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THE EFFECTS OF RECOMMENDATION CONFLICT ON USER'S ADOPTION INTENTION TOWARD VIRTUAL SALESPERSONS: A PRINCIPAL-AGENT PERSPECTIVE

Research-In-Progress

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Abstract

Virtual salesperson (VS) has been increasingly implemented on many Websites to provide online users with valuable shopping advice, because it has been proved to alleviate users' cognitive overload and increase their decision quality. Thus, it has widely caught researchers' attention to investigate what factors can increase user's intention to adopt. However, there is little research examining the impact of another information resource on VS adoption intention when recommendation information conflict occurs. This study draws on principle-agent perspective to investigate whether online customer reviews have potential to arouse users' concern about information asymmetry and the fear of VS opportunism. The research result should be of interest to academic researchers, developers of VSs, providers of VSs, and Webstores.

Keywords: Virtual salesperson, Recommendation information conflict.

1 INTRODUCTION

With the rapid development and growth of e-commerce, an increasing number of customers buy their desirable products via online stores, which not only give customers largely convenience, but also provide a larger number of product choices for customers than the traditional channels can do because online vendors possess virtually infinite “shelf space” (Häubl and Trifts 2000). That is, an enormous and unlimited amount of product choices are provided by multiple online vendors that are easily accessible on the Internet. Shopping online forces customers to pay more efforts to process information in order to smoothly finish the whole purchase processes as well as to obtain a satisfied decision-making outcome. In doing so, online customers may be frustrated because of inability to process too much information and to find the right one when selecting and screening products, which results in the problem of information overload.

In order to efficiently mitigate the efforts of searching and processing huge volume of information, online vendors have increasingly provided “Virtual salespersons (VSs)”, also called recommendation agents (RAs) (Rust and Kannan 2003), such as www.myproductadvisor.com, which are Web-based software agents, to assist customers in online decision making. VSs perform a set of operations on behalf of customers and provide shopping advice based on customers’ interests, preferences or needs (Ansari et al. 2000) and have been empirically proved that they have the potential to alleviate customers’ cognitive overload (Maes 1994) and, at the same time, to increase customers’ decision quality (Häubl and Trifts 2000) while searching for or selecting online customers’ desirable products. Moreover, with the assistance of VSs, customers are easier to process complex product information (Maes et al. 1999), such as digital cameras and computers. In recent years, VSs are also well received and introduced by a variety of organizations’ websites, such as Yahoo! and Amazon.com, to offer shopping assistance for online customers. Furthermore, The Economist (June 4, 2005) has showed that eBay recently paid \$620 million for acquiring Shopping.com, a website that provides recommendation services, further pointing out that VS technologies have gradually attracted e-commerce leaders’ attention.

Nevertheless, implementing an VS is a serious and crucial decision for companies, no matter how much money or time a company spends in designing or constructing a VS, as long as the online customers are not willing to accept the advice given by the VS, the total cost of implementing the VS is seemingly deemed as a failure of the investment. Therefore, for an online vender, the main goal of a VS embedded in its website is to make VS’s recommendations acceptable and favorable for online customers to adopt. In the last several decades there has been a tremendous wave of interest in the research on VSs. For example, there have been a number of studies that have investigated and have strengthened the contributions to what factor does influence the adoption of VSs (Al-Natour et al. 2008; Komiak and Benbasat 2006; Qiu and Benbasat 2009; Sia et al. 2009; Wang and Benbasat 2005; Wang and Benbasat 2009; Xiao and Benbasat 2007).

However, prior research mainly focused on the research context that online customers’ attitude toward products or brands was totally empty and clean (e.g., Komiak and Benbasat 2006; Wang and Benbasat 2007; Wang and Benbasat 2009). In reality, some differences between prior literature and practice partly are founded because extant literature have long held the assumption that customers have not any positive or negative attitudes toward all of brands or products before they start to use VS to gain the recommendations. That is, they assume that customers’ attitudes toward any brand or product are “blank”. Online customers do not absorb any information that come from other sources, such as newspaper, magazine, word of mouth from friends, family, or the Internet, or previous purchase experience to influence their evaluation on VSs’ recommendations prior to using VSs. Yet, in real world, it seems to be not consistent with the assumption as mentioned earlier. For instance, while seeing the recommendation provided by a VS, an online customers may encounter a confusing and perplexing situation that VS’s recommendation is inconsistent with the product information which the customer acquire from other information sources before, especially in the case that the product information gained by the customers shows that the choice given by the VS is notorious and abysmal. As the result, a conflict occurs between VS’s recommendation and the product

information so that the customers are confused whether to accept VS's recommendation or not, or they may even consider that VS's recommendation is problematic and it causes customers' suspicion of the legitimacy of the recommendation, resulting in customers' refusing to use the VS. Therefore, the purpose of the present study intends to investigate, under the information conflict of two kinds of recommendation mechanisms (VS's recommendation and online customer's comment), how to remove and change customers' negative evaluation when VS's recommendation is inconsistent with other information sources and it is seen as an abysmal recommendation. Besides, at present, there has thus far been relatively little research into this issue, so the present study is also an attempt to supplement the knowledge gaps of the earlier studies.

To design the VS which resolves the problems caused by the product information conflict as well as efficiently mitigates customers' previously negative evaluation on VS's recommendation to improve acceptance of online customers, the present study draws on the principal-agent perspective, which describes and explains the problems of transactional contract signed by two separate organizations with incongruent goals in the presence of uncertainty, which thus separately gives rise to two information problems: adverse selection and moral hazard, derived from principal-agent perspective. Adverse selection happens before signing the contract because the customers cannot possess the privacy information about the sellers' true quality (Akerlof 1970) so that the customers cannot easily evaluate the sellers' quality and hardly select the right one (high quality agent) (Wilson 1980). On the other hand, moral hazard occurs after the contract has been signed because the customers cannot fully supervise sellers' behavior. As the result, the seller may have the potential opportunity to take opportunistic behaviors and profit himself at the buyers' expense (Jensen and Meckling 1972).

The present study draws upon and extends principal-agent perspective to identify the factors removing customers' negative evaluation in order to make VS's recommendation more acceptable under the context where the conflict occurs between VS's recommendation and product information from other sources.

2 LITERATURE REVIEW

2.1 Virtual Salespersons

Virtual salespersons (VSs) are Web-based software, which can elicit the preferences in an explicitly or implicitly way (Xiao and Benbasat 2007) and accordingly offer personalized product suggestions to online customers to fit what they are looking forward to buying. VSs can be viewed as one kind of knowledge-based systems (Wang and Benbasat 2007), which possess abundant product information and which are endowed with the specialized skill as if it were a talent salesperson virtually that helps online customers understand product features and make shopping decisions as well, such as screening unsuitable products among various vendors, and it can carry out a set of operations on behalf of customers for finding the appropriate products (Ansari et al. 2000).

VSs are increasing prevalent and available on many Websites (e.g., www.myproductadvisor.com and www.mysimon.com) to provide online customers with valuable shopping advice and they enable online vendor to increase their revenues (Shaffer and Zhang 2000) and contribute to product customization (Dewan et al. 2000). Due to the growing complexity and approximate maturation of online exchange environment, people are difficult in buying the products that best fit their needs under the condition that there are excessive product information choices on Internet beyond the limited cognitive resources that an individual has to process such a huge amount of information during shopping online. In this context, VSs have been largely proved as powerful support tools for customers in their shopping decision-making processes (Grenci and Todd 2002; Maes et al. 1999; O'Keefe and McEachern 1998). They also have the potential to alleviate customers' cognitive overload (Maes 1994) and to increase customers' decision quality (Häubl and Trifts 2000). However powerful and helpful VSs are, VSs have to be widely used by online customers before they invest their money to online vendors. Hence, there are a plenty of studies on adoption of VSs (Al-

Natour et al. 2008; Komiak and Benbasat 2006; Komiak and Benbasat 2008; Qiu and Benbasat 2009; Sia et al. 2009; Wang and Benbasat 2005; Wang and Benbasat 2007; Wang and Benbasat 2008; Wang and Benbasat 2009; Xiao and Benbasat 2007), indicating that the importance of online customers who are willing to adopt VSs to be an assistant for making shopping decisions.

Therefore, over the past decades several studies have been widely investigated on the research that what factors directly influence the intention of online users to adopt the VS (Al-Natour et al. 2008; Komiak and Benbasat 2006; Wang and Benbasat 2005; Wang and Benbasat 2009; Xiao and Benbasat 2007). First of all, in Wang and Benbasat (2005)'s study, they used two antecedents in TAM, i.e. perceived usefulness (PU) and perceived ease of use (PEOU), extended interpersonal trust by applying it to trust in technological artifacts and formed the integrated Trust-TAM model for online Virtual salespersons. The research results revealed that both the usefulness of the VS and consumers' trust in the VS are important in consumers' intention to adopt the VS. Next, Komiak and Benbasat (2006) also investigated the relationship between trust and the intention to use, but they drew on the theoretical foundation from the theory of reasoned action (TRA) to divided trust into two kinds: cognitive trust and emotional trust, defined as "the extent to which one feels secure and comfortable about relying on the trustee" (Komiak and Benbasat 2004). The analysis results suggested that cognitive trust positively affect emotional trust and, in turn, affect both adoption intentions as a decision aid and a delegated agent. That is, emotional trust played an important role in influencing customers' intention to adopt and mediated the impact of cognitive trust on the intention to adopt.

On the other hand, with the rapid improvement of Web-based software, online virtual salespersons are more sophisticated and provide strong functions and supports in facilitating shopping decision. Thus, some researchers have started to study the factors related to the relationship between human and VSs to affect the customers' intention to adopt, rather than just utility factors like PU. For example, In Wang and Benbasat (2009)'s study, they described that human have twelve strategies (from simple to normative) to make decision (Svenson 1979). So, if the VS, which employs some predefined decision rules, cannot provide a more advanced functionality to support human's complicated decision-making strategy, human would perceived the VS as restrictiveness.

2.2 Agency Theory

2.2.1 *The Principal-Agent Perspective*

The principal-agent perspective describes all sorts of the agency relationship in which the principal delegates responsibility to the agent who works on behalf of the principal according to a mutually acceptable contract (Eisenhardt 1989). Agency relationships are ubiquitous whenever one entity relies on another to perform some action (Jensen and Meckling 1972). Thus, the principal-agent perspective virtually has been largely extended in the context of all transactional exchanges (Milgrom and Roberts 1992). Although the principal-agent perspective was originally formulated in employment relationships (Spence 1973), it has been applied to many types of relationship beyond employment relationships, such as insurance-client relationships (Rothschild and Stiglitz 1967), consumer-health infomediaries relationships (Zahedi and Song 2008), and IT outsourcing (Bahli and Rivard 2003).

Principals and agents are in the relationship that they respectively pursue different goals and much more care about self-interest than another's interest. For example, in buyer-seller relationship, buyers are eager to get high quality products at as low price as possible, whereas sellers would like to sell as low quality products as possible and earn as much money as possible. Thus, the divergence of interests between principals and agents gives rise to two information problems: hidden information, also called adverse selection (Akerlof 1970) and hidden action, also called moral hazard (Rothschild and Stiglitz 1967). Hidden information occurs before the contract has been signed because the principal is lack of the privacy information about the agent's true quality (Akerlof 1970) so that the principal cannot easily evaluate the agent's quality and hardly select the right one (high quality agent) (Wilson 1980). That is, information asymmetry makes principals in a vulnerable position because the agents who possess hidden information may deliberately conceal shortcomings that the principal

cannot perceive, leading to the adverse selection problem. On the other hand, hidden action arises after the contract signed because the principal cannot fully monitor what the agent will behave or perform the work. As the results, without perfectly monitored by the principal, the agent may have the potential opportunity to take opportunistic behaviors and profit himself at the principal's expense (Jensen and Meckling 1972).

2.2.2 *The Principal-Agent Perspective in VS-user Relationship*

Since the principal-agent perspective is a ubiquitous theory, researchers have applied principal-agent perspective to e-commerce context to understand and to mitigate uncertainty in online exchange relationships (Pavlou et al. 2007). Likewise, Wang and Benbasat (2007) drew on agent theory and turned initial employment relationship into VS-user relationship because there is also an agency relationship between a VS and its users. In this perspective, users (online customers) can be seen as "principals" and VSs can be seen as "agents", who are given certain shopping tasks and have the responsibility for assisting its users to find suitable products.

Nevertheless, the agency relationship may result in two typical problems: information asymmetry (hidden information) and goal incongruence (hidden action) (Bhattacharjee 1998; Eisenhardt 1989; Keil et al. 2000; Singh and Sirdeshmukh 2000). Information asymmetry means that a VS possesses more hidden information than its users. Hidden information is usually related to important cues for users to discriminate the high-quality VSs from low-quality ones (e.g., the reasoning logic of the VS to recommend a product and the purpose of questions asked by the VS) and is beneficial to the VSs, with which the VSs can put users in a disadvantaged position because users may interact with a poor VS and they still consider the VS as high quality. Therefore, due to the lack of such hidden information, users cannot completely tell VS's true quality and cannot easily verify the abilities of the VS. On the other hand, goal incongruence means that a VS and the users are self-interested parties that the goals of VS provider are different from those of the users. Consequentially, goal incongruence leads to the problem of hidden action due to bounded rationality. The VSs may try to take some opportunism (hidden action) for pursuing higher profits (e.g., deliberately recommending the products which are beneficial to the VSs rather than be suitable for users). Thus, Users may have concerns that the VS's recommendation is iniquitous and biased deliberately, because the VS could be intentionally designed to cater to certain other vendors for the sake of earning higher profits. Hence, users may doubt whether or not the VS's having the ability to offer the most-needed and accurate advice and worry about VSs' opportunism behaviors that VSs' advice does not take care of the interests of users, leading to agency problems (Bhattacharjee 1998).

2.3 The Characteristics and Role of Online Customer Reviews in e-Commerce

Online customer review, also called "electronic word-of-mouth (eWOM)", defined as "peer-generated product evaluations posted on company or third party websites" (Mudambi and Schuff 2010), is a new communication channel via Internet to offer additional information not only from friends and colleagues, but also from a large number of unknown people for customers being able to evaluate the specific product. Many online retailers have began to provide customers the opportunity of posting their product comments on the websites and such comment has been found as an important factor in product sales (Chen and Xie 2005). Otherwise, previous research has found that the mere provision of customer reviews on a website has ability to improve customer perception of the usefulness and social presence of the website (Kumar and Benbasat 2006). Thus, the wide dissemination of customer reviews on websites and their high acceptance by online customers suggest that customer reviews have potential to exert an influence on buying behavior and, in turn, on the market success of products (Stauss 1997; Stauss 2000).

Recently, research has examined the role of online customer reviews, especially focusing on the characteristics of the reviewers and looking at what factors influence people's acceptance of online reviews (Awad and Ragowsky 2008; Cheung et. al. 2009; Hennig-Thurau and Walsh 2004; Mudambi and Schuff 2010; Park et. al. 2007). The quality and the quantity of a product represent its

popularity on the market. Thus, Park et al. (2007) investigated the impact of quality and quantity of reviews on customer information processing, moderated by involvement. The study results showed the quality of customer reviews positively affect customer intention to buy. Besides, an increase of the quantity of customer reviews improves customer intention to buy. Finally, low-involvement customers are affected by review quantity rather than review quality.

Also, a study indicated that because customers' reviews usually come from unknown people, online customers may have less credibility than direct messages from consumer's family or friends. Thus, the content of an online customer review is an important element in overcoming the lack of message credibility (Park et. al. 2007). Similarly, building on the economics and trust literature, Pavlou and Dimoka (2006) examines the extreme content of customer reviews and their role in building a buyer's trust in a seller's benevolence and credibility, in turn influencing price premiums. The analysis data show that if a review containing extremely excellent or extremely awful content to describe prior interaction with the seller will affect the formation of trusting beliefs (benevolence and credibility), which, consequently, affect price premiums. Notably, the analysis results reveal that text comments have a stronger impact on trust than do crude numerical ratings. Because crude numerical ratings offer too little information so that buyers are unable to fully understand the seller's past transactions. Thus, buyers would check the information coming from text comments to compensate for the inability of numerical ratings.

3 PROPOSITIONS DEVELOPMENT

To better understand the impact of negative customer review on user's intention to adopt the VS under recommendation information conflict and of how a VS can be designed to decrease users' negative impression toward the products recommended by the VS in order to improve user's intention to adopt the VS, this study utilizes the conceptual model shown in Figure 1.

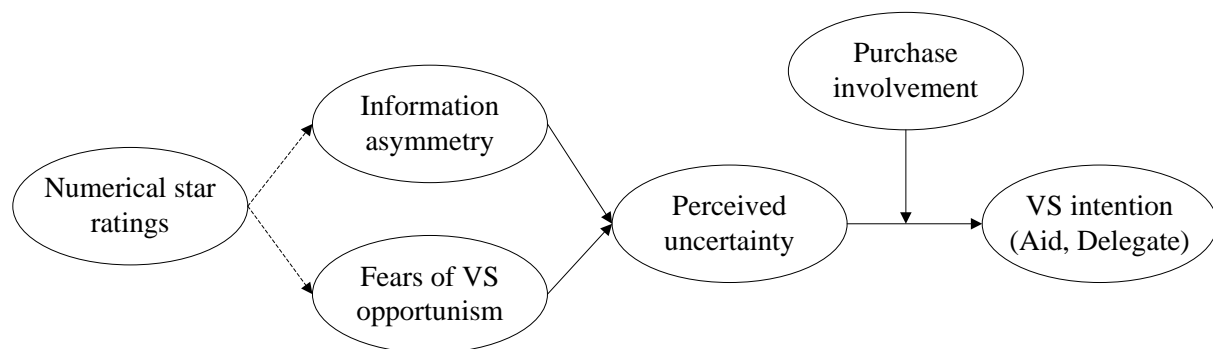


Figure 1. Conceptual model.

3.1 Perceived Uncertainty and the Intentions to Adopt the VS

When two parties start to have a connection in transactional relationship, the buyer, compared to his seller, is often in a more vulnerable position. Prior study has indicated that buyer behavior is inherently uncertain given that a buyer faces the adverse consequence that cannot be perfectly anticipated (Baucer 1960), which easily makes buyers perceive uncertainty in transaction environment. Uncertainty refers to the extent to which the future states of the environment cannot be accurately predicted due to imperfect information (Pfeffer and Slancik 1987). Applying this concept to VS-users relationship, the present study define perceived uncertainty as the extent to which the outcome of using the VS as a decision-making tool cannot be accurately anticipated by the user due to imperfect information about the VS's quality.

Thus, as described above, all of the outcomes of using the VS have a degree of uncertainty, and users cannot predict whether or not his expected outcome will be fulfilled successfully.

Successful fulfillment typically suggests that a VS will adhere to the principals that are generally accepted by the users and will care about the users' interest to recommend the product that best fit users' needs. In contrast, a severe adverse possibility exists, that is, the outcome of using the VS may not satisfy the users as their expectations due to VS's quality uncertainty. For example, a VS could be designed in a way that it is intended to focus on a higher profit for the e-vendor only, and it may not act in the best interests of the users. Particularly, if the recommended product by a VS is widely known as an abysmal one shown by other information source, the users would strongly doubt the purpose of VS's recommendation and VS's reasoning rules.

The intention to adopt refers to the extent to which one is willing to depend on a VS for supporting his decision making. Recently, a study has examined a user's intention to adopt a VS beyond a unitary concept (Komiak and Benbasat 2006). They consider that a VS plays two roles in assisting people to make the purchasing decision in terms of the level of user dependence on the VS. When users intend to use a VS as a delegated agent, they will follow the VS's recommendations without carefully examining those recommendations. Therefore, doing so can save time and effort to make decision making more efficient, so the users' dependence on the VS is higher. In contrast, when users intend to use a VS as a decision aid, they will carefully examine the VS's recommendations before they make the final decision. Thus, they spend more time and effort in examining the VS's recommendations as possible as they can, because they expect that their decision will be exactly what they want, which means that the user dependence on the VS is low.

Since users are faced the adverse possibility described above, they tend to overstate the likelihood of potential losses, even the likelihood of such losses is low (Kahneman and Tversky 1979). Thus, perceived uncertainty leads to perceptions of risk, which means the users' own subjective probability of suffering a loss (Chiles and McMackin 1996). Risk perceptions have been shown to negatively influence consumer adoption of e-commerce (Pavlou 2003). If users are concerned about the outcome of using the VS due to the adverse possibility of loss, which results in higher risk perceptions, they are likely to abandon to use VS as a decision-making tool. Therefore,

P1: Perceived uncertainty negatively influences a user's intention to adopt the VS as a decision aid.

P2: Perceived uncertainty negatively influences a user's intention to adopt the VS as a delegated agent.

3.2 The Moderating Role of Purchase Involvement

Purchase involvement is defined as the buyer (user)'s perceived relevance with the focal purchase (Zaichkowsky 1985), and is a user's subjective judgment. That is, it mainly focuses to the importance of the purchase to the user. Previous literature has suggested that buyers having different purchases perceive different levels of involvement (Laurent and Kapferer 1985). For example, High-involvement purchases are expensive goods, such as cars and houses, or purchases that are likely to endanger the health, such as drugs, while low-involvement purchases are low price goods, such as books.

Purchase involvement has been found to strongly influence people's behavior of information searching and their purchasing decision making (Dholakia 2001). First, people would endeavor to carefully find and evaluate relevant information as much as they can when using the VS if they are afraid of making wrong purchasing decision. Thus, they do not stop searching relevant information or even they do not easily make final purchasing decision until they are satisfied with the completeness of information they find and analyze. Second, making wrong decision will lead to huge loss in the case of high-involvement purchases, people have tendency to pay more attention to risk probability in their decision making, which in turn will negatively influence their intention to adopt the VS. Therefore,

P3: A user's purchase involvement positively moderates the negative relationship between perceived uncertainty and the intention to adopt the VS as a decision aid.

P4: A user's purchase involvement positively moderates the negative relationship between perceived uncertainty and the intention to adopt the VS as a delegated agent.

3.3 Sources of Perceived Uncertainty in Principal-Agent Relationships

Since agency relationships are ubiquitous whenever one entity relies on another to perform some action (Jensen and Meckling 1972). Thus, Wang and Benbasat (2007) have been successfully applied the principal-agent perspective to VS-user relationship to examine the impacts of explanation facilities on users' initial trusting beliefs. In the same way, the present study tries to investigate the primary antecedents of perceived uncertainty by applying the principal-agent perspective to VS-user relationship, because online customers (users) delegate shopping task (e.g., finding suitable products) to the VS, who performs on behalf of customers' behavior. Therefore, applied to VS-user relationships, users are viewed as the principals that deliveries some responsibility to the VS (agent) to find suitable products.

Nonetheless, the main characteristics of agency relationship between VS and user are information asymmetry and goal incongruence (Wang and Benbasat 2007). Firstly, the quantity of information is distributed asymmetrically between the VS (agent) and the user (principal), so the VS enjoys information asymmetry, thereby leading to the VS's information advantage. Prior study has recognized that information asymmetry is a common problem in e-commerce in which sellers usually have more information than buyers (Mishra et al. 1998). Thus, under information asymmetry conditions, users do not know whether the VS they are using is excellent or not and cannot easily validate the skills and abilities of the VS, because users are unfamiliar with the VS and they do not have sufficient information about how the VS works, what the reasoning method of the VS's inside is, and how it generates its recommendations, therefore leadings to "knowledge gap" between the VS and users. As a result, information asymmetry makes it difficult for user to judge the VS's true characteristics and arouses users' concerns about whether or not the VS has adequate ability to find the suitable products on behalf of themselves and whether or not the recommended products given by the VS are really suitable. The higher the degree of information asymmetry that users perceive, the higher perceived uncertainty will be. Therefore,

P5: Perceived information asymmetry positively influences a user's perceived uncertainty.

Secondly, the principal-agent perspective assumes that both principals and agents pursue self-interest maximization and they aim to exploit the situation to reap benefits, which gives rise to goal incongruence and opportunistic behavior possibly appears in agency relationship since the principal cannot fully monitor the agent's behavior and force the agent to fulfill the agreement that has been mutually established before. Applied to VS-user relationship where the VS's behaviors cannot be easily monitored, the VS may grab this chance to act opportunistically to pursue higher profits. For instance, since the users do not understand how the VS is designed and cannot monitor the VS's recommending process, the VS has chance to be designed in a way that it is intended to gain unfair profits for the e-vendor only and it may not pursue user's best interests (Wang and Benbasat 2007). As a result, the users may have concerns that the purpose of recommended products is directed to the higher profits of e-vendors who provide and own the VS, rather than being directed to care about user's interests. Hence, due to the goal incongruence, fears of VS opportunism are proposed to increase perceived uncertainty since VS could be designed to take advantage of its users for higher unfair profits. Pavlou et al. (2007) has studied on what causes uncertainty and how to mitigate it by drawing on agency theory. The study results reveal that fears of seller opportunism do influence perceived uncertainty for either high or low purchase involvement. Therefore,

P6: Fears of VS opportunism positively influence a user's perceived uncertainty.

4 CONCLUSION

In this paper, we have presented a set of theory-based propositions based on principal-agent theory. These propositions provide answers to the questions motivated by a practical problem solving: whether online customer reviews have potential to arouse users' concern about information asymmetry and the fear of VS opportunism. The research result should be of interest to developers of VSs and online store.

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