Exploring the Influence of Online Consumers’ Perception on Purchase Intention as Exemplified with an Online Bookstore

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ABSTRACT

The purpose of this study is to use structural equation modeling (SEM) to explore the influence of online bookstore consumers’ perception on their purchase intention. Through literature review, four constructs were used to establish a causal relationship between perception of online shopping and consumers’ purchase intention. Questionnaires based on these four constructs were designed and distributed to the customers of an online bookstore; AMOS software as analytical tool was used to build and confirm a SEM model. Results of this study show that product perception, shopping experience, and service quality have positive and significant influence on consumers’ purchase intention, but perceived risk has negative influence on consumers’ purchase intention, and shopping experience is most important.

Keywords: online shopping, consumer’s perception, purchase intention, online bookstore, electronic commerce

INTRODUCTION

Since e-commerce is the area in which almost every enterprise will enter and make the best use of it in the future, many products have started to be put up for online sale. In addition to the benefits of anywhere-to-buy and anytime-to-buy, buying books online has the following advantages: (1) more selection of books can be made since almost no limit can be put in the virtual storage space; (2) The online bookstores can provide deep information about the books to be bought, such as detailed introduction about the author, subject, rankings made by the customers who have already bought the particular books; (3) Individualized services, such as RSS (Really Simple Syndication) feed and customized websites can be offered to the customers according to the customer’s preference and his past purchase pattern, thus reducing customer’s search time and efforts in finding out the right books; and (4) Interactions between the customers and the e-bookstores can make both service and satisfaction level better than before. Due to the above reasons, online bookstore’s sales have grown rapidly and become the most potential segment of online shopping, according to the estimate of the consulting company Paine Webber. The impact to traditional bookstores brought about by existing online bookstores has made the traditional bricks-and-mortar bookstores realize the inevitable digital trend. Today, almost every major bookstore in Taiwan has been operating online. The real essence of online bookstores is that they have altered not only the delivery type of physical books, but the customer’s shopping behavior due to bidirectional information transfer made possible owing to the IT technology as well.

Concerning online book shopping, the most salient example is Amazon Books (www.amazon.com) of the United States; since its launch in July 1995, Amazon has surged with effective marketing strategies and within four years the number of customers has attained more than ten million. The success of Amazon lies in its business model which emphasizes customer’s value-everything must accords with the customer’s viewpoint: from large selection of books, more detailed description about the books, other customer’s opinions about the books, and automatic suggested book lists according to previous purchasing and browsing history, etc. Compared with those in foreign countries, Taiwan's online bookstores have started late and the innate environment does not suit them for online book shopping as Taiwan is densely populated and bookstores can be easily located in every city and town. Furthermore, there is a bookstore
browsing culture here that is precious to local citizens: a bookstore provides a place to while away hours reading books and magazines without actually purchasing anything; a place where children can also be entertained with creche-like facilities, and a place where trysts and rendezvous can be arranged. But online population all over the world has greatly increased and especially in Chinese speaking areas, it has doubled every couple of years; therefore, Taiwan’s online bookstores, in fact, have great potential for expansion since a large portion of books in those online bookstores are in Chinese. According to a 2005 survey conducted by website www.yam.com.tw on Taiwan’s network users, among the products and services purchased by online users, books and magazines etc. that belong to text items account for 27.4% of the market, only next to cosmetics 31.5%; moreover, books and magazines have always been the main bought items by online consumers for years.

Most of Taiwan's early online bookstores are pure e-stores; that is, they have no access to physical channels; nowadays more and more bricks-and-mortar bookstores and publishing houses enter the network world by setting up their own online bookstores as another demonstration place, new sale channels and another contact point with customers. Today, utilizing the web is an integral part of most people’s life and as the number of people using the web is more than one billion, online shopping market possesses great business potential. Concerning online book shopping, Bokerlai (www.books.com.tw) online bookstore is the first pure online bookstore and has the most book selections, the most transaction counts and the highest monetary value. (Lee, Z.H., 2007) Nevertheless, the success of an online store depends mainly on how the consumers perceive what product/service is on offer and what supporting mechanisms are proffered by the online store. The consumer’s perception forms his attitude and henceforth purchasing intention. Therefore, this study will analyze the Bokerlai online bookstore and explore the consumer’s perception that affects consumer’s purchase intention in online shopping as follows:

1. To explore the influence of product perception on purchase intention.
2. To explore the influence of the shopping experience perception on purchase intention.
3. To explore the influence of the perceived risk on the purchase intention.
4. To explore the influence of the service quality perception on purchase intention.

LITERATURE REVIEW

There are many factors that market researchers have identified as determinants of a consumer’s buying decision (Goldsmith, Bridges, and Freiden, 2001; Jarvenpaa and Todd, 1996-97). Jarvenpaa and Todd categorized these factors into four constructs of consumer perception as: product perception, shopping experience, perceived risk, and service quality. These constructs are surveyed below.

**Product Perception**

Product perception, sometimes called product understanding (Dillon and Reif, 2004) or product value (Crisp, Jarvenpaa, and Todd, 1997), consists of price, product quality, and variety. These are the most salient product perceptions mentioned in the e-market literature. Price is the monetary payout of the customers and is the cost of purchasing; it is important since pricing strategy can be easily implemented over the internet. Quality is generally defined as overall excellence or superiority of the products, as stated by Parasuraman, Zeithaml and Berry (hereinafter referred to as PZB) (1985) from the consumer’s viewpoint. Product quality, which also accommodates service quality if the purchasing target is service instead of physical product, should be distinguished from the (supporting) service quality which is another construct to be discussed below; product quality has long been discussed in the literature from different points of view (Garvin, 1984; Harari, 1993). Product quality perception is a particular product’s ability to satisfy the consumers compared to alternative products (Monroe and Krishnan, 1985); it is also a consumer evaluation of a product’s outstanding value and performance (PZB, 1988). Thus, perceived product quality can be defined as the customer’s perception or the judgment about the overall excellence or superiority of the products or service with respect to its intended purpose relative to alternatives (Aaker, 1991; PZB, 1988).

Since the perceived product quality is a pivotal reason to buy (Aaker, 1991), price is the cost paid by the customers, and variety gives the customers more alternatives to choose the products and hence motivate the customers
to visit the website; these three factors were empirically justified as important factors for internet shopping (Jarvenpaa and Todd, 1996-97; Dillon and Reif, 2004). Hence, we have the following hypothesis:
Hypothesis 1: Product perception affects purchase intention.

Shopping Experience
In this study, we quote the definition of shopping experience proposed by Arnold, Reynolds, Ponder, and Lueg (2005). They deemed shopping experience could be classified into two categories. The first one is the experience from the salesperson’s encounter, and such interpersonal factors include salesperson’s efforts, interpersonal engagement, problem resolution, interpersonal distance, and sale personnel’s time commitment; the other is non-interpersonal factors which include unanticipated acquisition and value or vice versa. In addition, Kerin, Jain, and Howard (1992) considered shopping experience as the store atmosphere, customer-related services and a set of policies. Since the two definitions of shopping experience are quite similar and complementary to each other, by combining the two definitions, shopping experience will be defined as "the set of all services and policies related to the store-atmosphere and customers, including interpersonal interaction, sales staff’s efforts and commitment and relevant policies provided to please or attract customers."

The shopping experience in the cyber world is quite different from conventional stores. Effort, life style compatibility, playfulness have been mentioned (Baty and Lee, 1995; Goldsmith, 2000; Hoffman and Novak, 1997); social interaction was added by Jarvenpaa and Todd (1996-97). Effort is the amount of time and energy spent in locating merchandise and making purchase decisions. Life style compatibility considers the consumers’ life style and shopping habits. Playfulness refers to feelings of fun in website navigation when purchasing. Social interaction means the interaction with people when shopping on the web, such as joining discussion groups, soliciting user experiences etc. However, convenience (in inquiring, in ordering), consistency (between expected and actual product/service), and playfulness were identified as the most salient factors in Taiwan’s online shopping (Cheng, 2000); in this study, we adopt Cheng’s operational definition of shopping experience for accommodating Taiwan’s internet environment.

Since consumers with happy shopping experience are obviously more satisfactory and since it has been shown to influence consumers’ value perception (Kerin, Jain, and Howard, 1992) and repurchase intention (Jarvenpaa and Todd, 1997; Arnold, Reynolds, Ponder, and Lueg, 2005), thus hypothesis 2 is proposed as:
Hypothesis 2: The shopping experience affects purchase intention.

Service Quality
We may call service in question as “supporting service” which accompanies the main product/service and facilitates the purchasing process. The concept of service quality whether the quality meets or exceeds the consumer’s expectation; therefore, the consumer’s perception of service quality is the perceived gap after comparing the consumer’s expectations of service and the actual feeling of the service (PZB 1985). While the consumer’s expectation of service quality is often affected by the influence of four sources: past experience, word-of-mouth communication, personal needs and external communication, service quality is a subjective attitudinal response showing the consumer’s overall superiority assessment of the service itself.

PZB considered service quality as a long-term overall judgment on service and can be evaluated from the attitudinal viewpoint. Service quality results from comparing the consumer’s expectations of service and the actually perceived service performance. In 1998 they further stated that the service quality is the excellence level generated from the interaction between the service provider and the customer in the service delivery process; they also emphasized service quality should be defined from the customer side, rather than from the vendor side.

A conceptual model was proposed on service quality (PZB 1985) and 10 determinants of service quality were put forward; they were reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing and tangibles and a measuring scale containing 5 constructs (SERVQUAL) was developed (PZB 1988) and later corrected (PZB 1994). A direct measurement of consumers’ service quality called SERVPERF was proposed by Cronin and Taylor (1992) and was shown to have better predictive ability, convergent validity, and discriminant validity than SERVQUAL.
For online shopping, e-service quality was measured by different researchers. Parv enpaa and Todd (1996-97) proposed responsiveness, reliability, tangibility, empathy, and assurance as the factors that affect consumers’ attitude. Parasuraman, Zeithaml, and Malhotra (2005) suggested efficiency, system availability, fulfillment, and privacy as the major factors to be considered. Collier and Bienstock (2006) recommend a scale containing the formative indicators instead of the reflexive indicators. In this study, we followed Cheng’s (2000) scale which is essentially Parv enpaa and Todd’s scheme (see Table 1 below) except for some adjustment on the indicators to reflect online bookstores’ characteristics. Service quality has long been recognized as an important factor in forming consumers’ attitudes, intentions, and actions as poor service quality discourages any decision to buy (PZB 1985; Zeithaml, 1988; Zeithaml, et. al, 1996). Thus, the following hypothesis is suggested:

Hypothesis 3: Service quality affects purchase intention.

Perceived Risk

Perceived risk was developed from psychology by Bauer (1967) and since then has been widely discussed in consumer behavior literature and regarded as one of the basic concepts. Bauer pointed out that consumer behavior can be regarded as a kind of “risk-taking”, because the consumer cannot ensure the results from using the products at the purchasing moment, thus in fact, the consumer bears a certain risk. Differing views were put forward by researchers as follows:

Cox (1967) considered that perceived risks lies in the notion that consumer behavior is a goal-oriented activity, and purchase of the product is associated with this goal; its acceptable expectation level is measured by the degree of achievement to this goal. However, the consumers may not be aware of any risk component so that their behavior may be affected sub-consciously and this may influence some direct actions. Therefore, to identify the existence and the extent of the perceived risk, it is often required to infer from the behavior procedure. Every time the consumers buy, there is associated a set of purchase goals; when the expectation level of purchase cannot be attained, the unexpected negative results form the perceived risk. The consumers themselves may not be aware of the purchase goals and the perceived risk, but their behavior is deeply affected by the perceived risk.

Roselius (1971) believed the consumer’s most effective risk reduction strategies were "brand loyalty" and "major brand image", and "purchasing expensive products" was the least helpful. In the meantime, he proposed four methods to solve it when the consumers were aware of the existence of risks, based on their preferences of the methods to reduce risk: (1) reducing the possibility of failure, or to moderate the seriousness of the consequences; (2) converting a possible loss into another more bearable loss; (3) deferring purchase, and (4) adopting purchasing and absorb the risk.

For internet shopping, the risk types and/or contents are quite different from conventional ones due to dissimilar business models and transaction processes that induce more uncertainty for online shopping. After analyzing the questionnaires, Jarvenpaa and Todd (1996-97) classified the risk types as follows. (1) Economic or financial risk: This is the monetary losses due to poor purchase choice, inability to return goods, etc. In this study, economic risk refers to credit card embezzlement. (2) Social risk: This originally refers to the fact that shopping on the web will be considered as imprudent or socially unacceptable, but as online activity becomes popular, we refer it as the embarrassment of confronting people in purchasing private-oriented books. (3) Performance risk: This refers to situation where product/service fails to meet one’s expectation in online book shopping, in this study since the book quality is rather fixed, thus we refer to safety of payment methods. (4) Personal risk: This refers to the harmful personal consequences to the consumer resulting from online shopping. However, any losses can be attributed to this type according to the definition; thus, we regard this type of risk as transaction data leakage. (5) Privacy risk: This refers to the personal private information leakage when offered to the online vendors.

The aforementioned risks certainly cause negative utility for the customers since “uncertainty”, "discomfort" and/or "anxiety" arises from the above-mentioned risks when making an online purchase decision (Dowling and Staelin, 1994; Jarvenpaa and Todd, 1996-97; Bhatnagar, Misra, and Rao, 2000) and steps are taken to avoid such risks. Hence, the following hypothesis is proposed:

Hypothesis 4: The perceived risks affect purchase intention.
METHODOLOGY

Framework

This study focused on exploring the influence of consumer’s perception (product perception, shopping experience, service quality, and perceived risk), as proposed by Jarvenpaa and Todd (1996-97), on consumer purchase intention. According to the above-mentioned research goals and literature review, the framework of this study is shown in Figure 1:

Figure 1: Framework of this Study

Based mainly on the work of Cong-Hua Cheng (2000), the corresponding manifest variables in the questionnaire and the evaluating criteria are listed in Table 1 below.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Manifest variable</th>
<th>Evaluating Criteria</th>
<th>Factor Loading</th>
<th>Cronbach’s α</th>
<th>Composite Reliability</th>
<th>Average variance extracted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product perception</td>
<td>Price(X₁)</td>
<td>Offering lower priced products</td>
<td>0.769</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Variety(X₂)</td>
<td>Many kinds of books</td>
<td>0.847</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Product Quality(X₃)</td>
<td>Offer new and intact books</td>
<td>0.735</td>
<td>0.879</td>
<td>0.828</td>
<td>0.616</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Obtain purchased books as soon as possible</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shopping experience</td>
<td>Convenience(X₄)</td>
<td>Offer diverse and convenient inquiring methods</td>
<td>0.846</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Offer diverse and convenient ordering methods</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Consistency(X₅)</td>
<td>Obtain the same product/service as expected</td>
<td>0.728</td>
<td>0.847</td>
<td>0.833</td>
<td>0.625</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Playfulness(X₆)</td>
<td>Offer relevant and interesting service</td>
<td>0.793</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Have fun from shopping</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service Quality</td>
<td>Responsiveness(X₇)</td>
<td>Instantly offer counsel and answer in case of any question</td>
<td>0.874</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reliability(X₈)</td>
<td>No negligence and mistake in transaction processing</td>
<td>0.882</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tangibility(X₉)</td>
<td>Offer online trial reading and browsing</td>
<td>0.829</td>
<td>0.924</td>
<td>0.920</td>
<td>0.699</td>
</tr>
<tr>
<td></td>
<td></td>
<td>See and touch product before payment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Empathy(X₁₀)</td>
<td>Offer individualized service</td>
<td>0.737</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assurance(X₁₁)</td>
<td>Offer convenient return and replacement service</td>
<td>0.849</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Perceived risk

<table>
<thead>
<tr>
<th>Economic risk($X_{12}$)</th>
<th>Assume risk of credit embezzlement</th>
<th>0.837</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social risk($X_{13}$)</td>
<td>Avoid embarrassment of contacting people when purchasing a book incognito</td>
<td>0.725</td>
</tr>
<tr>
<td>Performance risk($X_{14}$)</td>
<td>Ways of payment and obtaining books is safe and worry-free</td>
<td>0.943</td>
</tr>
<tr>
<td>Personal risk($X_{15}$)</td>
<td>Use safe online transaction system to ensure no data leak</td>
<td>0.769</td>
</tr>
<tr>
<td>Privacy risk($X_{16}$)</td>
<td>Personal data offered to bookstore do not leak</td>
<td>0.895</td>
</tr>
</tbody>
</table>

Hypotheses

According to previous review and discussion, four main research hypotheses are proposed:


Constructs, Manifest Variables and Survey Design

Online questionnaire was designed and published at http://www.my3q.com website; network users who had shopped at online Bokerlai bookstore were invited to fill in the questionnaire from July 8 to August 8, 2007. The five-point Likert Scale was used to evaluate the variance. 248 questionnaires in total were collected and after sifting out invalid ones, 240 valid questionnaires remained. Among the 240 respondents, 111 respondents were male and 129 respondents were female; moreover, 62.9% of them were 21-30 years old, 68.3% of them were at least university-educated and nearly 80% of them were at least college-educated. In addition, both students and service industry employees took up 30% of website respondents.

Analysis and Results

SEM (structural equation modeling), which includes measurement model and path analysis, is an efficient way to find the causal relationships between constructs and their underlying measurement suitability; and Amos software with maximum likelihood estimation (ML) was used to implement SEM. The actual results are stated as follows.

Structural Model: Confirmatory Factor Analysis

Reliability, Validity and Internal Consistency

Confirmatory factor analysis (CFA) was employed to test the reliability and validity of the questionnaires after collecting the questionnaires. The CFA results along with the Cronbach's $\alpha$ value of each construct are also shown in Table 1. The loading factor values of each manifest variable were higher than 0.7 (the suggested threshold value is 0.6 (Bagozzi & Yi (1988)), indicating that internal consistency and convergent validity are good; composite reliability (Construct reliability) and the Cronbach's $\alpha$ value of each construct were higher than 0.8 (the suggested threshold value is 0.7), also the average variance extracted of each construct was greater than 0.5, indicating good reliability. For the overall assessment of the measurement, multiple fit indexes are reported in Table 2 from which we can see that the model was reasonably consistent with the data, with all the fit indexes better than the recommended values.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>p</th>
<th>$\chi^2$/df</th>
<th>AGFI</th>
<th>NFI</th>
<th>RFI</th>
<th>CFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended Value</td>
<td>&lt;0.05</td>
<td>Between 1 and 5</td>
<td>&gt;0.9</td>
<td>&gt;0.9</td>
<td>&gt;0.9</td>
<td>&gt;0.9</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Actual value</td>
<td>0.034</td>
<td>1.975</td>
<td>0.922</td>
<td>0.916</td>
<td>0.954</td>
<td>0.931</td>
<td>0.036</td>
</tr>
</tbody>
</table>
**Structural Model: Path Analysis**

**Overall Model Fit**

Overall fit indexes are reported in Table 3, which shows that the model was reasonably consistent with the data, with all the fit indexes better than the recommended values. Figure 2 indicates the path loadings in addition to t values for each path.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>p</th>
<th>$\chi^2$/df</th>
<th>AGFI</th>
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<tr>
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<td>&lt;0.05</td>
<td>Between 1 and 5</td>
<td>&gt;0.9</td>
<td>&gt;0.9</td>
<td>&gt;0.9</td>
<td>&gt;0.9</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Actual value</td>
<td>0.021</td>
<td>2.34</td>
<td>0.903</td>
<td>0.925</td>
<td>0.938</td>
<td>0.945</td>
<td>0.017</td>
</tr>
</tbody>
</table>

**DISCUSSION AND CONCLUSION**

Based on the test results, the following conclusions were drawn:

(1) For the SEM modeling with the constructs, shopping experience was the most important and product perception was next; perceived risk was the third and service quality was the least important construct. Therefore, ensuring enjoyable shopping experience, providing lower prices and intact books of various sorts and early delivery could have much influence on consumer purchase intention.

(2) Hypothesis 1 stating that product perception affects purchase intention was valid; all factors had influence on purchase intention. This means that in order to induce consumers to buy, the online bookstore should offer proper pricing and big discount rate perhaps is the reason why customers do online shopping; moreover, large selection of books, quick delivery are also important factors in attracting online customers.

![Figure 2 Path coefficients for SEM model](image)

Note: One asterisk (*) denotes significance at the 0.05 level, and two asterisks (**) denote significance at the 0.01 level. t values are in parentheses.
(3) Hypothesis 2 stating that the shopping experience affects purchase intention was valid. Thus, offering customers a convenient environment to shop, keeping consistent service over time, and offering interesting and entertaining service can be valuable.

(4) Hypothesis 3 stating that service quality affects purchase intention was valid. Therefore, quick responding to customer’s inquiry, reliable transaction processing, pertinent introduction and online trial reading, offering costumed service, and offering better assurance service such as convenient return and replacement policy all could increase customer’s intention to purchase online.

(5) Hypothesis 4 stating that the perceived risk affects purchase intention was valid. Thus it is very important for online store to ensure security and safety in the process of transaction in order not to scare its customers away from online shopping. To achieve this, adequate personnel training, adopting safeguard procedures, and intelligent software, etc. may be necessary.

LIMITATION AND SUGGESTIONS

(1) Biased samples: The samples were from online questionnaires and the majority of attendees were 21-30 years old, college-educated, students or employees in service industries, thus the samples may be overly concentrated in some particular consumer groups, rendering bias in measuring the consumer’s online shopping experience and lifestyle. Thus, the results obtained may reflect only these groups’ characteristics. It is suggested that future research could possibly diversify into more consumer groups so that the results can be applied more generally. On the other hand, as more and more people become involved in online transactions, there will be more females and elderly people engaging in internet shopping, so the above results may not hold in the future.

(2) Specific industry: this study treated the Bokerlai online bookstore as its research target, the design and measurement of questionnaire content possessed special requirements; therefore, the results obtained may not be applied to other industries. Thus, future research can target different industries for online shopping behavior.

(3) Non-consideration of other factors: For example, customer’s individual factors such as demographic characteristics, and social and economic status may affect attitudes toward web shopping (Crisp, Jarvenpaa, and Todd, 1997; Zhou, Dai, and Zhang, 2007); and preference and trust can also have direct, moderating, or mediating effect on the adoption of online shopping (Chang, Cheung, and Lai, 2005); this may suggest further research directions.

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