

Analyzing Effect of Structural Equation Modeling (SEM) Approach in E-Commerce

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Abstract: The purpose of this study is to improvise and enhance the existing methods for adoption of e-shopping in India. The intention behind this work is to offer a more comprehensive understanding of online consumer behavior by identifying the compound effects of various external behavioral beliefs, attitude, intentions and perceived risks, social influence, etc using Structural Equation Modeling Approach. As part of the study a survey has been conducted and the data obtained has been used as input for the integrated model. The data has been entered in IBM SPSS and after preliminary processing the model is developed using IBM AMOS. Structural Equation Modeling is used to analyse the model.

Keywords - Structural Equation Modeling, Perceived Usefulness, Technology Readiness, Compatibility, Peer Influence, Computer-Self Efficacy, Perceived Risk

I. Introduction

For rapidly developing countries like India, e-shopping has tremendous scope and it offers considerable opportunity. E-shopping in India is still in nascent stage, but even the most-pessimistic projections indicate a boom. It is believed that low cost of personal computers, a growing installed base for Internet use, and an increasingly competitive Internet Service Provider (ISP) market will help fuel e-shopping growth in Asia's second most populous nation. Indian middle class of 288 million people is equal to the entire U.S. consumer base. This makes India a real attractive market for e-shopping. To make a successful e-shopping transaction both the payment and delivery services must be made efficient. Major Indian portal sites have also shifted towards e-shopping instead of depending on advertising revenue. Many sites are now selling a diverse range of products and services from flowers, greeting cards, and movie tickets to groceries, electronic gadgets, and computers. Compared to physical stores, online stores have many advantages: They are convenient and time saving and no more traveling and waiting in lines is needed. They are open in all time and they are accessible anytime and anywhere. These stores provide consumers with free and rich information about products and services. They also have some online tools to help consumers compare and make purchase decisions among various products and services. Today online consumers have more control and bargaining power than consumers of physical stores because the Internet offers more interactivities between consumers and product/service providers as well as greater availability of information about products and services. Online stores reduce transaction costs and have advantage for both consumers and vendors.

II. Literature Survey

Various studies have used some known theories to explain the online shopping behavior. Prior research has shown that there are many factors that affect online consumer behavior, but a complete coverage of all potential factors in one research model is almost impossible. Most studies focused on a few major factors. For example, Koufaris (2002) tested factors which come from information systems (technology acceptance model), marketing (Consumer Behavior), and psychology (Flow and Environmental Psychology) in one model; Pavlou (2003) studied interrelationships between consumer acceptance of e-commerce and trust, risk, perceived usefulness, and perceived ease of use. Pavlou and Fygenson (2006) examined consumer's adoption of e-commerce with the extended theory of planned behavior (TPB) (Ajzen, 1991). In their research model, consumer behavior was separately examined in terms of getting information behavior and purchasing behavior, both of which were influenced by trust and perceived risk, consumer's attitude, social influence, personal online skills, and technology-oriented factors including perceived usefulness, perceived ease of use and web site features. Also, previous researches have revealed that online buying behavior is affected by demographics, channel knowledge, perceived channel utility and shopping orientations (e.g., Li, Cheng, and Russell, 1999; Weiss, 2001).

Barnes and Guo (2011) in a study "Purchase behavior in virtual worlds: An empirical investigation in Second Life" developed and tested a conceptual model of purchase behavior in virtual worlds using a combination of existing and new constructs. They examined a kind of shopping behavior that consumers spend noticeable amount of money for shopping from internet. Factors of their model were external motivators like perceived value, instinct motivators like perceived happiness, social factors and consumers' habits. The result of study indicated that one's habits, external and instinct motivators have great effect on shaping online shopping behavior of them.

III. Research Problem

India is a country with vast social, cultural and economic diversities and hence it is very difficult to predict the behavior of buyers in India. People in different sections have different perception regarding online shopping and it differs with difference in age, sex, occupation and surrounding environment. Some may find it very easy and user friendly while some may find it complicated and risky. One of the most important barrier in the way of flourishing of online market in India is that most people are reluctant to change their way of purchasing (from physical stores) as they are very much comfortable with it or we can say that they are not ready to adapt something which they are not accustomed to. The behavior of such people needs to be studied in depth and should be analyzed properly which will help in suggesting solutions to their difficulties. The research questions which will help to analyze the behavior of people are stated as follows:

- 1) How do perceived Risks (Financial risks, product risk, convenience risk and non-delivery risk) impact attitude toward online shopping?
- 2) How do infrastructural variables and easy and convenient return policy impact attitude toward online shopping?
- 3) How do subjective norms, Perceived behavioral control and domain specific innovativeness impact online consumer behavior?
- 4) How does the attitude impact online consumer behavior?

IV. Research Hypothesis

In this topic, the collection of interrelated concepts that leads the research is introduced. It will determine which thing should be measured and what relationships will be required from the data (Borgatti, 1999). A theoretical framework was the representation of reality; it will explain in greater detail the variables to be used in the models (TRA, TAM, and TPB). This framework is based on model DTPB (Taylor & Todd, 1995) and few more constructs as Triability, Trust, Risk and Awareness. DTPB introduced following components: (1) Actual behavior, (2) Behavior intention, (3) Attitude, (4) Subjective norm, (5) Perceived behavior control, (6) Compatibility, (7) Peer influence, (8) Superior influence, (9) Self-efficacy, (10) Facilitating condition sources.

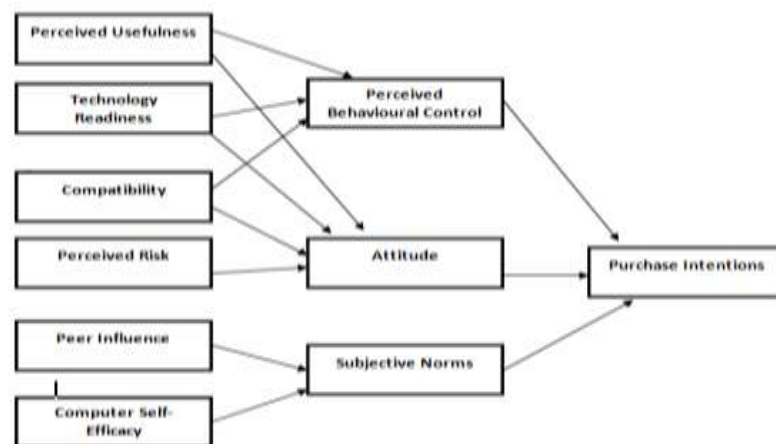


Figure 4.1 Conceptual model

DTPB provides a full understanding of actual usage by focusing on the factors likely to influence the system usage in general and offer a number of advantages such a rendering a more transparent and easy to understand relations among beliefs, attitudes and intentions, as well as enabling application of the model to a variety of situations, which is more relevant, because it helps to determines specific salient beliefs that may influence information technology usage. DTPB gives more predictive power as compared to other models like TAM and TPB.

In this study, DTPB also includes:

(1) Exogenous variables

- Perceived usefulness
- Perceived ease of use
- Technology readiness
- Compatibility
- Perceived risk
- Peer Influence
- Computer self-efficacy

(2) Endogenous variables

- Purchase Intention
- Attitude
- Subjective norm
- Perceived behavior control

Table 4.1: Hypothesis table.

Symbol		Hypothesis direction	Hypothesis
H1	PU \square PBC	Perceived usefulness \square Perceived behaviour control	Perceived Usefulness significantly influence and positively affects Perceived Behavior Control
H2	COMP \square PBC	Compatibility \square Perceived behavior control	Compatibility positively affects Perceived Behavior Control
H3	TR \square PBC	Technology Readiness \square Perceived behavior control	Technology readiness significantly influence and positively affects Perceived Behavior Control
H4	PU \square ATT	Perceived usefulness \square Attitude	Perceived Usefulness significantly influence and positively affects Attitude
H5	COMP \square ATT	Compatibility \square Attitude	Compatibility significantly influence and positively affects Attitude
H6	PR \square ATT	Perceived Risk \square Attitude	Perceived Risk influence and negatively affects Attitude
H7	PINF \square SN	Peer Influence \square Subjective norm	Peer Influence significantly influence and positively affects Subjective Norm
H8	CS \square SN	Computer self-efficacy \square Subjective norm	Computer self-efficacy significantly influence and positively affects Subjective Norm
H9	PBC \square PI	Perceived behavior control \square \square Purchase Intention	Perceived behavior control significantly influence and positively affects Purchase Intention
H10	ATT \square PI	Attitude \square \square Purchase Intention	Attitude significantly influence and positively affects Purchase Intention
H11	SN \square PI	Subjective norm \square Purchase Intention	Subjective Norm significantly influence and positively affects Purchase Intention

V. Conclusion

In this study we examined some factors affecting on online shopping behavior of consumers. A conceptual model was used in order to assess the effects of variables on each other using Structural Equation Modeling. This study proves that Perceived Behavioral Control and Attitude have positive and significant effect on purchase intention of customers. So we suggested a real time website to carry out certain changes which made it user friendly. More emphasis was laid on building a relationship with the customers to retain them and rewarding the loyal customers with special offers. A significant improvement in the growth of business was observed by implementing the suggested strategies. The findings of this study are very useful in real time implementation. As we found here that Attitude and Perceived Behavioral Control have positive and significant effect on purchase intention of customer, we suggested some changes to a real time website to improve the attitude of users to purchase online. We chose the website christinaindia.com which is an online store for men's and women's clothing. The implementation of our suggestions yielded good results for the store and its sale increased.

In this research seven factors have only been tested on online shopping behavior. Researchers can examine other factors affecting on online shopping behavior with extensive researches. By extending this study to other countries, we can reach to better results and understanding about online shopping behavior of people. We used only 1 online stores for practical implementation. By assessing better sites like Amazon.com we can reach to better and more reliable society for research. Including cultural factors in model could show better dimension of online shoppers.

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