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Online Consumer Behavior: A Review and Agenda for Future Research

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Abstract

The topic of online consumer behavior has been examined under various contexts over the years. Although researchers from a variety of business disciplines have made significant progress over the past few years, the scope of these studies is rather broad, the studies appear relatively fragmented and no unifying theoretical model is found in this research area. In view of this, we provide an exhaustive review of the literature and propose a research framework with three key building blocks (intention, adoption, and continuance) so as to analyze the online consumer behavior in a systematic way. This proposed framework not only provides us with a cohesive view of online consumer behavior, but also serves as a salient guideline for researchers in this area. We conclude our paper with a research agenda for the study of online consumer behavior.

Keywords: framework for online consumer behavior, intention, adoption, continuance, literature analysis, individual/consumer characteristics, environmental influences, product/service characteristics, medium characteristics, online merchants and intermediaries characteristics

1. Introduction

Online consumer behavior has become an emerging research area with an increasing number of publications per year. The research articles appear in a variety of journals and conference proceedings in the fields of information systems, marketing, management, and psychology. A review of these articles indicates that researchers mostly draw theories from classical consumer behavior research, such as behavioral learning (Skinner, 1938), personality research (Folkes 1988), information processing (Bettman 1979), and attitude models (Fishbein 1967).

Moreover, a close examination of the literature in this area reveals that most of the components of consumer behavior theory have been applied to the study of online consumer behavior. However, the application is not as straightforward as simply borrowing the components and applying them. There are still significant differences between offline and online consumer behavior that warrant a distinguishing

conceptualization. For example, Vijayasathy (2001) integrated the web specific factors (online shopping aid) into the theory of reasoned action (TRA) to better explain consumer online shopping behavior. Song and Zahedi (2001) built on the model of the theory of planned behavior (TPB) and examined the effects of website design on the adoption of Internet shopping.

A review of online consumer research reveals that the scope of published studies is rather broad, the studies appear relatively fragmented with contradictory results, and only very few prior studies (e.g., Jarvenpaa and Todd 1996, Koufaris et al 2001) have attempted to systematically review and develop a framework for the study of this important research area. In this vein, the objectives of this study are: (1) to provide a systematic and exhaustive review of online consumer behavior research, (2) to identify important constructs that are specific to the context of online purchasing, (3) to propose an integrated framework that enhances our understanding of the underlying driving factors of online consumer behavior, and (4) to provide directions for future research in this area.

The paper is organized as follows. Section II outlines the research approach and Section III describes the results and the literature analysis. Section IV presents an integrated framework for the study of online consumer behavior. Finally, Section V addresses the discussion, and Section VI concludes the paper by considering the future research agenda in this area.

2. A Structured Research Approach

Prior literature provides us with a rich foundation on which to build a research framework for the study of online consumer behavior. As suggested by Douglas et al. (1994), strong theoretical and conceptual frameworks can be developed through an integration of constructs from different research traditions and disciplines. In the current study, we review the prior literature of online consumer behavior and analyze the theories and the underpinning factors.

A systematic and structured approach in search and review is strongly recommended in writing sound IS literature reviews (Webster and Watson 2002). In this study, we conducted an exhaustive and systematic electronic search using ProQuest, Social Science Citation Index, IEEE Xplore, and other bibliographic sources with keywords such as “online shopping”, “Internet shopping” and “online consumer purchasing behavior”. In addition to the search for referred journal articles, we included three IS-related conference proceedings (AMCIS, HICSS, ICIS) in our literature search and analysis.

A total of 351 articles in the area of online consumer behavior were identified from 1994 to April 2002. For any study to be included in our analysis, it has to focus primarily on consumer purchasing behavior on the Web. Electronic copies of most articles were obtained from digital libraries and online databases. They were stored and analyzed with the use of the EndNote software.

3. Literature Analysis Results

The 351 articles were analyzed and classified in terms of publication year, title, underlying theory/framework, and dependent and independent variables studied. We believe that this clarification provides fruitful insights about online consumer scholars. In particular, this analysis helps researchers discover deficiencies and identify potential unexplored research opportunities in this area.

3.1 Historical Overview

The importance of an emerging research area is reflected in the increasing number of publications per year. The number of articles in the online consumer behavior literature has risen dramatically in the past four years, with over 120 articles being published in 2001 (see Figure 1).

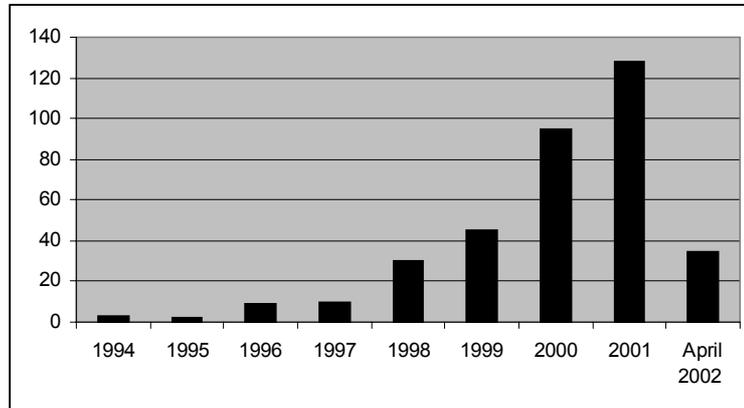


Figure 1: Number of Publications by Year

3.2 Publications

Research on online consumer behavior appears in a variety of journals and conference proceedings in the fields of Information Systems, Marketing, Management and Psychology. In Information Systems it appears that online consumer behavior research is not yet part of the mainstream. As is typical for an emerging research area, most articles appear in new, innovative journals such as the *International Review of Retail, Distribution and Consumer Research*, *International Journal of Electronic Commerce* and *Internet Research: Electronic Networking Applications and Policy*. We expect that as this research area matures, articles will begin to find their way into more established journals such as *MIS Quarterly* and *Information Systems Research*. Moreover, it is interesting to find that many non-IS journals such as the *International Review of Retail and Distribution and Consumer Research*, rank the highest in terms of number of articles published in this area. This illustrates the importance of this research area to MIS and related disciplines. Table 1 shows the ranking of the journals that have published articles in online consumer behavior (we only included journals with at least two articles in this area).

Table 1: Number of Online Consumer Behavior Research Studies in Journals

Journals	Count
The International Review of Retail, Distribution and Consumer Research	24
International Journal of Electronic Commerce	18
Internet Research: Electronic Networking Applications and Policy	11
Communications of the ACM	8
Information & Management	7
Journal of Marketing Communications	7
Electronic Markets	6
Journal of Marketing Practice: Applied Marketing Science	6
Quarterly Journal of Electronic Commerce	6
Electronic Commerce Research	5
Business Strategy Review	7
Decision Support Systems	7
Journal of Business Research	7
Journal of Computer Information Systems	7
Journal of Retailing	7
Marketing Management	7
IEEE Transactions on Systems, Man and Cybernetics, Part A	7
International Journal of Human-Computer Studies	3
Management of Engineering and Technology	3
MIT Sloan Management Review	3
Journal of Consumer Marketing	3
California Management Review	2
e-Service Journal	2
International Journal of Retail & Distribution Management	2
Journal of Advertising Research	2
Journal of Industrial Economics	2
Management Decision	2
Marketing Science	2
Psychology & Marketing	2
International Journal of Information Management	2
International Journal of Service Industry Management	2
Journal of Computer-Mediated Communication	2

3.3 Underlying Theory and Framework

As part of our analysis, we identified the theories that are used by the authors of the 351 papers surveyed. Findings show that the Theory of Reasoned Action (TRA) and its family theories including the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB) are the dominant theories in this area. Expectation-Confirmation Theory (ECT) and Innovation Diffusion Theory (IDT) have also been repeatedly tested in the study of online consumer behavior. Table 2 lists the five most frequently used theories and their corresponding references.

Table 2: References of Online Consumer Behavior Research

Theory	Reference
Expectation-Confirmation Theory	Bhattacharjee (2001a) Bhattacharjee (2001b) Khalifa and Liu (2001)
Innovation Diffusion Theory	Bhattacharjee (2000) Bhattacharjee (2001b) Goldsmith (2000) Parthasarathy and Bhattacharjee (1998) Senecal (2000) Siu and Cheng (2001)
Technology Acceptance Model	Bhattacharjee (2000) Bhattacharjee (2001a) Bhattacharjee (2001b) Chau, Au and Tam (2000) Childers et al. (2001) Heijden et al. (2001) Lee et al.(2001) Limayem and Khalifa (2000) Lin and Lu (2000) Keen et al. (2000) Parthasarathy and Bhattacharjee (1998) Pavlou (2001)
Theory of Planned Behavior	Bhattacharjee (2000) Bhattacharjee (2001a) Bhattacharjee (2001b) Jarvenpaa and Tractinsky (1999) Jarvenpaa et al. (2000) Keen et al. (2000) Limayem and Khalifa (2000) Limayem et al. (2000) Pavlou (2001) Shim et al. (2001) Song and Zahedi (2001)
Theory of Reasoned Action	Heijden et al. (2001) Jarvenpaa and Tractinsky (1999) Jarvenpaa et al. (2000) Jones and Vijayasarathy (1998) Keen et al. (2000) Kimelfeld and Watt (2001) Limayem et al. (2000) Shim et al.(2001) Vijayasarathy and Jones (2000)

The findings show that most authors depend heavily on theories from the TRA family (TPB, TAM, and TRA), while other useful theories such as the flow theory are ignored. Researchers, therefore, should try to explore new theories and frameworks and investigate online consumer behavior from different perspectives and angles.

4. An Integrated Framework for the Study of Online Consumer Behavior

As demonstrated in the previous section, the prevalence of the Internet has aroused enormous interest in the study of consumer-based electronic commerce in recent years. In

particular, the focus of these studies was on investigating factors affecting the intention and adoption of consumer online purchase.

Early studies in online consumer behavior largely sought to explore how consumers adopt and use online purchase. Specifically, the emphasis was on the antecedents of consumer online purchasing intention and adoption. Companies, however, have started to realize that in the digital economy, competitors are just a click away. Initial adoption by consumers is only the first step towards overall success, and companies that succeed in their e-business initiatives are adept at creating and maintaining a long-term sustainable relationship with loyal customers. Thus, research in the consumer continuance behavior (repurchase) becomes increasingly salient.

4.1 A Base Model

Our literature review revealed that no prior study has attempted to link the three key concepts of intention, adoption, and continuance and investigate the process of online consumer purchase as a whole. By integrating Fishbein's attitudinal theoretical model (Fishbein 1967) and the expectation-confirmation model (Oliver 1980), we attempt to associate the three elements together and form a base model – Model of Intention, Adoption, and Continuance (MIAC) (as depicted in Figure 2) for the development of an online consumer behavior framework.

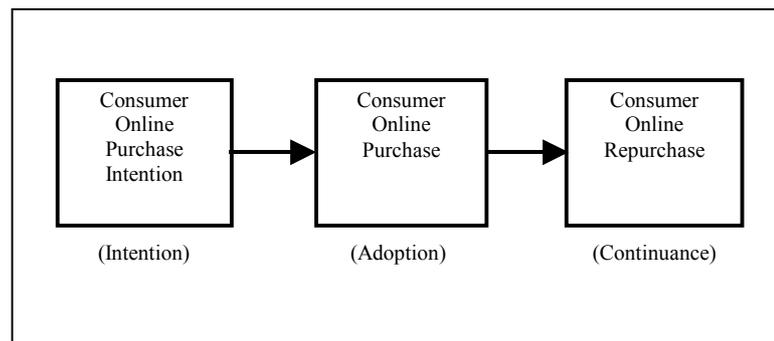


Figure 2: Model of Intention, Adoption, and Continuance (MIAC)

Fishbein's attitudinal model has been widely used in the marketing context (Lilien et al 1992) and this paradigm provides researchers with a useful lens for examining the factors explaining consumer purchasing intention and adoption. According to this model, behavior is predominantly determined by intention. Other factors like attitudes, subjective norms, and perceived behavioral control are also shown to be related to an appropriate set of salient behavioral, normative, and control beliefs about the behavior. However, Fishbein's model stops at the adoption level and does not capture other important factors that explain and predict consumer continuance behavior (repurchase).

The expectation-confirmation model (Oliver 1980), on the other hand, focuses on the post-purchase behavior. It is a widely used model in the consumer behavior literature, particularly in explaining consumer satisfaction and repeat purchase. Satisfaction is the central notion of this model and it is formed by the gap between expectation and perceived performance (Oliver 1980). The expectation-confirmation theory suggests that if the perceived performance meets one's expectation, confirmation is formed and consumers are satisfied. Bhattacharjee (2001b) stated that satisfied users are more likely to continue the IS use. Thus, we point that adoption and continuance are connected to

each other through several mediating and moderating factors such as trust and satisfaction.

4.2 A Framework for Online Consumer Behavior

Our analysis shows that online consumer behavior is still fragmented. For example, researchers such as Goldsmith (2000) and Limayem et al. (2000) found that personal innovativeness is a key personality trait that explains consumer online purchase intention. Chau et al (2000) examined the effects of presentation mode, search engines, and navigation structure of product items on the adoption of Internet shopping. Jarvenpaa et al (2000) concluded that trust in an Internet store is a salient determinant of online shopping. Finally, Lee (1999) focused on online repurchase and contended that consumer trust and consumer satisfaction were the key antecedents of continued purchase.

In order to capture the important factors explaining online behavior, we propose a unifying framework that could eventually guide research in this area. Through a close examination of the existing literature, five major domain areas including individual/consumer characteristics, environmental influences, product/service characteristics, medium characteristics, and online merchant and intermediary characteristics were identified.

4.2.1 Individual/Consumer Characteristics

The impact of Individual/Consumer characteristics on the adoption of IS/IT is a dominant research perspective in the IS literature (Zmud 1979). In the current study, individual/consumer characteristics refers to the factors specific to the consumer such as demographics, personality, value, lifestyle, attitude, consumer resources, consumer psychological factors (flow, satisfaction, trust), behavioral characteristics (looking for product information, access location, duration, and frequency of usage), motivation, and experience.

4.2.2 Environmental Influences

In addition to personal characteristics, marketing scholars such as Engel et al (2001) contend that environmental factors like culture, social influence, peer influence, and mass media play an important role in affecting consumer purchasing decisions. We believe that these factors are also relevant in the context of online consumer behavior and therefore include them in our framework.

4.2.3 Product/Service Characteristics

Jarvenpaa and Todd (1996) argue that price, quality, and product type are the three key elements in shaping consumers' perception. In suggested fragmentation, product/service characteristics mainly refer to knowledge about the product, product type, frequency of purchase, tangibility, differentiation and price.

4.2.4 Medium Characteristics

Characteristics of systems have been extensively studied in the IS literature. Traditional IS attributes such as ease of use, quality, security and reliability are included in the study of electronic commerce systems. Additionally, web specific factors such as ease of navigation, interface and network speed are also considered in the current study.

4.2.5 Online Merchants and Intermediaries Characteristics

Researchers such as Hoffman and Novak (1996) and Spiller and Lohse (1998) have suggested a broad classification of Internet retail stores as well as the key attributes and features of online stores. These studies provided us with a better insight into the study of online merchant and intermediary characteristics. In the current study, we included factors like service quality, privacy and security control, brand/reputation, delivery/logistic, after sales services and incentive in our framework of online consumer behavior.

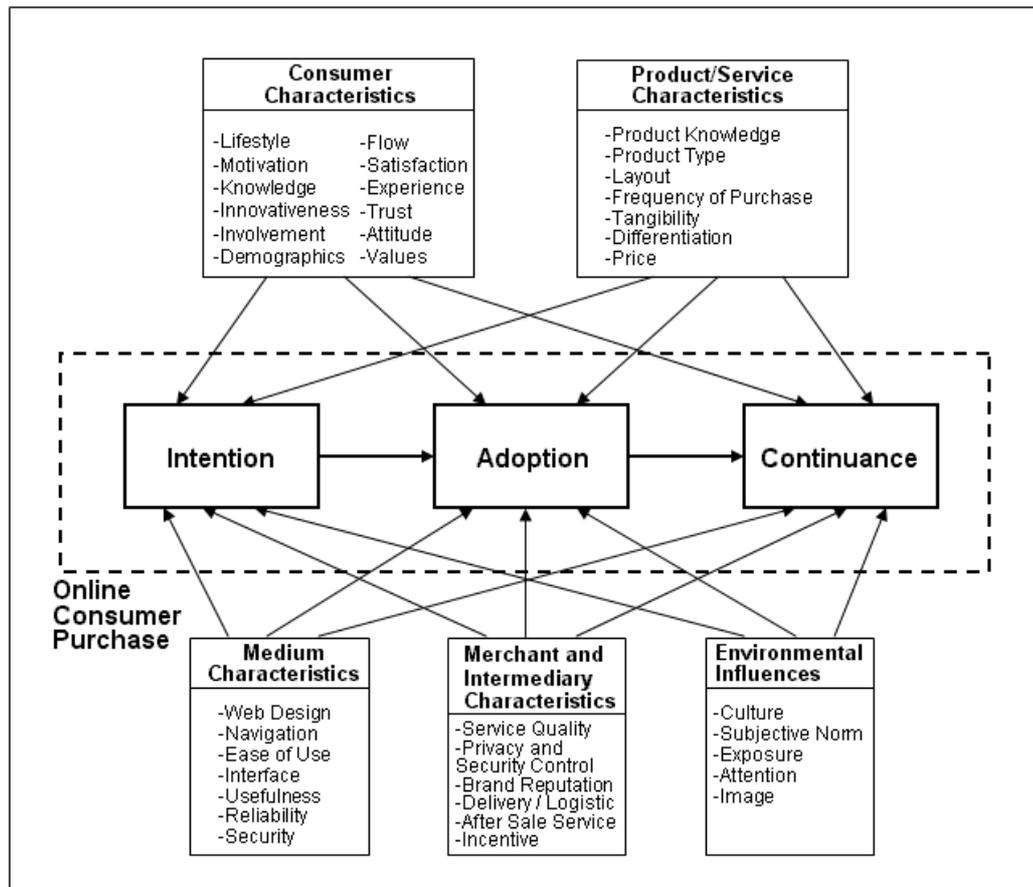


Figure 3: Framework of Online Consumer Behavior

These five domain areas were integrated into our base model (MIAC) to form a framework (as shown in Figure 3) for the study of online consumer behavior. This proposed framework not only provides us with a cohesive view of online consumer behavior, but also serves as a salient guidance for researchers in this research area.

4.3 Online Consumer Purchase Intention, Adoption, and Continuance

Intention, adoption, and continuance are the key building blocks of our proposed framework of online consumer behavior. In the following section, we implicitly investigated the three key elements by mapping prior literature into the five domains. Appendix A describes the extent to which each one of the factors was related to one of the three main building blocks. For example, the impact of age on intention was investigated by one study and the impact of age on adoption was investigated by seven studies. However, no study explored the link between age and continuance.

4.3.1 Consumer Online Purchase Intention

Based on the theory of reasoned action and other related theories in this research area, the key factors of attitude, subjective norm, and perceived behavior control are largely postulated as the determinants of consumer online purchase intention (e.g. Bhattacharjee 2000, Keen et al 2000, Limayem et al., 2000). Similarly, perceived ease of use and perceived usefulness stemming from technology acceptance model (TAM), have also received enormous attention (e.g. Chau et al 2000, Lin and Lu 2000).

Trust and perceived risk (e.g. Jarvenpaa et al 2000, Pavlou 2001, Ruyter et al 2001) have been widely investigated in the study of consumer online purchase intention. Some recent studies (e.g. Cheung and Lee 2001, Lee and Turban 2001) focused primarily on the trust formation process in the context of Internet shopping. In terms of product/service characteristics, are the key research topics are product type (e.g. Bobbitt and Dabholkar 2001, Sohn 1999) and price (e.g. Degeratu et al 2000, Liao and Cheung 2001). For instance, Sohn (1999) argued that products like CDs, books or canned food which do not require a physical examination before being purchased are easier to sell on the Internet. Brand/reputation (e.g. Jarvenpaa et al 2000, Ruyter et al 2001) and service quality (e.g. Ruyter et al 2001, Song and Zahedi 2001) are also important in affecting online purchase intentions.

4.3.2 Consumer Online Purchase (Adoption)

As is the case for consumer online purchase intention, researchers (e.g. Chau et al 2000, Goldsmith and Bridges 2000, Koufaris et al 2001, Limayem et al 2000, Raijas and Tuunainen 2001, Vellido et al 2000) extensively employed attitudinal theoretical models in the study of consumer online purchase and thoroughly investigated the antecedent factors like intention, attitude, subjective norm, perceived behavior control, ease of use, and perceived usefulness.

Moreover, we observed a significant number of empirical studies that proposed and tested factors affecting consumer online purchase. Compared to the study of intention, the studies of consumer online purchase are quite fragmented and widely dispersed in the five main categories. For examples, demographics (e.g. Bellman et al 1999, Bhatnagar et al 2000, Li et al 1999, Phau and Poon 2000, Ramaswami et al 2000) have been widely considered in the study of online consumer behavior. Researchers primarily investigated factors such as age, gender, income, education, and the like in determining consumer online purchase. In terms of medium characteristics, a number of web specific factors including navigation (e.g. Chau et al 2000, Liang and Lai 2002), interface (e.g. Schoenbachler and Gordon 2002), security (e.g. Goldsmith 2000, Kim and Lim 2001), accessibility (e.g. Chen and Sukpanich 1998, Lee 2002), social presence (e.g. Kumar and Benbasat 2001) and online shopping aid (Vijayarathy 2001) have been widely investigated in these prior studies. In terms of merchant and intermediary characteristics, factors like privacy and security protection (e.g. Kim and Lim 2001, Lee 2002) and brand/reputation (e.g. Ruyter et al 2001, Ward and Lee 2000) are frequently studied in consumer online purchase adoption.

4.3.3 Consumer Online Repurchase (Continuance)

Research on continuance is in its infancy. Bhattacharjee's (2001a) recent study is one of the very first attempts to explain consumer online repurchasing behavior. His proposed model was formulated on the basis of expectation and confirmation theory (ECT), and postulated satisfaction, confirmation, and loyalty incentives as salient factors affecting consumer online repurchasing.

Our literature review and analysis revealed that prior research on consumer online repurchase placed more emphasis on the impact of psychological factors. For instance, considerable attention has been given to the study of trust (Fung and Lee 1999, Lee et al 2000) and satisfaction formation (Khalifa and Liu 2001) in the context of consumer-based electronic commerce. Very few studies, however, have attempted to investigate the impact of product/service characteristics, medium characteristics, and merchant and intermediary characteristics on consumer online repurchasing. Liang and Lai (2002) was one recent study that explored the impact of web page design such as navigation, security, search attribute, and shopping aids. Similarly, Gefen and Devine (2001), focused on merchant characteristics and investigated the effect of service quality on consumer online purchase continuance using SERVQUAL.

5. Discussions

Electronic commerce is rapidly changing the way people do business all over the world. In the business-to-consumer segment, sales through the web have been increasing dramatically over the last few years. Customers, not only those from well-developed countries but also those from developing countries, are getting used to the new shopping channel. Understanding the factors that affect intention, adoption and repurchase are important for researchers and practitioners alike.

Our analysis of over 300 research articles on online consumer behavior has showed that this research area has received tremendous attention over the past few years. Most of the studies have borrowed theories from consumer behavior research and over emphasized the factors affecting a consumer's intention and adoption of online shopping while ignoring the factors leading to repurchase. Our review illustrates the need for a unifying framework that can guide research in this important area. Consequently, the proposed model (MIAC) shows how five important factors (consumer characteristics, environment influences, product/service characteristics, medium characteristics, merchant and intermediary characteristics) are related to three key elements (intention, adoption, repurchase).

5.1 Antecedents of Intention, Adoption and Continuance

Our findings confirm that online consumer behavior is still immature and exhibits an important research potential. The impact of several constructs of TPB, TRA and TAM such as attitude, subjective norms, and perceived behavioral control has been widely studied while other important factors have been ignored. As illustrated in Figure 3, factors related to consumer characteristics like demographics, personality, value, lifestyle, consumer resources, and knowledge were not explored. In addition, factors related to the medium characteristics (network availability, reliability, stability, speed, externalities, information quality, shopping aids medium richness and convenience), and environmental influences (culture and reference groups) have not been fully investigated in prior studies.

In terms of adoption, we found that consumer characteristics and medium characteristics are the key categories that most prior research explored. For example, characteristics such as demographics, lifestyle, motivation, behavioral characteristics, knowledge, attitude, intention, personal innovativeness, experience, trust, perceived risk, satisfaction, involvement and flow are well-tested and extensively studied. In addition, factors related to merchant and intermediary characteristics including website design, network reliability, search, network speed, usefulness, information quality, search attribute, shopping aids, channel, convenience and enjoyable are frequently explored.

Compared to intention and adoption, continuance is an under-researched area. The impact of factors like trust and satisfaction in the domain of consumer characteristics, ease of use, usefulness and search attribute in the domain of medium characteristics, and delivery in the domain of merchant and intermediary characteristics on continuance are yet to be investigated

6. Conclusion And Agenda for Future Research

The purpose of this study was to conduct a thorough analysis of the literature in the area of online consumer behavior. A research framework was suggested to better understand existing studies and to highlight under-researched areas. Our findings show that the literature on online consumer behavior is rather fragmented. Most studies investigated intention and adoption of online shopping while continuance behavior (repurchase) is seriously under-researched. Moreover, our analysis helped us to identify several fruitful directions for future research.

1. Future research could use our suggested intention, adoption and continuance (MIAC) framework as a basis to empirically explore the factors affecting the online consumer purchasing process.
2. Our findings show that existing studies focus on the factors affecting intention of buying from the web. They do that by using TRA and its related theories. We therefore encourage researchers to explore theories from different disciplines and use them to study consumers' adoption and continuance of online shopping. For example, Csikszentmihalyi (1975) introduced the concept of flow, which he defined as "the holistic experience that people feel when they act with total involvement". Some researchers (Csikszentmihalyi, 1990; Trevino and Webster, 1992; Ghani and Deshpande, 1994) advocated the use of the concept of flow to better understand purchase and repurchase from the web (Chen et al 1998; Rettie, 2001). We, therefore, believe flow theory is useful in explaining consumers' continuance behavior.
3. We invite researchers to pay more attention to the under-researched areas highlighted by our analysis. For instance, researchers can explore new variables in the five categories (consumer characteristics, environmental influences, product characteristics, medium characteristics, and merchant and intermediary characteristics) and empirically test how these factors affect intention, adoption and continuance.
4. Moe and Fader (2000) suggest that both planned and unplanned visit/purchase will affect future purchase decisions. However, our analysis of over 300 research articles showed that there are no studies examining unplanned purchase. Korfaris (2002) is the first to explore the relationship between unplanned and online consumer behavior. Unplanned behavior (for example, browsing visit without specific intention to buy) in fact is stimuli-driven and occasionally results in unplanned purchase (Janiszewski, 1998; Jarboe and McDaniel, 1987). We believe that the web provides several types of stimuli and we urge researchers to examine the process of online unplanned purchase.
5. Classical consumer behavioral theories provide researchers with a good starting point in understanding online consumer behavior. However, we should take the IT component into serious consideration when doing research in online consumer behavior. Instead of blindly borrowing theories and models from other disciplines, we as IS researchers should work out our own behavioral models declaring what is unique and specific to the context of consumer-based electronic commerce.

Finally, it is important to note that classical theories such as TRA and related theories constitute only a starting point in understanding online consumer behavior. Researchers

should carefully consider the artifact and its impact on online consumer behavior. Therefore, we believe that the time has come for IS researchers to start building their own theories instead of applying theories from other disciplines.

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Appendix A – Analysis Table

		Online Consumer Behavior		
		Intention	Adoption	Continuance
Consumer Characteristics				
Demographics		Sohn 1999	Schoenbachler and Gordon 2002	
	Age	White and Manning 1998	Bellman et al 1999 Bhatnagar et al 2000 Case et al 2001 Kim and Lim 2001 Phau and Poon 2000 Raijas and Tuunainen 2001 Vrechopoulos et al 2001	
	Income	White and Manning 1998	Bellman et al 1999 Case et al 2001 Kim, Cho and Rao 2000 Kim and Lim 2001 Kim et al 2000 Koivumaki 2001 Li et al 1999 Phau and Poon 2000 Raijas and Tuunainen 2001 Ramaswami et al 2000 Siu and Cheng 2001 Vrechopoulos et al 2001	
	Education	Liao and Cheung 2001	Bellman et al 1999 Case et al 2001 Kim and Lim 2001 Li et al 1999 Pereira 1998 Phau and Poon 2000 Vrechopoulos et al 2001	
	Occupation		Kim and Lim 2001 Raijas and Tuunainen 2001 Vrechopoulos et al 2001	
	Computer Usage		Case et al 2001 Han et al 2001 Phau and Poon 2000	
	Internet Usage	Liao and Cheung 2001	Bhatnagar et al 2000 Case et al 2001 Citrin et al 2000	
	Race		Bellman et al 1999	
	Gender	White and Manning 1998	Bellman et al 1999 Bhatnagar et al 2000 Case et al 2001 Kim and Lim 2001 Li et al 1999 Vrechopoulos et al 2001	
	Household Size		Raijas and Tuunainen 2001	
	Marital Status		Bhatnagar et al 2000 Kim and Lim 2001 Vrechopoulos et al 2001	
	Personality		Eroglu et al 2001 Jones and Vijayasathy 1998	
Value		Goldsmith and Bridges 2000	Boyer et al 2002	
Lifestyle		Kim, Cho and Rao 2000 Kim et al 2000 Pereira 1998 Schoenbachler and Gordon 2002		
Consumer Resources	Time	Bobbitt and Dabholkar 2001	Bobbitt and Dabholkar 2001 Ramaswami et al 2000	

Behavioral Characteristics	Looking for product information	Shim et al 2001	Bellman et al 1999 Ramaswami et al 2000	
	Access Location		Bellman et al 1999 Bhatnagar et al 2000	
	Duration		Bellman et al 1999 Han et al 2001 Miyazaki and Fernandez 2001	
	Frequency		Miyazaki and Fernandez 2001	
	Return behavior		Schoenbachler and Gordon 2002	
Motivation		Ambrose and Johnson 1998 Liu and Arnett 1999 Song and Zahedi 2001 Vijayarathy and Jones 2000a	Ambrose and Johnson 1998 Childers et al 2001 Dobie et al 2001 Moe and Fader 2001 Schoenbachler and Gordon 2002 Wolfenbarger and Gilly 2000	
Knowledge			Han et al 2001	
Attitude		Bhattacharjee 2000 Bobbitt and Dabholkar 2001 Chau et al 2000 Griffith et al 2001 Heijden et al 2001 Keen et al 2000 Kimelfeld and Watt 2001 Limayem and Khalifa 2000 Limayem et al 2000 Lin and Lu 2000 Jarvenpaa et al 1999 Jarvenpaa et al 2000 Shim et al 2001 Song and Zahedi 2001 Vijayarathy and Jones 2000a	Bobbitt and Dabholkar 2001 Chau et al 2000 Childers et al 2001 Goldsmith and Bridges 2000 Limayem and Khalifa 2000 Limayem et al 2000 Muthitacharoen 2000 Pereira 1998 Siu and Cheng 2001 Sukpanich and Chen 1999	
Intention			Bobbitt and Dabholkar 2001 Chau et al 2000 Limayem and Khalifa 2000 Limayem et al 2000	
Personal Innovativeness		Limayem and Khalifa 2000 Limayem et al 2000 Sohn 1999	Citrin et al 2000 Goldsmith 2000 Goldsmith 2001 Limayem and Khalifa 2000 Limayem et al 2000 Raijas and Tuunainen 2001	
Perceived Consequence		Limayem and Khalifa 2000 Limayem et al 2000	Limayem and Khalifa 2000 Limayem et al 2000	
Experience		Bhatnagar et al 2000 Shim et al 2001 Vijayarathy and Jones 2000a	Chen and Sukpanich 1999 Childers et al 2001 Han et al 2001 Jarvenpaa and Todd 1996 Koufaris et al 2002 Lee 2002 Li et al 1999 Schoenbachler and Gordon 2002 Vrechopoulos et al 2001	Koufaris et al 2002
Trust		Ambrose and Johnson 1998 Heijden et al 2001 Jarvenpaa et al 1999 Jarvenpaa et al 2000 Jarvenpaa and Tractinsky 1999 Pavlou 2001 Ruyter et al 2000	Ambrose and Johnson 1998 Borchers 2001 Chen and Sukpanich 1998 Cheung and Lee 1999 Cheung and Lee 2001 Goldsmith 2000 Lee 2002 Lee and Turban 2001 Warrington et al 2000	Fung and Lee 1999 Lee 1999 Lee et al 2000 Lee, Kim, Moon 2000 Warrington et al 2000

Perceived Risk	Bhatnagar et al 2000 Heijden et al 2001 Jarvenpaa et al 1999 Jarvenpaa et al 2000 Jarvenpaa and Tractinsky 1999 Pavlou 2001 Ruyter et al 2000 Ruyter et al 2001 Vijayasathy and Jones 2000a	Andrade 2000 Bobbitt and Dabholkar 2001 Jarvenpaa and Todd 1996 Kim, Cho and Rao 2000 Kim et al 2000 Lee, Park, and Ahn 2001 Miyazaki and Fernandez 2001 Pereira 1998 Ruyter et al 2001 Schoenbachler and Gordon 2002 Siu and Cheng 2001 Vellido et al 2000	
Perceived Benefit	Ruyter et al 2000	Kim, Cho and Rao 2000 Siu and Cheng 2001	
Perceived Internet store Size	Heijden et al 2001 Jarvenpaa et al 1999 Jarvenpaa et al 2000		
Satisfaction		Ho and Wu 1999 Koivumaki 2001 Ramaswami et al 2000	Bhattacharjee 2001a Bhattacharjee 2001b Fung and Lee 1999 Ho and Wu 1999 Khalifa and Liu 2001 Lee 1999 Lee et al 2000 Ramaswami et al 2000
Involvement	Griffith et al 2001 Liu and Arnett 1999	Chen and Sukpanich 1998 Eroglu et al 2000 Eroglu et al 2001 Koufaris et al 2002 Pereira 1998 Wolfenbarger and Gilly 2000 Wolfenbarger and Gilly 2001	Koufaris et al 2002
Shopping Enjoyment		Koufaris et al 2002	Koufaris et al 2002
Shopping Orientation	Vijayasathy and Jones 2000a Vijayasathy and Jones 2000b Vijayasathy 2001	Li et al 1999	
Flow	Control		Nel et al 1999
	Attention Focus		Nel et al 1999
	Curiosity		Nel et al 1999
	Intrinsic Interest		Nel et al 1999 Wolfenbarger and Gilly 2000 Wolfenbarger and Gilly 2001
	Positive challenges		Koufaris et al 2002
Confirmation			Bhattacharjee 2001a Bhattacharjee 2001b
Preference	Liu and Arnett 1999	Chen and Sukpanich 1998 Vrechopoulos et al 2001	
Stickiness			Boyer et al 2002
Environmental Influences			
Culture		Luna and Gupta 2001 Pereira 1998	
Subjective Norm	Bhattacharjee 2000 Keen et al 2000 Limayem and Khalifa 2000 Limayem et al 2000 Shim et al 2001 Song and Zahedi 2001 Vijayasathy and Jones 2000a	Limayem and Khalifa 2000 Limayem et al 2000 Jones and Vijayasathy 1998 Pereira 1998 Siu and Cheng 2001	Parthasarathy and Bhattacharjee 1998

Perceived Behavioral Control	Bhattacharjee 2000 Bobbitt and Dabholkar 2001 Keen et al 2000 Limayem and Khalifa 2000 Limayem et al 2000 Shim et al 2001 Song and Zahedi 2001	Bobbitt and Dabholkar 2001 Chen and Sukpanich 1998 Koufaris et al 2002 Limayem and Khalifa 2000 Limayem et al 2000 Senecal 2000	Koufaris et al 2002
Exposure	Kimelfeld and Watt 2001 Sohn 1999	Kim and Lim 2001	Parthasarathy and Bhattacharjee 1998
Attention			Page and White 2002
Awareness			Page and White 2002
Image			Page and White 2002
Reference Group			Page and White 2002
Product/Service Characteristics			
Product Knowledge	Bobbitt and Dabholkar 2001 Griffith et al 2001	Bobbitt and Dabholkar 2001 Lee and Park 2001 Lee 2002 Ramaswami et al 2000	
Product Type	Bobbitt and Dabholkar 2001 White and Manning 1998 Liao and Cheung 2001 Vijayarathy and Jones 2000b Vijayarathy 2001 Sohn 1999	Andrade 2000 Bhatnagar et al 2000 Bobbitt and Dabholkar 2001 Ho and Wu 1999 Phau and Poon 2000 Schoenbachler and Gordon 2002 Stark and Meier 2001	
Layout		Phau and Poon 2000 Phau and Poon 2000b	
Frequency of Purchase		Phau and Poon 2000 Phau and Poon 2000b	
Utilization		Goldsmith 2000	
Tangibility		Jarvenpaa and Todd 1996 Phau and Poon 2000 Phau and Poon 2000b	
Differentiation		Jarvenpaa and Todd 1996 Pereira 1998 Phau and Poon 2000 Phau and Poon 2000b	
Price	Degeratu et al 2000 Liao and Cheung 2001 Sohn 1999 Song and Zahedi 2001 Vijayarathy and Jones 2000a	Jarvenpaa and Todd 1996 Schoenbachler and Gordon 2002	Page and White 2002
Medium Characteristics			
Website Design	Ranganathan and Ganapathy 2002	Grandon and Ranganathan 2001 Ho and Wu 1999 Kim and Lim 2001 Schoenbachler and Gordon 2002	
Social Presence		Kumar and Benbasat 2001 Siu and Cheng 2001	
Navigation	Chau et al 2000	Chau et al 2000 Chiders et al 2001 Grandon and Ranganathan 2001 Lee and Park 2001 Lee 2002 Liang and Lai 2002	Liang and Lai 2002 Page and White 2002

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	Ease of Use	Bhattacharjee 2000 Chau et al 2000 Heijden et al 2001 Keen et al 2000 Lin and Lu 2000 Pavlou 2001	Chau et al 2000 Chiders et al 2001 Goldsmith and Bridges 2000 Lee, Park, and Ahn 2001 Liang and Lai 2002 Raijas and Tuunainen 2001 Siu and Cheng 2001 Vellido et al 2000	Lee 1999 Liang and Lai 2002 Page and White 2002 Parthasarathy and Bhattacharjee 1998
	Interface	Griffith et al 2001 Sohn 1999 Song and Zahedi 2001	Koivumaki 2001 Schoenbachler and Gordon 2002	
Availability			Ramaswami et al 2000 Schoenbachler and Gordon 2002	
Accessibility		Lin and Lu 2000 Liu and Arnett 1999 Sohn 1999	Chen and Sukpanich 1998 Kim and Lim 2001 Lee 2002 Li et al 1999	
Compatibility			Jarvenpaa and Todd 1996	Parthasarathy and Bhattacharjee 1998
Functionality		Sohn 1999		
Privacy		Pavlou 2001		Page and White 2002
Reliability			Goldsmith and Bridges 2000 Jarvenpaa and Todd 1996 Kim and Lim 2001	Lee 1999 Page and White 2002
Security		Liao and Cheung 2001 Pavlou 2001 Ranganathan and Ganapathy 2002	Chen and Sukpanich 1998 Goldsmith 2000 Han et al 2001 Kim and Lim 2001 Liang and Lai 2002 Schoenbachler and Gordon 2002	Lee 1999 Liang and Lai 2002 Page and White 2002
Network Speed			Goldsmith 2000 Goldsmith and Bridges 2000 Kim and Lim 2001 Lee and Park 2001 Raijas and Tuunainen 2001	Lee 1999 Page and White 2002
Network Externalities				Parthasarathy and Bhattacharjee 1998
Usefulness		Bhattacharjee 2000 Chau et al 2000 Heijden et al 2001 Lin and Lu 2000 Pavlou 2001	Chau et al 2000 Chiders et al 2001 Lee, Park, and Ahn 2001	Bhattacharjee 1998 Bhattacharjee 2001a Bhattacharjee 2001b Parthasarathy and Bhattacharjee 1998
Information Quality		Lin and Lu 2000 Liu and Arnett 1999	Grandon and Ranganathan 2001 Ho and Wu 1999 Kim and Lim 2001 Wolfenbarger and Gilly 2000 Wolfenbarger and Gilly 2001 Vijayasathy and Jones 2000a	Lee 1999 Page and White 2002
	Information Complexity		Huang 2000	
	Information Novelty		Huang 2000	
	Information Architecture		Spiteri 2001	
	Information Content	Ranganathan and Ganapathy 2002		
	Information accuracy		Lee 2002	
Dynamic Pricing Strategy		Keen et al 2000	Kannan and Kopalle 2001 Liang and Lai 2002	Liang and Lai 2002
Search Attribute		Bobbitt and Dabholkar 2001 Chau et al 2000 Degeratu et al 2000	Bobbitt and Dabholkar 2001 Chau et al 2000 Grandon and Ranganathan 2001 Koufaris et al 2002 Liang and Lai 2002	Bobbitt and Dabholkar 2001 Chau et al 2000 Degeratu et al 2000 Koufaris et al 2002 Liang and Lai 2002

Online Store Environment		Eroglu et al 2000 Eroglu et al 2001 Liang and Lai 2002	Liang and Lai 2002
Shopping Aids	Vijayarathy 2001	Grandon and Ranganathan 2001 Haubl and Trifts 2000 Liang and Lai 2002 Vijayarathy and Jones 2001	Liang and Lai 2002
Channel	Liu and Arnett 1999 Vijayarathy and Jones 2000a White and Manning 1998	Bobbitt and Dabholkar 2001 Chen and Sukpanich 1998 Han et al 2001 Li et al 1999 Miyazaki and Fernandez 2001 Muthitacharoen 2000 Pereira 1998 Ramaswami et al 2000 Schoenbachler and Gordon 2002	
Medium richness		Grandon and Ranganathan 2001 Liang and Lai 2002	Liang and Lai 2002
Convenience	Vijayarathy and Jones 2000a	Andrade 2000 Chiders et al 2001 Kim and Lim 2001 Lee and Park 2001 Lee 2002 Li et al 1999 Raijas and Tuunainen 2001 Wolfenbarger and Gilly 2000 Wolfenbarger and Gilly 2001	
System Design Quality	Liu and Arnett 1999		
System Use	Liu and Arnett 1999		
Enjoyable	Liu and Arnett 1999	Chiders et al 2001 Goldsmith 2000 Kim and Lim 2001	Koufaris et al 2002 Page and White 2002
Personalized	Vijayarathy and Jones 2000a	Liang and Lai 2002	Liang and Lai 2002 Page and White 2002
Merchant and Intermediary Characteristics			
Privacy and Security Protection	Ranganathan and Ganapathy 2002	Han et al 2001 Kim and Lim 2001 Lee and Park 2001 Lee 2002 Senecal 2000	Page and White 2002
Accurate Information		Lee and Park 2001	
Brand/Reputation	Degeratu et al 2000 Heijden et al 2001 Jarvenpaa et al 1999 Jarvenpaa et al 2000 Ruyter et al 2000 Ruyter et al 2001	Lee and Park 2001 Lee 2002 Pereira 1998 Ruyter et al 2001 Schoenbachler and Gordon 2002 Ward and Lee 2000	Lee 1999
Delivery		Goldsmith and Bridges 2000 Lee 2002 Li et al 1999 Liang and Lai 2002	Lee 1999 Lee and Park 2001 Liang and Lai 2002
Multiple Payment Methods		Liang and Lai 2002	Liang and Lai 2002
Return Policies		Goldsmith and Bridges 2000 Liang and Lai 2002	Lee and Park 2001 Liang and Lai 2002
After-sales Services		Lee 2002	Lee 1999 Lee and Park 2001
Image	White and Manning 1998	Phau and Poon 2000 Jones and Vijayarathy 1998	Page and White 2002
Service Quality	Liu and Arnett 1999 Ruyter et al 2000 Sohn 1999 Song and Zahedi 2001	Vellido et al 2000	Gefen and Devine 2001
Customer Service		Kim and Lim 2001	
Relative Advantage		Siu and Cheng 2001 Kim et al 2000	
Vendor Quality	Liao and Cheung 2001	Liang and Lai 2002 Ramaswami et al 2000	Liang and Lai 2002
Incentive		Kim and Lim 2001	Bhattacharjee 2001a
Assurance		Jarvenpaa and Todd 1996 Lee 2002 Schoenbachler and Gordon 2002	Lee 1999
Empathy		Jarvenpaa and Todd 1996	
Pricing Attractiveness			Lee 1999