

2010

Why People Trust in Online Health Communities: An Integrated Approach

Hanmei Fan

University of Melbourne, h.fan@pgrad.unimelb.edu.au

Stephen P. Smith

Monash University, stephen.smith@pgrad.unimelb.edu.au

Reeva Lederman

The University of Melbourne, reeva.lederman@unimelb.edu.au

Shanton Chang

The University of Melbourne, shanton.chang@unimelb.edu.au

Follow this and additional works at: <http://aisel.aisnet.org/acis2010>

Recommended Citation

Fan, Hanmei; Smith, Stephen P.; Lederman, Reeva; and Chang, Shanton, "Why People Trust in Online Health Communities: An Integrated Approach" (2010). *ACIS 2010 Proceedings*. 20.

<http://aisel.aisnet.org/acis2010/20>

This material is brought to you by the Australasian (ACIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ACIS 2010 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Why People Trust in Online Health Communities: An Integrated Approach

Hanmei Fan, Stephen P. Smith
Department of Accounting and Finance, Monash University
Email: [h.fan, stephen.smith}@pgrad.unimelb.edu.au](mailto:{h.fan, stephen.smith}@pgrad.unimelb.edu.au)

Reeva Lederman, Shanton Chang
Department of Information Systems, The University of Melbourne
Email: [reeva.lederman, shanton.chang}@unimelb.edu.au](mailto:{reeva.lederman, shanton.chang}@unimelb.edu.au)

Abstract

People are increasingly using the Internet as a major source of health-related information. Online health communities are interesting in this regard, because they are an important source of information, but also appear to serve an emotional support role in connecting people who have similar conditions or can otherwise empathize with each others' experiences. Trust is critical to the continued operation of these forums, because each support consumer is typically identified only by a pseudonym, important personal information is often revealed, and the consequences of acting on incorrect advice can be severe. Therefore, studies of established communities indicate that a significant level of trust develops between people in these forums. How this trust develops, however, has not been explained adequately in past research. In this conceptual paper, we propose a trust formation model that explains how trust is built in a non-commercial context where emotional bonding may play a large role.

Keywords

Health, Online Community, Trust

INTRODUCTION

The Internet is viewed by many people as an important source of health information and advice (Sillence et al. 2007). Using the Internet, the support and information available is not limited to one's immediate family, social circle, or doctors in the local area but instead is potentially available from any source. In this study, we are focused on online health communities, known as forums or message boards, where information is peer-generated by patients and the wider personal support network (friends and family). Based on the categorization of text-based communication in online health communities proposed by Wright (2002) and Preece (1999), we define a support consumer as a person in an online health community who utilizes emotional support (i.e., the conveyance of an understanding of another person's feeling or share the recognition and common suffering), and/or factual support (i.e., the provision of facts, advice and tips based on experience in order to improve the information consumer's welfare) from health contributors. An online health community is defined as an asynchronous online message board system that contains at least one message board (usually more), each of which typically focuses on a single disease. Each board usually has many discussion topics (threads), each including a collection of messages posted in order of arrival. People come to these online health communities for several reasons: 1) The computer-mediated community connects people with the same condition; 2) It provides a virtual social circle for patients to seek emotional support and mutual understanding that is not available in their existing offline social circle (Maloney-Krichmar et al. 2005); 3) It provides anonymity for those who suffer from sensitive or stigmatized illnesses and encourages information exchange and sharing feelings; 4) People are able to gain others' experiential knowledge in online health communities which may be different from information provided by professionals; 5) Some people are dissatisfied with the information provided by their health professionals (Chen et al. 2001); 6) Some need to be satisfied that they have examined every bit of information available about a topic (Derdiarian 1987).

However, because health support consumers may rely on the online health community for significant support and the absence of prior face-to-face interaction, it is crucial but difficult for support consumers to judge who they can trust both in following the advice given and in exposing private health issues. The importance is illustrated by the severe consequences of trusting the wrong health contributors. Putting trust in the wrong people may lead to worsen the existing condition, delaying treatments, privacy violation, being distressed or traumatized (Benigeri et al. 2003).

While there have been many studies into the antecedents and consequences of trust, these have, by and large, been conducted in similar settings, with most work devoted to investigating trust-related online shopping behaviour (e.g., McKnight et al. 2002). Little light, however, has been shed on how trust operates in more relationship-oriented contexts, such as online support groups. These contexts differ fundamentally. In particular, in the commercial sphere, more than 90% of online transactions are one time (Resnick et al. 2002); cognitive assessment and institutional factors may therefore play a major role in building trust. By contrast, in a health forum context, the

association may be ongoing, and based on both utilitarian and emotional needs, for example, where participants exchange advice and emotional support. In this environment, trust may be formed largely through emotional bonding. Also, unlike other interest-centric online communities, first-hand experience determines the identity of community membership and the boundary of a group and forms the source of knowledge (Borkman 1999).

In addition, as a typical non-commercial community, online health communities bring new factors into play like perceived similarity, confirmation bias and empathy. The high level of anxiety associated with having a serious medical condition can induce affiliative behaviours (seek the support of others with similar conditions) (Davison et al. 2000), comparisons with those who have a similar, and confirmation bias (the tendency to reinforce existing beliefs through selective search or overweighing of confirmatory evidence). Additionally, online health communities have been identified as having the most empathetic and the least hostile messages (Preece et al. 2001).

We intend to address this gap in the literature by extending existing trust formation models to incorporate empathy and other factors likely to play an important role in a community setting. Additionally, the literature in online support groups preliminarily focuses on the therapeutic benefits of using such service (Eysenbach et al. 2004) and incentives of contributing (Blank et al. 2007). Trust has not been studied in this context. Therefore, the study contributes to literature by developing theory to answer the following research questions: (i) how does a support consumer build trust toward individuals in a health-related online community? And (ii) how does trust influence trust-related behaviours of a support consumer, including information adoption and experience sharing?

This paper is a theory-development paper, and so contains no formal test of our hypotheses. The remainder of this paper is developed as follows. We start with a review of trust-related literature and go through the theories we synthesize to develop the model. After that, we describe the model and develop hypotheses as to how trusting behaviour develops. In the last section, we discuss the insights and implications of our findings.

LITERATURE REVIEW AND THEORETICAL DEVELOPMENT

Trust

Mayer et al. (1995) define trust as an individual's willingness to be vulnerable to the actions of the other involved party based on particular action(s) important to the trustor, regardless of the trustor's ability to monitor or control the trustee in a dyadic relationship. In other words, the extent to which a person is willing to trust another person is affected by the trustor's propensity to trust and the trustee's perceived trustworthiness, formed by trustee's ability, integrity, and benevolence perceived by the trustor. Traditionally, trust has been viewed as the result of history-dependent interactions (Kramer 1999) and developed gradually through personal interaction (Lewicki et al. 1995). The accumulated knowledge of a trustee's capabilities, values, and behaviours through interaction allows a trustor to build trust based on cognitive assessment and affective response (Williams 2001). Cognition-based trust results from deliberate assessment of a trustee's characteristics and the process of weighing benefits of trusting over risks (Lewicki et al. 1995), while affect-based trust involves one's emotional bonds and sincere concern for the well-being of the others. However, significant initial trust has been observed among members of temporary teams as well as those engaged in seller-buyer one-time online transactions. This high initial trust appears to be related to an individuals' disposition to trust (Rotter 1967) and cognitive cues such as stereotyping and categorization (McKnight et al. 1998). Categorization processes suggest that individuals place more trust in people similar to themselves and assess trustworthiness based on second-hand information and on stereotypes (Morgan et al. 1994).

Antecedents of Trust

Cognition-based trust refers to a deliberate assessment of a trustee's characteristics and the process of weighing the benefits of trusting over risks (Lewicki et al. 1995). This type of trust constitutes evidence of trustworthiness. In our model, cognition-based trust is created by familiarity, information quality, and perceived similarity.

Affect-based trust refers to trust formation through emotional involvement and responses. Research from sociology, psychology, and organisational theory proposes that affect forms the basis for caring and benevolent behaviours that establish trust and affective responses (e.g., joy, anger, disappointment) influence attitudes to and trust in others (Lewicki et al. 1996). Affect-based trust consists of the emotional bonds between individuals (Lewis et al. 1985). People invest emotion in trust relationships, express genuine care and concern for the welfare of partners, believe in the intrinsic virtue of such relationships, and believe that these sentiments are reciprocated (Pennings et al. 1987). Research show that affect-based trust influences higher stage or deeper levels of trust (Lewicki et al. 1996). Particularly, McAllister (1995) proposed that trust based on "care and concern" is deeper than trust based primarily on cognitive perceptions of predictable, dependable behaviour. Unlike other online communities (i.e., shopping and reviewing), empathy is a prevalent and essential ingredient in online health communities (Preece 1999). Hence, empathy is viewed as an affect construct in our model.

Properties of the trustor. Trust has been conceptualized as a combination of three components: properties of the trustor, attributes of a trustee, and a specific context (Hardin 1993). We recognize two types of trustor's properties in

the context of the online health community. Dispositional Trust has been well-recognized as one of the properties of the trustor. It is defined as a consistent tendency to trust a broad spectrum of situations and persons (McKnight et al. 1998), cross-situational and cross-personal (McKnight et al. 2001). Confirmation bias, however, has not been considered in any trust framework. Generally, to yield an unbiased conclusion or a rational decision, one seeks evidence on all sides of a question to reduce uncertainty, evaluates it objectively and draws the conclusion from the evidence in the aggregate. However, with a confirmation bias, when one confronts a personal matter (i.e., deadly illness) which can shatter one's belief, he/she may be motivated to create uncertainty by selectively collecting or overweighting certain evidence in order to build a sense of hope.

Trusting Beliefs

Trust is a complex high-level construct, which can be decomposed into second-order constructs, such as trusting beliefs. Trusting beliefs, also known as trustworthiness (Doney et al. 1998), can be defined as believing that the other party has one or more characteristics (i.e., dimensions) beneficial to oneself. Mayer et al. (1995) consolidates this into three basic dimensions: ability (capability of the trustee to do what the trustor needs), integrity (trustee honesty and promise keeping), and benevolence (trustee caring and motivation to act in the trustor's interests), all of which explain a major portion of the variance in trust. Empirical studies suggest that ability, benevolence and integrity are the three most important dimensions of trust and have been widely accepted and frequently adopted by researchers (e.g., Ridings et al. 2006). In the online health community, support consumers would be concerned if health contributors are qualified to give suggestions, are not providing misleading information, and care about sufferers' welfare. Thus, we include ability, integrity and benevolence as three important dimensions of trust.

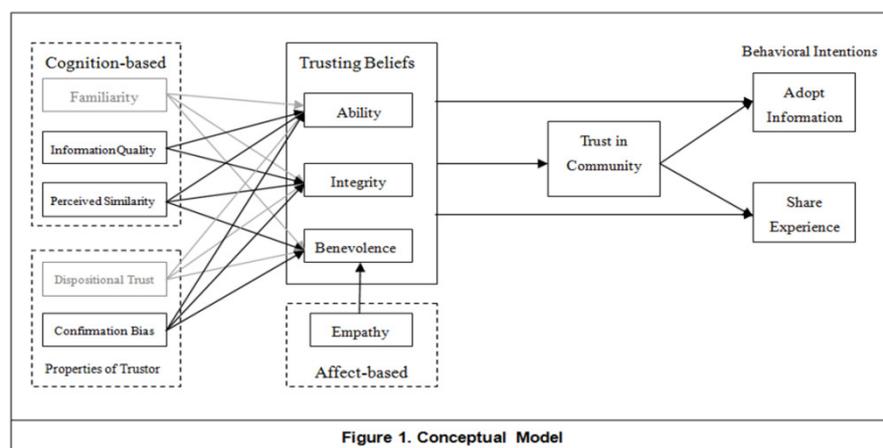
Behavioural Intentions

Trusting intention means that a trustor is willing or intends to depend on a trustee even though the trustor cannot control the trustee (McKnight et al. 2002). There are many different behavioural intentions that fall under the category of trusting intentions. Previous research found effects of trusting beliefs on the likelihood of continuing a relationship with a trustee (Pavlou 2002), a trustor's long-term orientation to future goals involving the trustee (Ganesan 1994), intention to make a purchase or window shopping (Gefen 2002), intention to inquire (Gefen et al. 2006), intentions to follow advice and share personal information (McKnight et al. 2002), and desire to get and give information (Ridings et al. 2002). We base our model on McKnight et al. (2002) and Ridings (2002) and develop two behavioural intentions as the downstream effect of a health support consumer's trust. These are: 1) to adopt information from health contributors, and 2) to share personal experience in the online health community. Both behavioural intention constructs capture an individual's anticipation that he/she will act in a certain way. Additionally, both behaviour intentions represent a willingness to depend on the online community. They are perceived to expose an individual and/or the whole community (a support consumer can adopt information from more than one health contributors and everyone on the board can access to the personal experience) to risks, which can be mitigated by trust.

DEVELOPMENT OF CONCEPTUAL MODEL AND HYPOTHESES

Based on existing trust frameworks and drawing on factors from psychology, cognitive science and communication literature, we propose the research model in Figure 1 to answer our research questions. The model not only considers initial and repeated trust building but also the trust transference from the individual level to the collective level. The model illustrates three categories of antecedents to trusting beliefs based on which trust depends. The first category is cognition-based where trust is established by cognitive cues like information quality and perceived similarity and history-dependent process familiarity. The second type of antecedents, the properties of the trustor, is important in both cross-situational (e.g., dispositional trust) and situational (e.g., confirmation bias) characteristics. The third type is affect-based trust. For example, empathy has been introduced as one type of affect that induces deeper trust. In addition, both of the behavioural intentions in the model are dependent on whether trust has been developed. Due to the length limit, we do not discuss the well-developed factors familiarity and dispositional trust.

Compared with other trust models, our model is the first one that examines trust building taking account of the uniqueness of online health communities. Unlike other contexts, most people in online health communities have first-hand experiential knowledge of illness, a foundation of membership identity, group boundaries and a source of knowledge and authority. As familiarity and dispositional trust are well studied in the online shopping context, we will test their significance in a non-commercial context. Empathy, perceived similarity and confirmation are drawn from the domain of psychology and cognition science and their contribution to trusting beliefs has not been.



Information Quality

In persuasion research, it is suggested that argument quality is an influential factor of changing people's perspective (Cacioppo et al. 1986) and argument quality and information can be exchangeable (Areni et al. 1988). In the Elaboration Likelihood Model (ELM), argument quality refers to the viewer's subjective perception of the arguments' persuasiveness as strong and cogent versus weak and specious (Petty et al. 1986), and has been identified as a factor that determines the degree of information influence on people's perception through a central route. Moving from traditional measures on argument valence to lately focus on argument strength, researchers measure argument quality using items from information quality in many studies on information adoption (e.g., Sussman et al. 2003). Hence, from the concept to measurement, it is reasonable to argue that argument quality and information quality can be equivalent. Following this approach, we adapt from Bhattacharjee and Sanford's (2006) definition and define information quality as the persuasive strength and relevance level of solving the problem of arguments embedded in a message. In an online health community, posted messages can influence the beliefs of a support consumer in a health contributor's message. The persuasiveness and relevance of the argument embedded in a message provides evidence that the message is logical and compelling, and therefore reflects the knowledge, expertise and genuine intention of the health contributor.

Furthermore, several studies validate the relationship between quality and trust. In online shopping research, as a vendor's virtual storefront, website quality has been studied as an antecedent of trust (McKnight et al. 2002). Information quality has been viewed as an important design factor in trust formation for a site (Cyr 2008). Word-of-Mouth quality in online bulletins show the significant impact of trust in Awad and Ragowsky's study (2008). Similarly, posted information serves as the face of a health contributor in an online health community. It stands to reason that if a support consumer perceives the health contributor's message to be of high quality, the support consumer will believe that the health contributor is knowledgeable in the specific topic, able to give useful information and more likely telling the truth, and hence will more likely have high trusting belief in the contributor's ability and integrity. We propose:

H2a: Information quality predicts trusting beliefs in a health contributor's ability.

H2b: Information quality predicts trusting beliefs in a health contributor's integrity.

Perceived Similarity and Trust

Social psychological studies primarily focus on the interaction between interpersonal attraction and similarity. According to Infante et al. (1997), people usually feel more comfortable when they think others are similar to them. A feature of interactions in online health communities is the emphasis on common experience among participants. Most messages in online health communities are narrative and story-telling, thereby creating a multidimensional profile of a patient. People with similar medical profiles may find it easier to connect with each other, and be more comfortable in sharing factual information and emotional feelings. The conversation reinforces the value of these interactive discussions, for the purpose of helping them to relate to their own experiences (Slater et al. 2003).

Researchers in social psychology offer some insightful suggestion on the relationship between trust and perceived similarity. The perception of similarity is well known to generate feelings of attraction and thus increase a person's tendency to be persuaded in communication (Walther et al. 2005). Perceived similarity acts as a complexity reduction mechanism, by putting more trust in someone that shares the same value or in-group members rather than on carefully reasoned arguments or direct knowledge (Langford 2002). In other words, people who share common characteristics tend to perceive each other positively, and tend to be more likely to trust each other (Kramer 1994). For example studies have established that homophily (i.e., the tendency of individuals to associate with similar others) is associated with increased levels of affect and trust (Ziegler et al. 2007). In an online shopping scenario,

Lim (2006) showed that endorsements of satisfied customers who are similar to potential customers can improve the customers' trust in an unfamiliar online store. In the study of recommender system applications, Ziegler and Globeck (2007) collected data from Amazon.com online bookshop and FilmTrust and modelled and computed the correlation between similarity and trust. The results revealed strong positive interactions between interpersonal trust and interest similarity. In qualitative studies of face-to-face health support groups, participants reported that others in the group have faced similar problems and circumstances gives credibility to advice and support offered by other members (Wright 1997). People with similar condition would be viewed more capable and honest in terms of sharing their experience. Thus we propose:

H3a: Perceived similarity of a support consumer predicts trusting beliefs in a health contributor's ability.

H3b: Perceived similarity of a support consumer predicts trusting beliefs in a health contributor's integrity.

H3c: Perceived similarity of a support consumer predicts trusting beliefs in a health contributor's benevolence.

Confirmation Bias

In the information literature, the ability of information to reduce uncertainty (Case 2007) has drawn much scientific interest and evidence since the 1950s. Uncertainty refers to a person's subjective sense of the number of alternative predictions when thinking about the other party's future behaviour, or the number of alternative explanations when thinking about the other party's past behaviour (Bradac 2001). Like the Uncertainty Reduction Theory, the major assumption of the information's uncertainty reduction function, is that there is a human drive to reduce uncertainty about self and others in initial interactions. A health support consumer, when looking for a rational unbiased answer to a question (uncertainty), such as when the suffering will stop, how the illness will progress, what should be done next, what are the side effects of a certain treatment, etc., would seek evidence on all sides of the question, evaluate it objectively and draw the conclusion from the evidence in the aggregate.

However, in the interpersonal communication literature, Problematic Integration Theory (Babrow 1992) and Uncertainty Management Theory (Babrow et al. 1998) questions the assumption that people are always driven to reduce uncertainty. Problematic Integration Theory holds that one may believe that the worst thing is going to happen even though it is low probability incident. For example, hypochondriacs and chronic worriers do not assess and evaluate negative outcomes as unlikely, but rather convert an objectively low probability into a subjectively high probability in the process of rumination (Bradac 2001). On the other hand, discussing the negative impact of uncertainty (Brashers et al. 2002) identified positive psychological effects: uncertainty may provide "hope." On this basis, it is likely that people sometimes deliberately increase uncertainty in the health field. Uncertainty is not simply an uneasy feeling, but can be used as a tool or resource to provide a cognitive state for cultivation rather than eradication (Bradac 2001). The way to reduce certainty about a probable negative fact is to increase certainty in the opposite direction. When the likelihood of an unfavourable instance is high, people will try to increase their uncertainty of the probability of the instance. Brashers et al. (2002) and Afifi and Weiner (2004) gave examples that patients may deliberately avoid relevant information to maintain uncertainty or even seek out uncertainty increasing information. In cognitive science, both tendencies are called confirmation bias.

Nickerson (1998) pointed out that confirmation bias occurs under three conditions: an issue matters personally; one already has a belief about the issue; and the issue is complicated. When personal issues are at stake (i.e., involving oneself, friends, and families), he/she is likely to lose objectivity and is motivated by the desire to defend beliefs that they wish to maintain. Evidence from experimental studies supports the idea that once one has taken a position on an issue, one's primary purpose becomes to defend or justify that position (Nickerson 1998). Also, mentally it is easier to seek evidence and interpret information that follows one's beliefs rather than evaluating information objectively from all sides. In the health context, suffering from illness can be the personal issue; getting better would be one of the beliefs; and without a great deal of time and knowledge, it can be challenging to search and evaluate information from all sides. Thus, to build a case to support what he/she chooses to believe (e.g., the illness is controllable), one selectively gathers or overweighs evidence that would confirm the belief, while neglecting to gather or discounting evidence that would provide evidence against it. Obviously, he/she would put more trust in the favoured health contributors who provide evidence to support his/her position. Thus, we propose:

H5a: Confirmation bias of a support consumer predicts trusting beliefs in a health contributor's ability.

H5b: Confirmation bias of a support consumer predicts trusting beliefs in a health contributor's integrity.

H5c: Confirmation bias of a support consumer predicts trusting beliefs in a health contributor's benevolence.

Empathy and Benevolence

Empathy is evident in online health communities (Preece 1999). The psychotherapy literature suggests that empathy comes from experience, along with from hearing and understanding the experiences of others (Comfort 1984). Hence, Ickes (1997) defines empathy as a "complex psychological inference in which observation, memory, knowledge and reasoning are combined to yield insights into the thoughts and feelings of others" (Ickes 1997, p.2).

Empathy is the feeling we have toward the world as a result of our experience and how our experience changes our perspective. Levenson and Ruef (1992) describe empathy as knowing what another person is feeling, sensing what another person is feeling or responding compassionately to another person's distress. In one of studies on health-related computer-mediated groups, Preece (1998) identified three types of empathic messages: 1) empathizing with another's situation and suggesting ways to deal with it; 2) empathizing about life-style; and 3) indirectly exhibiting empathy or telling one's story in order to invite others to respond. Particularly, it is suggested that people who come from the same family or culture or similar experiences tend to show more empathy toward each other than strangers (Preece 1999). Hence, it is not surprising to observe the predominance of empathy and the rareness of hostile attitudes in online health communities.

Conversely, benevolence is a relatively permanent feature of personality and "a benevolent person is positively motivated to bring about an improved state of happiness or welfare of others and to avoid a reduced state of happiness or welfare of others (Brandt 1976). It is not necessary to exhibit helping behaviour to demonstrate benevolence but helping behaviour can show benevolence when the action is intended to improve the welfare of another, without any thought of (or even vague awareness of) self-beneficial consequences (Brandt 1976).

Empathy and trust are closely related but this relationship has barely been studied (Feng et al. 2004). Reeder (1998) uses the term "extensive benevolence" to describe three distinct stages: in empathy the person recognizes one's suffering; in sympathy the person dislikes one's suffering; and benevolence comes when the person desires the alleviation of one's suffering. To have the desire to alleviate others' sufferings, one has to be able to feel others' pain. In other words, empathy is a necessary antecedent of benevolence. To explain the transformative process, Reeder argues that though a person can harbor empathy to not only to near and dear ones but also to strangers, sympathy and benevolence cannot occur unless a special experience or process, which links strangers to the near and dear, empowers and authorizes the construction of these emotions toward strangers. Because of sharing such life-changing experience, one can take a stranger as his/her "comrade" in the battle against illness. He/she can feel the stranger's suffering, hate that the stranger has to go through the same thing, and he/she would desire to improve the stranger's situation. This leads to Hypothesis 6:

H6: Empathy shown by a health contributor predicts trusting beliefs in a health contributor's benevolence.

Dyadic Trust Transfer to Trust in Community

Studies show that trust can be transferred from different kinds of sources. Some studies argue that trust can be transferred via individuals to unknown targets (Uzzi 1996). Strub and Priest's study (1976), for example, revealed that a marijuana user would trust an unknown person if a third person, trusted by the marijuana user, vouches for the unknown person. Other studies find that trust can be transferred from a place (Henslin 1968) or an industry association (Milliman et al. 1988) to an individual. For instance, Milliman and Fugate (1988) found that a salesman can use the established trust in an industry association to attract trust from customers. The trusted industry association serves as a proof source and offers verifiable evidence of the salesman's claim.

In a more general sense, consistent with the discussion above, Doney et al. (1998) proposed a transference process, which refers to transferring trust from a known entity to an unknown one. They argued that a trusted "proof source," allows trust to be transferred to an unknown individual or group only if a link between the known entity and the unknown entity can be established (Stewart 2003). This link can be based on the similarity, proximity, and common fate of the entities (Campbell 1958). A group can be formed based on the similarity of group members to each other (Campbell 1958), the interdependence among the members (e.g., common goals) (Cartwright et al. 1960) and interactions among members (Wilder et al. 1998). And as one of group members, one could share the similar traits as well. Moreover, the impression of the group is formed based on memory (Hamilton et al. 1985). According to information-processing strategy of impression formation, once an initial impression of one group member is established, other group members are perceived in terms of that impression, and information used to judge other group members is processed in attempt to confirm the initial impression (McConnell et al. 1997). Thus, because of the similarity imbedded in the group-member relationship, the trustworthiness perception of one group member can be transferred to another group member and/or the whole group (Pavlou et al. 2004). In an online health community which is publically accessible and asynchronous, a support consumer can observe others' conversations before, during and after interaction. Via observation and interaction, a support consumer can assess the trustworthiness of one or handful health contributors. The experience with the subgroup can generate the impression of the whole community, and therefore, trust toward those individuals can be generalized to the whole community. Therefore, we expect that a support consumer's trust beliefs in individual health contributors can influence his/her trust beliefs in the whole self-helping community. We propose:

H7: Trust in an individual health contributor predicts trust in community.

Trust and Behavioural Intentions

Adopting others' information and sharing personal experience in online health communities requires trust to

mitigate risks associated with information asymmetry. Implying from the Theory of Reasoned Action (TRA), trust can be viewed as an antecedent belief or a confident expectation that creates a positive attitude toward the behavioural intentions (Jarvenpaa et al. 2000). In traditional marketplaces, trust in the community as a whole is a crucial determinant of an individual's intention to engage with members in the marketplace (Fukuyama 1995). Health support consumers are faced with overwhelming potential consequences. To adopt information, a support consumer can follow a single piece of advice from an individual contributor or generate an aggregating suggestion from the crowd. The former case requires the support consumer to trust the individual contributor and the latter case needs trust of the community. Similarly, a support consumer may confide his/her personal experience to respond to a single user without being concerned about privacy and the support consumer may only need to trust the user before the action. If the support consumer is concerned with privacy but shares personal stories to induce a discussion, the support consumer may have to feel comfortable that his/her personal information may not be misused by the community. Support consumers can subjectively rule out many unfavourable possible consequences that may happen based on the trustee's levels of ability, integrity and benevolence, and thus reduce the complexity to a more manageable level.

H8a: Trust in the community of health contributors predicts a health support consumer's intention to adopt information in an online health community.

H8b: Trust in the community of health contributors predicts a health support consumer's intention to share personal experience in an online health community.

H8c: Trust in an individual health contributor predicts a health support consumer's intention to adopt information in an online health community.

H8d: Trust in an individual health contributor predicts a health support consumer's intention to share personal experience in an online health community.

DISCUSSION AND CONCLUSION

Despite the large amount of research into trust over the past 15 years, trust theories have not explained adequately the trust formation process in a non-commercial online community context. The conceptual model proposed here explains how that process is governed by an emotional bonding mechanism in which contributors develop an emotional bond with individual postings, and the similarities observed between the trusted source and other community members causes transference of these trust perceptions to the community as a whole. The model also suggests that information quality, perceived similarity, confirmation bias and empathy are especially important in online health communities. It contributes to the trust literature by verifying an existing model in an untested context and by introducing new variables that have been previously overlooked. Also, it suggests a new perspective to study the sustainability and dynamics in online support groups.

The model also provides important implications for practice. One problem for health support consumers is the difficulty in locating specific tailored information. Even using search engines, the user has to read many unrelated posts before reaching the targeted ones. The longer an online health community exists, the more active the participation is, the more severe the problem is. The model suggests that, instead of searching posts that match the key words, it can be more effective to seek people with similar medical profiles. The narrative self-telling story provides rich data for profile building. By locating people accordingly, the corresponding messages posted by those people can be located as well. The alternative of the approach is to apply an aggregation mechanism to draw information provided by people with similar conditions together. The provision of the aggregated information can reduce the searching time dramatically.

Finally, the conceptual model is built based on a literature review and has not been tested yet. As an ongoing research effort, we are undertaking interviews with online health community users to explore these variables. Interview questions have been developed, focusing on how support consumers develop trust in health contributors and the community, and how support consumers behave and use information. We will revise the model based on the findings from prior interviews and develop survey instruments to empirically test and verify the model in a specific online health community. Finally, we may test the model in a more general context within the applicable boundaries. The model may be applied in a context where experiential knowledge exists before participation, and determines membership identity, boundaries of the discussion group and the source of knowledge and authority.

REFERENCES

- Afifi, W.A., and Weiner, J.L. "Toward A Theory A Motivated Information Management," *Communication Theory* (14) 2004, pp 167-190.
- Areni, C.S., and Lutz, R.J. "The Role of Argument Quality in the Elaboration Likelihood Model," *Advances in Consumer Research* (15) 1988, pp 197-203.

- Awad, N.F., and Ragowsky, A. "Establishing Trust in Electronic Commerce Through Online Word of Mouth: An Examination Across Genders," *Journal of Management Information Systems* (24:4) 2008, pp 101-121.
- Babrow, A.S. "Communication and Problematic Integration: Understanding Diverging Probability and Value, Ambiguity, Ambivalence, and Impossibility," *Communication Theory* (2) 1992, pp 95-130.
- Babrow, A.S., Kasch, C.R., and Ford, L.A. "The Many Meanings of Uncertainty in Illness: Toward a Systematic Accounting," *Health Communication* (10) 1998, pp 1-23.
- Benigeri, M., and Pluye, P. "Shortcomings of Health Information on the Internet," *Health Promotion International* (18:4) 2003, pp 381-386.
- Bhattacharjee, A., and Sanford, C. "Influence Processes for Information Technology Acceptance: An Elaboration Likelihood Model," *MIS Quarterly* (30:4) 2006, pp 805-825.
- Blank, T.O., and Adams-Bloodnieks, M. "The Who and The What of Usage of Two Cancer Online Communities," *Computers in Human Behavior* (23) 2007, pp 1249-1257.
- Borkman, T.J. *Self-help and support groups: a handbook for practitioners* Rutgers University Press, New Brunswick, New Jersey, 1999.
- Bradac, J.J. "Theory Comparison: Uncertainty Reduction, Problematic Integration, Uncertainty Management, and Other Curious Constructs," *Journal of Communication* (51) 2001, pp 456-476.
- Brandt, R.B. "The Psychology of Benevolence and its Implications for Philosophy," *Journal of Philosophy* (73:14) 1976, pp 429-453.
- Brashers, D.C., Goldsmith, D.J., and Hsieh, E. "Information Seeking and Avoiding in Health Contexts," *Human Communication Research* (28) 2002, pp 258-271.
- Cacioppo, J.T., Petty, R.E., Kao, C.F., and Rodriguez, R. "Central and Peripheral Routes to Persuasion: An Individual Difference Perspective," *Journal of Personality and Social Psychology* (51:5) 1986, pp 1032-1043.
- Campbell, D.T. "Common fate, Similarity, and Other Indices of the Status of Aggregates of Persons as Social Entities," *Behavioral Science* (3) 1958, pp 4-25.
- Cartwright, D., and Zander, A. *Group Dynamics* Row, Peterson, Evanston, IL., 1960.
- Case, D.O. (ed.) *Looking for Information: A Survey of Research on Information Seeking, Needs, and Behavior* (2nd edition). Academic Press, UK, 2007.
- Chen, X., and Siu, L.L. "Impact of the Media and the Internet on Oncology: Survey of Cancer Patients and Oncologists in Canada," *Journal of Clinic Oncology* (19) 2001, pp 4291-4297.
- Comfort, A. *Reality and Empathy: Physics Mind and Science in the 21st C.* State Uni of N. Y. P., Albany, 1984.
- Cyr, D. "Modeling Web Site Design across Cultures: Relationships to Trust, Satisfaction, and E-Loyalty," *Journal of Management Information Systems* (24:4) 2008, pp 47-72.
- Davison, K.P., Pennebaker, J.W., and Dickerson, S. "Who Talks? The Social Psychology of Illness Support Groups," *American Psychologist* (55:2) 2000, pp 205-217.
- Derdarian, A.K. "Informational Needs of Recently Diagnosed Cancer Patients," *Cancer Nursing* (10:2) 1987, pp 107-115.
- Doney, P.M., Cannon, J.P., and Mullen, M.R. "Understanding the Influence of National Culture on the Development of Trust," *Academy of Management Journal* (23:3) 1998, pp 601-620.
- Eysenbach, G., Powell, J., Englesakis, M., Rizo, C., and Stern, A. "Health Related Virtual Communities and Electronic Support Groups: Systematic Review of the Effects of Online Peer to Peer Interactions," *British Medical Journal* (328:7449) 2004, pp 1166-1170.
- Feng, J., Lazar, J., and Preece, J. "Empathy and Online Interpersonal Trust: A Fragile Relationship," *Behaviour & Information Technology* (23:2) 2004, pp 97-106.
- Fox, S., and Jones, S. "The Social Life of Health Information," Pew Internet & American Life Project, Washington, DC.
- Fukuyama, E. *Trust: The Social Virtues and the Creation of Prosperity* The Free Press, New York, 1995.
- Ganesan, S. "Determinants of Long-term Orientation in Buyer-seller Relationships," *Journal of Marketing* (58) 1994, pp 1-19.
- Gefen, D. "Reflections on the Dimensions of Trust and Trustworthiness among Online Consumers," *The*

- DATABASE for Advances in Information Systems* (33:3) 2002, pp 38-53.
- Gefen, D., and Heart, T. "On the Need to Include National Culture as a Central Issue in E-Commerce Trust Beliefs," *Journal of Global Information Management* (14:4) 2006, pp 1-30.
- Hamilton, D., Dugan, P.M., and Troiler, T.K. "The Formation of Stereotypic Beliefs: Further Evidence for Distinctiveness-based Illusory Correlations," *Journal of Personality and Social Psychology* (48) 1985, pp 5-17.
- Hardin, R. "The Street-Level Epistemology of Trust," *Politics & Society* (21:4) 1993, pp 505-529.
- Henslin, J.M. (ed.) *Trust and the Cab Driver*. Prentice Hall, Englewood Cliffs, NJ., 1968.
- Ickes, W. *Empathic Accuracy* The Guildford Press, New York, 1997.
- Infante, D.A., Rancer, A.S., and Womack, D.F. (eds.) *Building Communication Theory (3rd ed.)*. Waveland Press, Prospect Heights, IL, 1997.
- Jarvenpaa, S.L., Tractinsky, N., and Vitale, M. "Consumer Trust in an Internet Store," *Information Technology and Management* (1) 2000, pp 45-71.
- Kramer, R.M. "The Sinister Attribution Error: Paranoid Cognition and Collective Distrust in Organizations," *Motivation and Emotion* (18:2) 1994, pp 199-230.
- Kramer, R.M. "Trust and Distrust in Organizations: Emerging Perspectives, Enduring Questions," *Annual Review Psychology* (50) 1999, pp 569-598.
- Langford, I.H. "An Existential Approach to Risk Perception," *Risk Analysis* (22:1) 2002, pp 101-120.
- Levenson, R.W., and Ruef, A.M. "Empathy: A Physiological Substrate," *Journal of Personality and Social Psychology* (63) 1992, pp 234-246.
- Lewicki, R.J., and Bunker, B.B. (eds.) *Trust in Relationships: A Model of Trust Development and Decline*. Jossey-Bass, San Francisco, 1995.
- Lewicki, R.J., and Bunker, B.B. (eds.) *Developing and Maintaining Trust in Work Relationships*. Sage Publications, Thousand Oaks, CA, 1996.
- Lewis, J.D., and Weigert, A. "Trust as a Social Reality," *Social Forces* (63) 1985, pp 967-985.
- Lim, K.H., Sia, C.L., Lee, M.K.O., and Benbasat, I. "Do I Trust You Online, and If So, Will I Buy? An Empirical Study of Two Trust-Building Strategies," *Journal of Management Information Systems* (23:2) 2006, pp 233-266.
- Maloney-Krichmar, D., and Preece, J. "A Multilevel Analysis of Sociability, Usability, and Community Dynamics in an Online Health Community," *ACM Transactions on Computer-Human Interaction* (12:2) 2005, pp 1-32.
- Mayer, R.C., Davis, J.H., and Schoorman, F.D. "An Integrative Model of Organizational Trust," *Academy of Management Review* (20) 1995, pp 709-734.
- McAllister, D.J. "Affect- and Cognition-Based Trust as Foundations for Interpersonal Cooperation in Organizations," *Academy of Management Journal* (38:1) 1995, pp 24-59.
- McConnell, A.R., Sherman, S.J., and Hamilton, D. "Target Entitativity: Implications for Information Processing about Individual and Group Targets," *Journal of Personality and Social Psychology* (72) 1997, pp 750-762.
- McKnight, D.H., and Chervany, N.L. "What Trust Means in E-Commerce Customer Relationships: An Interdisciplinary Conceptual Typology," *International Journal of Electronic Commerce* (6:2) 2001, pp 35-59.
- McKnight, D.H., Choudhury, V., and Kacamar, C.J. "The Impact of Initial Consumer Trust on Intentions to Transact with A Web Site: A Trust Building Model," *Journal of Strategic Information Systems* (11) 2002, pp 297-323.
- McKnight, D.H., Cummings, L.L., and Chervany, N.L. "Initial Trust Formation in New Organizational Relationships," *Academy of Management Review* (23:3) 1998, pp 473-490.
- Milliman, R.E., and Fugate, D.L. "Using Trust-TRANSFERENCE AS A Persuasion Technique: An Empirical Field Investigation," *Journal of Personal Selling and Sales Management* (8) 1988, pp 1-7.
- Morgan, R.M., and Hunt, S.D. "The Commitment-Trust Theory of Relationship Marketing," *Journal of Marketing* (58) 1994, pp 20-38.
- Nickerson, R. "Confirmation Bias: A Ubiquitous Phenomenon in Many Guises," *Review of General Psychology* (2:2) 1998, pp 175-220.
- Pavlou, P.A. "Institution-based Trust in Interorganizational Exchange Relationships: The Role of Online B2B Marketplaces on Trust Formation," *Journal of Strategic Information Systems* (11) 2002, pp 215-243.

- Pavlou, P.A., and Gefen, D. "Building Effective Online Marketplaces with Institution-based Trust," *Information Systems Research* (15:1) 2004, pp 37-59.
- Pennings, J.M., and Woiceshyn, J. (eds.) *A Typology of Organizational Control and Its Metaphors*. JAI Press, Greenwich, CT., 1987.
- Petty, R.E., and Cacioppo, J.T. (eds.) *The Elaboration Likelihood Model of Persuasion*. AP, San Diego, CA., 1986.
- Preece, J. "Empathic Communities: Balancing Emotional and Factual Communication," *Interacting with Computers: The Interdisciplinary Journal of Human-Computers Interaction* (12) 1999, pp 63-77.
- Preece, J., and Ghozati, K. *Observations and Explorations of Empathy Online* Sage Publications, 2001, pp. 237-260.
- Reeder, J.P.J. "Extensive Benevolence," *Journal of Religious Ethics* (26:1) 1998, pp 47-70.
- Resnick, P., and Zeckhauser, R. "Trust among Strangers in Internet Transactions: Empirical Analysis of eBay's Reputation System," *Advances in Applied Microeconomics* (11) 2002.
- Ridings, C.M., Gefen, D., and Arinze, B. "Some Antecedents and Effects of Trust in Virtual Communities," *Journal of Strategic Information Systems* (11) 2002, pp 271-295.
- Ridings, C.M., Gefen, D., and Arinze, B. "Psychological Barriers: Lurker and Poster Motivation and Behavior in Online Communities," *Communications of the Association for Information Systems* (18) 2006, pp 329-354.
- Rotter, J. "A New Scale for the Measurement of Interpersonal Trust," *Journal of Personality* (35:4) 1967, p 651-5.
- Sillence, E., Briggs, P., Harris, P.R., and Fishwick, L. "How Do Patients Evaluate and Make Use of Online Health Information?," *Social Science & Medicine*:64) 2007, pp 1853-1862.
- Slater, M.D., Buller, D.B., Waters, E., Archebeque, M., and Leblanc, M. "A Test of Conversational and Testimonial Messages versus Didactic Presentations of Nutrition Information," *Journal of Nutrition Education and Behavior* (35:5) 2003, pp 255-259.
- Stewart, K.J. "Trust Transfer on the World Wide Web," *Organization Science* (14:1) 2003, pp 5-17.
- Strub, P.J., and Priest, T.B. "Two Patterns of Establishing Trust: The Marijuana User," *Sociological Focus* (9:4) 1976, pp 399-411.
- Sussman, S.W., and Siegal, W.S. "Informational Influence in Organizations: an Integrated Approach to Knowledge Adoption," *Information Systems Research* (14:1) 2003, pp 47-65.
- Uzzi, B. "The Sources and Consequences of Embeddedness for the Economic Performance of Organizations: The Network Effect," *American Sociological Review* (61) 1996, pp 674-698.
- Walther, J.B., Pingree, S., Hawkins, R.P., and Buller, D.B. "Attributes of Interactive Online Health Information Systems," *Journal of Medical Internet Research* (7:3) 2005.
- Wilder, D., and Simon, A.G. (eds.) *Categorical and Dynamic Groups: Implications for Social Perception and Intergroup Behavior*. Lawrence Erlbaum Associates, Mahwah, NJ., 1998.
- Williams, M. "In Whom We Trust: Group Membership as an Affective Context for Trust Development," *Academy of Management Review* (26:3) 2001, pp 377-396.
- Wright, K.B. "Shared Ideology in Alcoholics Anonymous: A Grounded Theory Approach," *Journal of Health Communication* (2) 1997, pp 83-99.
- Wright, K.B. "Social Support within An On-line Cancer Community: An Assessment of Emotional Support Perceptions of Advantages and Disadvantages, and Motives for Using the Community from a Communication Perspective," *Journal of Applied Communication Research* (30:3) 2002, pp 195-209.
- Ziegler, C., and Golbeck, J. "Investigating interactions of trust and interest similarity," *Decision Support Systems* (43:2) 2007, pp 460-475.

COPYRIGHT

[Hanmei Fan, Stephen Smith, Reeva Lederman and Shanton Chang] © 2010. The authors assign to ACIS and educational and non-profit institutions a non-exclusive licence to use this document for personal use and in courses of instruction provided that the article is used in full and this copyright statement is reproduced. The authors also grant a non-exclusive licence to ACIS to publish this document in full in the Conference Papers and Proceedings. Those documents may be published on the World Wide Web, CD-ROM, in printed form, and on mirror sites on the World Wide Web. Any other usage is prohibited without the express permission of the authors.