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A THEORETICAL FRAMEWORK FOR THE USE OF WEB INFOMEDIARIES

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Abstract

Infomediaries are information intermediaries in the Internet that play an important part in reducing online-customers' search costs for finding the most suitable vendors and products. This paper explores the factors impacting the use of Infomediaries. Specifically, we propose a conceptual model postulating trust (and its antecedents) and perceived risk as belief constructs, which in turn impact web-customers' attitudes and subsequently their behaviors in using infomediaries. This conceptualization is built on a number of theories from the reference disciplines, including trust theories, transaction cost theory, theory of social exchange, theory of planned behavior, and a number of prior research findings about trust. This paper provides a theoretical basis for the specification of factors that may contribute to the use of web infomediaries for online shopping.

Introduction

While the Internet market is growing rapidly, there are indications that many customers are wary of participating in it (Hoffman et al. 1999; Wang et al. 1998). It has been argued “cybermediaries” or “infomediaries” have replaced traditional middlemen or intermediaries on the Internet. Infomediaries provide, process, and validate information regarding the increasingly large number of suppliers in order to facilitate transactions in the Internet market (Bailey and Bakos 1997; Crusciel and Zahedi 1999; Grover and Teng 2001; Sarkar et al. 1998). Infomediaries exist in various forms, including search engines, portals, virtual communities, and individual corporate sites. In their different forms, infomediaries provide services such as searching, matching, information, virtual-community communications, privacy protection, and infrastructure. Infomediaries compete by their ability to capture and manipulate information in order to add value for sellers or buyers (Grover and Teng 2001). These services enable customers to reduce their time and effort in searching for information on stores, products, and services.

One important issue in the Internet market is Internet fraud and its recent significant rise, making web-customers' trust a major concern for online vendors. Trust is a crucial factor in circumstances where risk, uncertainty, or interdependence is present (Bhattacharjee 2002; Hoffman, et al. 1999; Jarvenpaa et al. 1999; Mayer et al. 1995). The loss due to fraud, which has increased to an average \$580 per customer in 1999, has seriously impacted web-customers' trust towards making online purchases (Ba 2001). One of web-customers' benefits from using infomediaries is the increase in customers' trust and certainty regarding their selected online sellers and products. For such a benefit to occur, however, web-customers should have trust in the information provided by the infomediary. Therefore, the research focus in this study is the identification of trust-related beliefs and their antecedents and specification of the process by which such belief systems could impact the intention for the use of infomediaries in online shopping.

Conceptual Model

Websites can mediate communication between two parties by replacing face-to-face relationships (Lohse and Spiller 1998). The success of such communication hinges on the buyers' trust in online sellers, which has motivated a number of studies to address the issue of trust in using the Internet. These studies cover a wide range of trust-related topics, including the investigation of how

trust is sustained in the human-electronic commerce relationship (Kini and Choobineh 1998), examination of main inhibitors that prevent online purchases (Nöteberg et al. 1999), consumer-security assurance through vendor-provided WebTrust™ seal (Houston and Taylor 1999), and investigation of the antecedents and consequences of trust in an Internet store (Bhattacharjee 2002; Jarvenpaa et al. 1999).

In general, intermediaries may reduce the risk associated with trading (Bakos 1998). Infomediaries as a special type of intermediaries play a similar but more critical role in the Internet market due to the diversity and extent of information to be sorted out in the selection of an appropriate vendor or product. The success of infomediaries may therefore hinge to large extent on web-customers' trust in an infomediary and their perception of the risks involved in relying on infomediaries in making their purchase decisions.

Based on the theoretical background from multiple reference disciplines, we formulate the conceptual model for the acceptance of web infomediaries as presented in Figure 1. Based on theories of trust, transaction cost, social exchange, the model identifies major antecedents that influence formation of beliefs about trust and perceived risk in using web infomediaries. Furthermore, using the arguments drawn from the theory of planned behavior, the model formalizes the process by which trust-related beliefs influence web-customers' behavioral intention as mediated by their attitude.

Trust

Trust has been examined in various contexts with different and unique perspectives leading to confusing definitions (Mayer et al. 1995; McKnight and Chervany 2000). In various contexts, trust is considered an important determinant for a stable, social relationship, the essence of an individual's behavior, thoroughly influential in interpersonal relationships, and a critical component of economic transaction (Blau 1964; Hosmer 1995; Jarvenpaa et al. 1998; Lewicki and Bunker 1995; ; McKnight and Chervany 2000; Rotten et al. 1972; Schoolman et al. 1996).

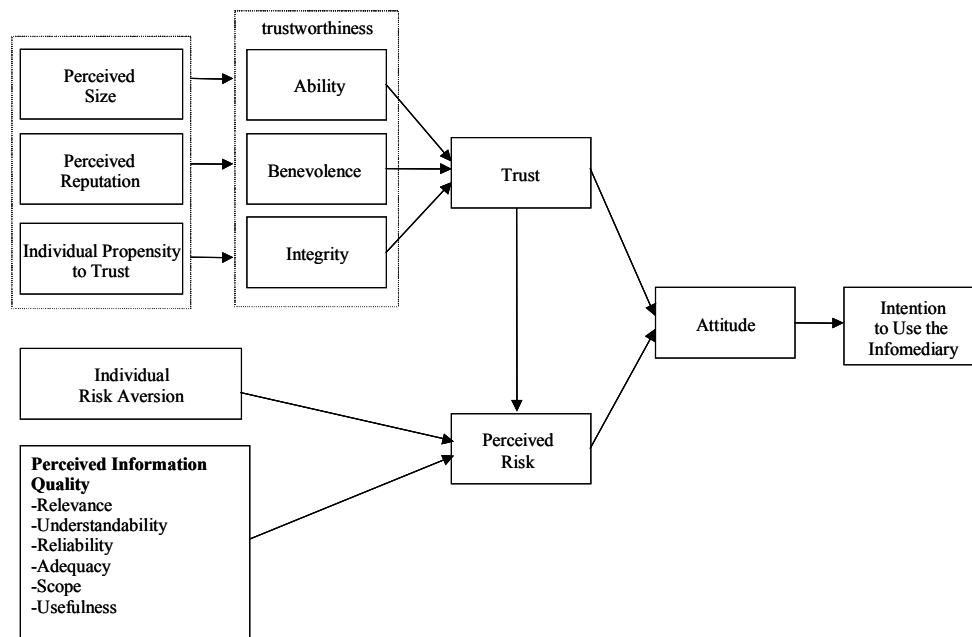


Figure 1. The Conceptual Model for the Use of Web Infomediaries

Based on an investigation of multiple disciplines, Mayer et al. (1995) have defined trust as “a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another.” There are different views about trust as belief, attitude, intention, and behavior (Mayer et al. 1995; McKnight et al. 1998). Following the argument forwarded by Rempel et al. (1985) and Bhattacharjee (2002), we view trust as a belief that the trustee will behave in a certain way. Trust is a complex belief system with a many components, such as integrity, benevolence, competence, consistency, loyalty, openness, and predictability (Bulter and Cantrell 1984; Mayer et al. 1995; McKnight and Chervany 2000). Mayer et al. (1995)

has classified previous studies and concluded that ability, benevolence, and integrity are major antecedents of trust. This is confirmed by Bhattacharjee (2002) in a review of previous studies in his research on online trust.

Based on the definitions by Bhattacharjee (2002), Jarvenpaa et al. (1999), Mayer et al. (1995), we define *ability* as the web-customer's perception of an infomediary's knowledge and competence in providing quality information. The ability belief could be generated by a first- or second-hand experience or by the endorsement of an institution (Bhattacharjee 2002). In our analysis, infomediaries play the role of the endorsing institution, which must exhibit a relatively high level of ability.

Benevolence is defined as the web-customer's belief that the infomediary cares about its web-customers and is motivated to act in their interests, beyond its own immediate profit motive (Jarvenpaa et al. 1999; Mayer et al. 1995; McKnight and Chervany 2000). While sellers on the Internet may not always be able to anticipate their customers' needs for benevolence services (Bhattacharjee 2002), infomediaries need to clearly exhibit their benevolence as web-customer advocates in order to gain their trust, similar to institutional endorsers such as licensing professional associations.

Integrity in this study is defined as the web-customers belief that the infomediary makes good faith agreements, tells the truth, and fulfills promises (Bhattacharjee 2002; Jarvenpaa et al. 1999; Mayer et al. 1995; McKnight and Chervany 2000).

Various studies have treated ability, benevolence, and integrity (A-B-I) as either antecedents of trust (Jarvenpaa et al. 1999;) or dimensions of trust (Bhattacharjee 2002). Mayer et al. (1995, 1999) and Whitener et al. (1998) consider A-B-I as dimensions of "trustworthiness," which impact an individual's trust. They have asserted that trustworthiness consists of a set of beliefs regarding characteristics of trustees, which engender trust in them. On the other hand, Bhattacharjee (2002) and Mishra (1996) treat A-B-I as first-order dimensions of trust, and consider trust as a higher-order construct.

Applying the "formative" vs. "reflective" argument by Chin (1998, p. ix), A-B-I could be viewed as dimensions of trustworthiness that could *cause* a web-customer to form a trust belief about an infomediary. Hence, one could consider A-B-I as "formative" factors for trust in the context of infomediaries and, therefore, the antecedent of trust belief, as shown in Figure 1. Hence, we posit that:

Proposition: Web-customers' favorable belief regarding an infomediary's ability has a positive on effect on their trust in the infomediary.

Proposition: Web-customers' favorable belief regarding an infomediary's benevolence has a positive effect on their trust in the infomediary.

Proposition: Web-customers' favorable belief regarding an infomediary's integrity has a positive effect on their trust in the infomediary.

External Factors

Whitener et al. (1998) identify three categories of external factors influencing the beliefs regarding trustworthiness: relational, organizational, and individual. Reputation, size, and individual's propensity to trust, respectively, represent these three types of factors in the context of infomediaries, as supported by the following arguments.

Reputation. Social exchange theory posits that trust emerges through repeated exchange of benefits between two parties (Blau 1964). The theory emphasizes that the successful social exchanges should influence perception of trust (Whitener et al. 1998). Therefore, social structure can shape one party's reputation based on third party's ability to tell stories about one's trustworthiness (Rousseau et al. 1998). Applied to this study, the (positive) reputation of an infomediary is an evidence for the repeated exchange of benefits, hence would be considered as the environmental element that enhances the beliefs regarding trustworthiness of the infomediary.

Size. In a social network approach to trust, Schoolman et al. (1996) argue that trust-related studies need to start with a social influence point of view. Trust can be conditionally built upon social relations or social networks among actors (Hosmer 1995; Seibert et al. 2001). Using the social capital theory argument, trust is created as a result of social characteristics of the other party (Zucker 1986; Mishap 1996). Furthermore, a calculative component is present in that the trust or "calculates the costs and/or rewards of a target acting in a untrustworthy manner" (Doney and Cannon 1997, p. 38). Applied in the context of this study, infomediaries create social capital with the increase in their size and reputation, hence enhancing their perception of trustworthiness in the minds of web-customers.

Previous studies found that perceived size and reputation significantly influence trust in online retail stores (Doney and Cannon 1997; Jarvenpaa et al. 1999). A company's size and reputation are valued assets, which assure others of a party's ability, integrity, and goodwill (Jarvenpaa et al. 1999). In marketing literature, reputation and size are important factors that contribute the formation of trust (Anderson and Weitz 1989; Doney and Cannon 1997).

Individual Propensity to Trust. From the interpersonal relations perspective, trust is the willingness to increase one's vulnerability to another person's action (Hosmer 1995; Jarvenpaa et al. 1999). The degree of this willingness is partly related to the individual's propensity to trust, formed through his life experience in both a broad context as well as web-specific experiences (Whitener et al. 1998). Propensity to trust is an individual trait that is invariant across context and situations (Mayer et al. 1995), and has been found to influence trust (Mayer et al. 1995; Jarvenpaa et al. 1998). Hence, we posit that:

Proposition: The size of an infomediary has a positive impact on web-customers' beliefs regarding its ability, benevolence, and integrity.

Proposition: The reputation of an infomediary has a positive impact on web-customers' beliefs regarding its ability, benevolence, and integrity.

Proposition: Web-customers' propensity to trust has a positive impact on their beliefs regarding an infomediary's ability, benevolence, and integrity.

Perceived Risk

Perceived risk is a critical component of building an interpersonal, social, and economic relationship (Chiles and McMackin 1996; Kini and Choobineh 1998). In the relationship between web-customers and infomediaries, infomediaries could be considered as agents of web-customers in collecting and processing information relevant to a product or service. This information is needed to reduce the transaction cost associated with the uncertainty involved in selecting the right products or services. However, there is a perception of risk in using an agent. Agency theorists analyze economic relationships between principals and agents (Eisenhardt 1989; Jensen and Meckling 1976; Noorderhaven 1992). "A principal-agent relationship exists when one party—the principal—contracts with another party—the agent to perform a task involving delegation of decision making in exchange for compensation" (Whitener et al. 1998, p. 514). In this relationship, both parties try to maximize their utility and minimize risks associated with the relationship. In the context of our study, web-customers strive to get the best information from infomediaries for making purchase decisions while minimizing the risk of misinformation. Based on the agency theory (Jensen and Meckling 1976; Whitener et al. 1998), one can argue that the risk of opportunism is greater when web-customers have little information about infomediaries (i.e., information asymmetry) and the presence of "goal incongruence" motivates infomediaries to withhold information or provide inaccurate or biased information. For example, an infomediary may promote certain products because of its economic alignment with their suppliers. "To minimize agency risk, principals generally either monitor agents' behavior to ensure contract compliance or base agents' compensation on task outcomes to align the agents' goals with the principals'" (Whitener et al. 1998, p. 514). The infomediaries need to provide evidence or proxy for the verification of their goals and actions in order to reduce web-customers' perception of risk in using their services as agents.

A number of studies have found information quality to be of great importance to IT and web-users (DeLone and McLean 1992; McKinney et al. 2002; Zmud 1978). Therefore, one can argue that web-customers may use the high quality of information supplied by an infomediary as a proxy for its goal alignment and proper actions as web-customers' agent, which can negatively influence their perception of risk in relying on the infomediary's services. Hence we posit that

Proposition: High level of information quality supplied by an infomediary reduces web-customers' perceived risk in using the infomediary services.

Information quality is a higher-order construct, which has relevance, understandability, reliability, adequacy, scope, and usefulness as its first-order dimensions (McKinney et al. 2002). We use these first-order dimensions in establishing the quality of information provided by infomediaries, as shown in Figure 1.

From the perspective of transaction cost theory, trust and risk are subjective concepts embedded in social relationships (Chiles and McMackin 1996). While the agency theory focuses on control and verification in reducing the perception of agency risk, the social exchange theory focuses on the dynamism of trust building (Whitener et al. 1998). Agents who are able to build principals' trust through successful social exchanges would be perceived as having a lower risk of opportunism. This assertion has been supported by Jarvenpaa et al. (1999), who found that customers' trust reduces perceived risk. Also, Tung et al. (2001) found that

when trust is established, it is negatively associated with perceived risk in the context of virtual communities. We, therefore, posit that:

Proposition: A higher level of trust by web-customers in an infomediary reduces their perception of risk in using the infomediary's services.

The web-customers' perceived risk is also influenced by the extent of risk aversion. Sitkin and Pablo (1992) define risk propensity as "the tendency of a decision maker either to take or avoid risks" (p. 12). This trait is different from propensity to trust in that risk aversion is "more situation specific, affected both by personality characteristics (i.e., risk preference) and situational factors (i.e., inertia and outcome history)" (Mayer et al. 1995, p. 716). Furthermore, risk aversion has long been viewed as an important factor in individuals' utility functions and economic decisions (see, for example, Schoemaker 1993) and in their IT-related activities such as the use of decision support systems (Palma-dos-Reis and Zahedi 1999).

Of two web-customers in similar circumstances, the one with a higher level of risk aversion may have an acute awareness and sensitivity about the risks involved in using infomediaris, and so may have a higher level of perceived risk in using them. Hence, we posit that:

Proposition: Web-customers with a higher level of risk aversion have a higher level of perceived risk in using infomediaris.

Beliefs, Attitude, and Intention

We use the theory of planned behavior (TPB) to explain how trust-related beliefs influence web-customers' behavior. TPB (Ajzen 1991) postulates that individuals' intentions are determinants of their behavior, where intention is assumed to reflect the individual's motivations for a behavior. Intention is a function of two determinants: personal and social. The personal component is *attitude* that reflects feelings of favorableness or unfavorableness towards performing a behavior. In TPB, individuals' attitudes are a function of personal *beliefs* and the *evaluations* of these beliefs. In the present context, the salient beliefs are trust and perceived risk, which influence web-customers' attitudes towards using web-infomediaris. Such attitudes, in turn, influence web-customers' intention in using infomediaris, as shown in Figure 1. Therefore, we posit that:

Proposition: Higher level of web-customer's trust in an infomediary positively impacts their attitudes toward using the infomediary.

Proposition: Lower level of web-customers' perceived-risk about an infomediary positively impacts their attitudes toward using the infomediary.

Proposition: Favorable web-customers' attitudes about using an infomediary positively impact their intention to use the infomediary.

Conclusion

In this study, we investigate the theoretical underpinning for the process by which web-customers form their intentions in using infomediaris. We argue that trust is an important factor in the Internet environment, and seek to identify the role of trust in using infomediaris by synthesizing different perspectives: theories of trust, transaction cost economics, social exchange, and planned behavior. Furthermore, by focusing on personal expectations, the conceptual model identifies antecedents of trust. Such a cognitive approach helps us understand and predict an individual's behavior in using a web infomediary. Hence, this study contributes to the theoretical discussion on the use of web infomediaris, and provides a vehicle for testing the impact of trust building and risk reduction in increasing web-customer willingness to use such services.

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