make good trust-building tools as people categorize and identify themselves as part of a group with common characteristics, cohesiveness develops among them, in turn facilitating the production of trust between group members (Figallo 1998; Hagel and Armstrong 1997; Rockwell 1998; Schubert 2000). In addition, given that social comparison within the group reasonably gives rise to the sharing of opinions and views which eventually serve to influence beliefs, attitudes, and behavior, positive beliefs and expectations toward online vendors/sites may also develop as members' level of involvement in the VC increases. Therefore, we propose

Hypothesis 1: *Level of involvement in the VC is positively associated with level of trust for other members/users.*

Hypothesis 2: *Level of involvement in the VC is positively associated with level of trust for the vendor/site.*

Hypothesis 3: *When trust is established between members from involvement in the VC, highly involved members perceive a greater level of trust for vendor/site than minimally involved members.*

Trust in VCs, Perceived Risks, and Participation in EC

In line with the commitment-trust theory and social relations and management theorists' perspectives (e.g., Blair and Stout 2000; Morgan and Hunt 1994; Noorderhaven 1996) that trust substantially reduces the inefficiencies of transaction costs by discouraging opportunism and encouraging cooperation between parties, we propose

Hypothesis 4: *When trust is established from involvement in the VC, highly involved members perceive lower risks of purchase than minimally involved members.*

H4A: *When trust is established between members from involvement in the VC, highly involved members perceive lower risks of purchase than minimally involved members.*

H4B: *When trust is established for the vendor/site from involvement in the VC, highly involved members perceive lower risks of purchase than minimally involved members.*

Hypothesis 5: *Level of perceived risks of purchase is negatively associated with members' level of participation in EC.*

Perceived Benefits of VCs and Participation in EC

Applying SET theory to the VC context, we reason that people participate in VCs due to the vast benefits (e.g., improved customer relationships and retention, and reduced search costs) that can be derived from it. Hagel and Armstrong suggest that VCs provide consumers with the ability to access more information and extract more value from vendors, thus bringing greater opportunities for building customer relationships and brand loyalty. Similarly, VCs make it easier for vendors and customers to find each other because all the relevant information regarding the products and services are centrally located and made available in the online community, in turn reducing search costs. Finally, Figallo holds that VCs "weave a web of personal relationships that bind their participants to the site." Hearn and Gill (1998) elaborate that VCs enhance members' receptivity to advertising and incentives to buy by providing a framework in which they are attracted, engaged, and retained. Together, these benefits enhance the value of online transactions, in turn attracting greater EC participation from VC members, especially those with high involvement. Therefore, we propose

Hypothesis 6: *Highly involved members perceive greater benefits in VCs than lowly involved members.*

H6A: *Highly involved members perceive a greater improvement in customer relationships than minimally involved members.*

H6B: *Highly involved members perceive a greater reduction in search costs than minimally involved members.*

H6C: *Highly involved members are better retained than minimally involved members.*

Hypothesis 7: *Perceived benefits in VCs is positively associated with members' level of participation in EC.*

H7A: *Members' level of participation in EC is positively associated with improved customer relationships.*

H7B: *Members' level of participation in EC is positively associated with reduced search costs.*

H7C: *Members' level of participation in EC is positively associated with increased customer retention.*

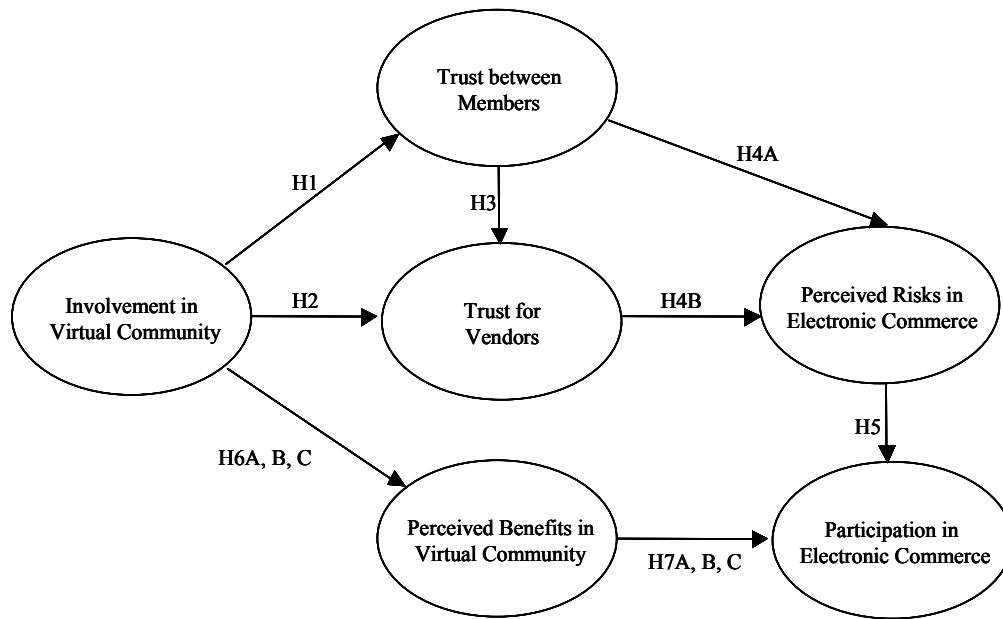


Figure 1. Research Model

METHODS

Research Instrument

An online questionnaire was used to measure the constructs of interest. Table 1 summarizes the constructs, indicators, and sources of scales from which our survey questions were adapted to the context of this study. An abstract of the research instrument is included in Appendix 1.

Reliability and Validity of Research Instrument

Validity and reliability of all items in the research instrument were assessed and reported in Table 2, using factor analysis employing maximum likelihood method with varimax rotation and Cronbach's alpha respectively. These analyses were not applicable to single-item indicators included in the table below as NA. We note that the factor loadings on all assessed items report reasonable convergent and discriminant validity, and strongly suggest uni-dimensionality of all scales. Reliability coefficients, all exceeding 0.80, are also satisfactory.

Sampling Procedure

A population sample of 5,000 participants from the e-mail lists of various VCs such as MSN, Yahoo!, and BSZnet was drawn using systematic sampling. Starting from the second member in each of the e-mail lists, every subsequent second member was chosen until the sample population of reached 5,000 members.

Response Rate

Of the total sample size of 5,000 members from varied communities, 1,736 e-mailed letters were returned as undeliverable SMTP failures, while a total of 163 valid responses were received of the remaining 3,264 target respondents, giving a response rate of 5%. The valid responses can be further categorized as highly and minimally involved members, comprising of 90 and 73 responses respectively. Despite a seemingly low response rate, the resulting sample size for each subgroup is well above the minimum sample size of 30 proposed by Roscoe (1975), which goes some length to alleviate concerns of possible non-response bias.

Table 1. Constructs and Sources of Measures

Construct	Indicators	Source of Scales	Question
Involvement in VC	Frequency of visiting VC in the period of one month prior to taking the survey	Self-developed	1
Trust in Members/Users	Willingness to trust other members	Adapted from Wrightsman (1991)	2
	Willingness to share information and experience		3
	Willingness to consult on problems		4
	General trust of other members		5
Trust in Vendors/Sites	Trust in vendor transferred from trust in other members	Self-developed	6
	Trustworthiness of vendor (privacy protection)	Adapted from Cheskin Research (1999); Gefen (1997)	7
	Integrity of vendor (privacy protection)		8
	Competence of vendor (successful fulfillment)		9
	Honesty of vendor (truthful information)		10
Perceived Risks in EC	Risk of choice of product	Adapted from Figallo (1998); Rockwell (1998); Hagel and Armstrong (1997)	11
	Risk of choice of vendor		12, 13
Perceived Benefits of VC	Improved customer relations	Adapted from Figallo (1998); Hagel and Armstrong (1997)	14, 15
	Reduced search costs		16, 17
	Improved customer retention		18
Participation in EC	Increase in frequency of online transactions	Self-developed	19

Table 2. Reliability and Validity of Measures

Scale Items	Factor Loading	Cronbach Alpha
<i>Involvement in VC</i>		
Frequency of visiting VC in the period of one month prior to taking the survey	NA	NA
<i>Trust in Members/Users</i>		
Willingness to trust other members	0.84	0.89
Willingness to share information and experience	0.84	
Willingness to consult on problems	0.73	
General trust of other members	0.69	
<i>Trust in Vendors/Sites</i>		
Trust in vendor transferred from trust in other members	NA	NA
Trustworthiness of vendor (privacy protection)	0.69	0.87
Integrity of vendor (privacy protection)	0.84	
Competence of vendor (successful fulfillment)	0.80	
Honesty of vendor (truthful information)	0.62	
<i>Perceived Risks of EC</i>		
Risk of choice of product (recommended)	0.75	0.84
Risk of choice of vendor (recommended)	0.83	
Risk of choice of vendor (trusted)	0.50	
<i>Perceived Benefits of VC</i>		
Improved customer relations (with vendors)	0.77	0.89
Improved customer relations (after-sales support)	0.71	
Reduced search costs (vendors)	0.71	0.92
Reduced search costs (products)	0.73	
Customer retention	NA	NA
<i>Participation in EC</i>		
Increase in frequency of online transactions	NA	NA

Level of Involvement of Members/Users

For the purpose of our analysis, respondents were classified as highly involved and minimally involved members, given their natural clustering into two groups, comprising “10 or less visits per month” and “20 or more visits per month” respectively. A small portion of respondents (18%) that reported “11-20 visits per month” was classified as highly involved members.

RESULTS

Demographics

The demographic characteristics of this study’s respondents are summarized in Table 3.

Table 3. Demographic Characteristics

Characteristics	Sample	
	F	%
Gender		
Male	80	49
Female	79	49
Missing	4	2
<i>Total</i>	163	100
Age		
Below 16	2	1
16–30	99	61
31–60	52	32
Above 60	2	1
Missing	8	5
<i>Total</i>	163	100
Marital Status		
Single	105	64
Married	41	25
Other	13	8
Missing	4	3
<i>Total</i>	163	100
Education		
High School Graduate	21	13
Some College	23	14
College Degree/Diploma	68	42
Graduate/Professional	50	30
Grade School	1	1
<i>Total</i>	163	100
Monthly Income		
< \$2,000	68	42
\$2,000–\$4,999	37	23
\$5,000–\$7,999	18	11
\$8,000–\$10,999	5	3
> \$11,000	17	10
Missing	18	11
<i>Total</i>	163	100

Independent t-test analyses revealed that at 95% confidence level, there were no significant differences between highly and lowly involved members with respect to gender, age, education, and monthly income. However, it was noted that although a majority

of the respondents (64%) were singles, lowly-involved members report a significantly higher number of singles than highly involved members. In addition, data collected on the type of activities carried out by VC members were not significantly different between the two groups except for chat-room use, which highly involved members were found to use more extensively.

Test of Hypotheses

All hypotheses were tested using independent t-tests, except for H5 and H7, which were tested using a simple logistic regression due to the binary values of “Yes” or “No” taken by the dependent variable (“participation in EC”). All of the hypotheses were supported at the 95% significance level. The results are summarized in the Tables 4 and 5.

The null hypotheses in all the above cases were rejected at the 95% confidence level as significant mean differences between highly involved and minimally involved members were noted. In sum, highly involved members were found to exhibit greater levels of trust for members/users and vendors/sites, perceive lower risks of purchase in EC, and greater benefits of VCs, including reduced search costs, improved customer relationships, and retention.

Backward selection logistic regression analyses were performed on H5 and H7 to find the best models based on maximum likelihood estimates. In the process, H7A’s independent variable “improved customer relationships” was excluded from the model due to multicollinearity problems which will be further discussed in the following section. Goodness-of-fit statistics of the resulting models suggest reasonably good fit, with positive values of beta, which suggest that “lower perceived risks of purchase” (H5), “reduced search costs” (H7B), and “improved customer retention” (H7C) all share a positive relationship with increased participation in EC. Hence, H5, H7B, and H7C are all supported at 95% confidence level.

Table 4. Independent T-Tests

Hypothesis	Involvement	N	Mean	Standard Deviation	T-Test for Equality of Means			Conclusion
					P-Value	T-Value	df	
H1	High	87	4.53	1.20	0.00	5.31	157	Supported
	Minimal	72	3.49	1.25				
H2	High	88	4.71	1.26	0.00	4.17	156	Supported
	Minimal	70	3.88	1.25				
H3	High	89	5.22	1.35	0.00	3.44	156	Supported
	Minimal	69	4.46	1.42				
H4A	High	87	4.91	1.43	0.00	4.34	156	Supported
	Minimal	71	3.92	1.40				
H4B	High	87	5.06	1.49	0.02	2.03	156	Supported
	Minimal	71	4.39	2.56				
H6A	High	88	4.36	1.52	0.00	3.30	156	Supported
	Minimal	70	3.66	1.14				
H6B	High	87	4.91	1.48	0.00	4.30	156	Supported
	Minimal	71	3.97	1.27				
H6C	High	87	5.45	1.40	0.00	4.23	156	Supported
	Minimal	71	4.47	1.51				

Figure 5. Simple Logistic Regression

Model	Hypothesis	N	Beta	Logistic Regression		Conclusion
				P-Value	Goodness of Fit	
1	H5	85	1.03	0.00	177.72	Supported
2	H7B	85	1.01	0.00	78.29	Supported
	H7C	85	0.59	0.01		

DISCUSSION OF RESULTS

The Role of VCs in Promoting Trust

Our results confirm H1 and H2, that given a higher level of involvement in VCs, members are also likely to experience higher levels of trust for other members and vendors, which validates Homans' (1950) and Sherif's (1966) common view that "classifying people according to group membership can help create trust." This suggests that higher involvement in VC activities bring greater familiarity that builds relationship trust between members and toward vendors.

Consistent with the idea that social identity within the group influences and leads to common behavior and attitudes, results supporting H3 show that, compared to minimally involved members, the higher level of trust between highly involved members contributes to a perceived increase in the level of trust for the vendor/site. If other group members trust the vendor, it is highly likely that a member who has developed relationship trust with these members will be influenced to also trust the vendor. From this, we can also infer that relationship trust between members may be generalized to institutional trust for vendors.

Contrary to the criticism of VCs as "pseudo-communities" (Jones 1997; McClellan 1994), our results serve to establish and support the idea that VCs constitute an effective relationship-enhancing and trust-building tool (Figallo 1998; Hagel and Armstrong 1997; Rheingold 1993) of considerable value to online businesses.

Trust in VCs and EC Participation

Trust can reduce perceived risks in EC (Hagel and Armstrong 1997; Morgan and Hunt 1994), such as security and privacy concerns. This study provides evidence that when trust is established between members, highly involved members experience a greater reduction in their perceived risks of purchase than minimally involved members, since H4A is supported. Similar to the idea of social influence in social identity theory, the relationship trust concept states that relationship trust among members is more relevant in terms of predicting outcomes than an individual's general trust in others. For instance, members would tend to "predict" higher qualities of a product/vendor if recommendations are received from other members, which is supported by our results. Hence, vendors should build trust between members and establish a good rapport with the members in order to encourage more positive word-by-mouth recommendations within the community, in turn reducing the members' perceived risks of purchase.

Results supporting H4B also show that when trust is established for the vendor, highly involved members experience a greater reduction in perceived risks of purchase than minimally involved members. As suggested by Hagel and Armstrong, reduced risks of purchase increase one's propensity to purchase, in turn increasing EC participation. Results from the logistic regression test of H5 reveal that members who perceive lower risks of purchase also show higher levels of participation in EC. In this regard, we can confidently infer that trust is an important factor that promotes EC.

Perceived Benefits of VCs in Promoting EC

Results also support the hypotheses that highly involved members perceive greater improvement in customer relationships (H6A), reduction in search costs (H6B), and improvement in customer retention (H6C). Consistent with the views of Hagel and Armstrong, of Figallo, and of Rockwell (1998), consumers tend to develop a preference and purchase more frequently from the site of a vendor with whom they enjoy improved customer relationships. Furthermore, reduced search costs within a community makes it convenient for members to locate products and services of a vendor and to compare across different vendors, thereby increasing their confidence to buy online. Meanwhile, increased retention of customers creates loyalty to the website and the operating vendor, in turn increasing the frequency of online buying from that vendor.

Again, in line with the propositions of Hagel and Armstrong, of Figallo, and of Rockwell, our results indicate that reduced search costs (H7B) and increased customer retention (H7C) share a significantly positive relationship with increased EC participation. Unfortunately, this study was unable to confirm the actual contributions of improved customer relationships (H7A) to EC participation due to multicollinearity problems. The significant correlations between this variable with the two other independent variables reduced search costs and improved customer retention led us to use a backward stepwise regression package (Keller and Warrack 1999) to minimize the undesirable effects of multicollinearity, which could include biased and misleading intercept and slope coefficients of the regression model. This process initially included all of the relevant independent variables in H7 and

subsequently removed any variable found not to be significantly related to the dependent variable. In this case, improved customer relationships was removed. It is important to note, however, that improved customer relationships constitute a major perceived benefit of VCs and the mere exclusion of this variable from the regression model due to multicollinearity does not suffice to conclude that the variable is not a significant factor contributing to EC participation.

LIMITATIONS AND RECOMMENDATIONS

Limitations

There are several limitations to our research study. First, the results of our survey may not be totally representative of all VCs because of the overwhelmingly large number of VCs on the Internet.

Second, the problem of multicollinearity between the different independent variables relevant to H7, namely improved customer relationships, reduced search costs, and improved customer retention, plausibly due to questionnaire design fault, has hindered the testing of whether improved customer relationships does in fact contribute significantly to increased EC participation.

Third, the cross-sectional design of this study was unable to capture another important dimension to the process of trust building between VC members and vendors, namely the time dimension (Lewicki and Bunker 1995; Rousseau et al. 1998). In this regard, a longitudinal study may better examine the effect of time on trust building in the VC context and its subsequent impact on EC participation.

Recommendations

Implications for Vendors

Several implications for vendors have arisen from the results of our research. First, vendors should consider setting up VCs as a way of cultivating trust and continuous relationships that yield valuable information and benefits. To remain strategically competitive, new business potentials created by the emergence of VCs should be harnessed. Hagel and Armstrong (1997) stated that "businesses that create communities that satisfy both relational and transactional needs will reap the benefits of greater customer loyalty and may gain important insights into the nature and needs of their customer base."

Second, although communities built on the basis of similar characteristics may be important, vendors should also adopt more of the process-based and institutional-based mechanisms to build trust. Increased trust will result in more frequent online purchases and sincere feedback, which are important to EC.

Third, it is important for vendors to note that establishing good rapport with members is important because, often, the word-by-mouth recommendations between members are more persuasive than any other marketing strategies adopted by the vendor.

Fourth, to better retain members and consumers, vendors should adhere strictly to members' privacy policy as well as provide rich information contents. Providing chat-rooms for members with similar interests is also a good way to retain highly involved members.

Fifth competing intermediaries, such as retailers or agencies, may consider gathering together as a group to organize communities with common interests and values. Although this may induce further competition, members will find it much easier to locate and compare different vendor products and services before making their purchases. Vendors will also find themselves with a bigger pool of potential customers, and both the vendors' and the members' search costs may be significantly reduced. In addition, vendors will also find greater incentives to improve on their products and services under such competitive environments, which will benefit the customer, who gets better products and services, and also help to keep the industry competitive.

Implications for Future Research

This study focused mainly on trust building and a few other benefits of VCs. However, the benefits of VCs are not limited to those studied here. Other benefits, for example, increased ability to target and increased ability to tailor and add value to products and services, were beyond the scope of this study. Future research may be needed to explore the diverse array of benefits that VCs are touted to provide.

In addition, our research is based mainly on how VCs can contribute to EC, without a thorough exploration into the contributions of VCs to other aspects of life, for example, the social and psychological aspects. Additional research exploring these other areas would be enlightening and useful.

Finally, in addition to the level of involvement in VC examined in this paper, future research may want to examine the dynamic process of trust building among members and vendors of VCs by investigating the time dimension of trust formation within a community.

CONCLUSION

In this paper, we have looked at the issues of trust in VCs and the perceived benefits of participating in VCs. We have also outlined a model, developed from an integration of relevant theories, which proposes the contributions of VCs to EC participation. From our research, empirical support has been found that VCs constitute a successful business model with the potential to build trust, reduce perceived risks of purchase in EC, improve customer relationships, reduce search costs, and retaining customers. Hence, increased levels of involvement in VCs are likely to encourage increased EC participation.

With regard to the contradictory views concerning the significance of VCs, the empirical results of our research quantitatively supports the argument that VCs are indeed relationship enhancing and trust building tools. We, therefore, support the opinions of Figallo (1998), of Hagel and Armstrong (1997), and of Rheingold (1993), as opposed to McClellan (1994) and Jones (1997) who criticised VCs as pseudo-communities and conclude that VCs indeed constitute a noteworthy business model in today's technological era, with considerable contributions toward the successful proliferation of EC going forward.

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Appendix 1

Research Instrument (Abstract)

Question	Description	Measurement Scale
1	What was your frequency of visit to this virtual community (VC) in the month prior to taking this survey?	Nominal scale—range from less than five to more than 20 times per month
2	How willing are you to trust members with whom you have established no face-to-face contact?	Seven-point Likert scale—range from extremely unwilling to extremely willing
3	How willing are you to share personal information and experiences with other members without any face-to-face contact?	
4	How willing are you to consult other members about your problems and to listen to their advice without any face-to-face contact?	
5	To what extent do you generally trust the members as a whole in the VC you listed?	Seven-point Likert scale—range from absolute distrust to absolute trust
6	Do you agree that trust established between members leads to an increase in trust for the vendor/site?	Seven-point Likert scale—range from strongly disagree to strongly agree
7	Did you feel comfortable giving personal information to the vendor of the VC you listed?	
8	Do you believe that the personal information you provided will be protected by the vendor of the VC?	
9	Do you believe that the vendor of the VC you listed will deliver the products/services you ordered on time?	
10	Even if the vendor on the VC you listed were to give you a rather unlikely explanation, would you be confident that they are telling the truth?	
11	Do you perceive less risk in buying products/services recommended by members you trust?	
12	Do you perceive less risk in buying from a particular vendor recommended by members you trust?	
13	Do you perceive less risk in buying from a vendor you have grown to trust through participating in its VC?	
14	Has your relationship with the vendor improved since joining the VC?	
15	Have you received more active support and prompt replies to inquiries from the vendor since joining the VC?	
16	Does participation in the VC reduce your time and costs in searching for suitable vendors?	
17	Does participation in the VC reduce your time and costs in searching for information on products/services desired?	
18	Does being part of the online community keep you going back to the same site?	
19	Did your frequency of transacting with the vendor increase after becoming a member of the VC	Nominal scale—Yes or No

