Consumer Online Purchase Intention and Product Class

Zhen Li

Abstract

Prior research identifies product attributes significantly affect consumer online purchase intentions. This study expands the existing product classification framework and define the product classes as search, service, experience, and credence products by attributes. To further explore the relationship between product class and purchase intentions, we perform an Internet survey to investigate consumers' online purchase intention, and examine its differences among the four classes of products. The results suggest that consumer online purchase intention is the highest for search products, followed by service products, then as experience products, and lowest for credence products. Management implications are also presented at last.

Keywords

Online Purchase Intention, Product Class, Search, Experience, Service, Credence, ANOVA, Post-Hoc Test

1. Introduction

In the last decade, more than 60% of the 2.8 billion Internet users worldwide have begun shopping on the Internet, making online shopping the fastest-growing activity among Internet users. Meanwhile, the fast-growing e-commerce also contributes to a better sales performance of retailing industry. The United States had nearly 200 million online shoppers and $68.6 billion of goods were sold via the e-commerce website of eBay in 2011. Similarly, the total volume of trade in China's online retail markets was nearly 1.89 trillion RMB in 2013, with year-on-year growth of 42.8%, which accounted for 8.04% of total retail sales of consumer goods. An observation shows that at the beginning of online shopping development, consumers prefer to shop online when the products are predominated by attributes such as a large selection or speed of shopping, while they are more likely to make an offline purchase when the products are predominated by attributes like personal service or user experience (Chiang and Dholakia, 2003; Girard et al., 2002; Levin et al., 2005). However, with the development in online markets, many of the "traditional" offline products are being purchased via the Internet (Beldona et al., 2011; Chocarro et al., 2013).

The goal of this study is to investigate the relationship between product class and consumer online purchase intention. Customer purchase preference is sig-

nificantly influenced by product attributes (Girard and Dion, 2010; Sheth, 1983). A number of studies have discussed what types of product are most likely to be purchased online (Girard et al., 2002; Levin et al., 2005). However, most of the discussions focused on whether product attributes can be determined over the Internet or whether they need to be experienced (Chiang and Dholakia, 2003). In recent years, although the SEC-product classification framework has been evolving and tested in the context of online purchase (Girard et al., 2002; Girard and Dion, 2010), the studies are limited and the results are still felt to be somewhat weak. In addition, the reason why the difference in online purchase intention occurs across SEC-products is seldom explored in the prior studies.

Earlier studies usually focused on whether the key attributes of a product can be determined on the Internet. The studies have shown that "low-touch" products where the key attributes of a product can be determined on the Internet are likely to be bought online, while "high touch" products which consumers need to touch or experience are mostly purchased in local stores (Levin et al., 2005; Lynch et al., 2001). However, the finding is considered too general and lacks theories to support it (Girard and Dion, 2010).

Building on this finding, the proposal of the SEC-product classification framework makes up for the deficiency of the theory (Ford et al., 1988). In this product classification theory, products in previous studies are subdivided into three classes according to the complexity of their information collection; i.e., search, experience, and credence (Dimoka et al., 2012; Girard and Dion, 2010). For instance, Girard and Dion (2010) found that customer online purchase intention is the highest for search products, followed by experience products, and lowest for credence products. However, this classification framework seldom introduced in the context of online and offline shopping, and the results need further discussion. In addition, in that study, service products were mixed into search and credence products, rather than an independent group. With the widespread popularity of e-commerce service products, such as insurance and tourism, are also purchased frequently on the Internet, in addition to physical products (Pi et al., 2012; Rajamma et al., 2007). Meanwhile, service products have the characteristics of intangibility, simultaneity, and variability, which are not available in other products (Cho and Park, 2003). Therefore, this study claims that service products can be regard as a separate class in addition to SEC-products, to explore consumer online patronage intentions. On the other hand, prior research mainly focused on consumers in the United States, which makes the conclusion biased by culture and economic policy.

This study empirically examines the difference in consumer online purchase intention among four classes of products (i.e., search, experience, credence, and service). To control for bias, we conduct surveys in the United States, China, and

Japan, which are three of world's largest online markets with different cultures and economic policies. In this study, we discuss the relationship between the four product classes and consumer online shopping intentions, and finds that the intention for online purchase is the highest for search products, followed by service products, followed by experience products, but lowest for credence products.

The main contribution of this study is to further investigate the relationship between consumer online purchase intentions and the four product classes. Compared with the existing research, this study adds service product as a separate class into SEC-product classification, and obtains a more accurate relationship between product class and consumer online purchase intention through a quantitative analysis.

The remainder of this study is organized as follows. Section 2 reviews the literature related to the product classification framework and builds hypotheses. Section 3 is the methodology, including data collection and basic statistical description. Section 4 presents the data analyses and the results. And last, Section 5 concludes the study with the managerial implications, contributions, and directions for future research.

2. Reviews and Hypotheses

Prior studies identified that product attributes are a significant influential factor for consumer patronage intentions (Girard and Dion, 2010; Sheth, 1983). Compared with most of the earlier studies (Chiang and Dholakia, 2003; Levin et al., 2003), SEC-product classification framework is used to instead of the high touch-low touch distinction to examine the influence of product class on preference for shopping on the Internet (Girard et al., 2002; Girard and Dion, 2010). Therefore, this study follows these relevant literatures, and incorporates SEC-products theory into a model of consumer online purchase intention.

The conventional product-classification framework – Convenience, Shopping, and Specialty (CSS), which has been used to explain consumer choices for different types of physical retail outlet (Copeland, 1923), is no longer used to explain their choices for online shopping. Instead of the CSS-framework, many studies have focused on a relatively new product-classification framework, which is called Search, Experience, and Credence (SEC), to determine consumer patronage intentions for the Internet and local stores (Girard and Dion, 2010; Wan et al., 2012). However, discussions on the saliency of its operationalization in the context of online and offline shopping are still limited in the literature (Girard and Dion, 2010).

Girard and Dion (2010) summarized that the definitions of SEC-products include the levels of availability of information, uncertainty, and the cost/difficulty

consumer encounter in obtaining and evaluating the attribute information of products.

The characteristics of search products are that most of the information on product attributes (price, quality, size, color, etc.) can be easily obtained from the Internet, which means consumers can confidently evaluate the quality before they purchase (Wan et al., 2012). The typical products for the "search" class are things such as books and CDs. Experience products are identified as those whose relevant attribute information cannot be easily found from the Internet, which means that consumers can only evaluate the quality once they are consumed or serviced (Girard and Dion, 2010; Nelson, 1974). Credence products are defined as those whose relevant attribute information is not available until a considerable period of time after the use of the product/service, which means that consumers cannot evaluate the quality even a long time after the purchase, such as auto insurance, vitamins, and supplements (Wan et al., 2012).

For the differences in consumer purchase intention for Internet and local stores, prior research indicated that it is rooted in the theory of risk perception, and the degree of perceived risk for shopping online is the lowest for search products, followed by experience products, and the highest for credence products (Girard and Dion, 2010). As a validation of the existing results, we present out the following hypotheses:

H1: There are significant differences in online purchase intention among SEC products.

H2: For SEC-product, online purchase intention is the highest for search products, followed by experience products, and the lowest for credence products.

However, due to only having considered the complexity of information obtainment, service products were mixed into search and credence products in many prior studies. For instance, in Girard and Dion (2010), flight ticket booking was assigned to search products, while insurance was assigned to credence products. This is because consumers are afraid that they paying money for insurance but not getting it. With the development of e-commerce, many service firms provide their services through an online channel in addition to the traditional channels. This leads to service products being purchased frequently on the Internet, as well as physical products (Pi et al., 2012; Rajamma et al., 2007). As service products have the characteristics of intangibility, variability, and simultaneity, which are different from physical products (Cho and Park, 2003; Levitt, 1981), we decide to serve service products as a separate product class on a par with SEC-products.

Given the intangibility and variability in service products, it is posited that the relevant attribute information is more difficult to obtain for service products

than for search products. The hypothesis, therefore, is stated as follow:

H3. Online purchase intention is significantly lower for service products than for search products.

On the other hand, because of the simultaneity, the author considers that consumers can evaluate the quality of the service immediately after the purchase. Considering these likely influences, the study has the following hypothesis:

H4. Online purchase intention is significantly higher for service products than for credence products.

3. The Data

To collect data for this study, the author decided to design and employ an experimental survey to determine the relationship between product class and consumer online purchase intentions. The survey is administered from April 2010 to July 2013 by Google survey and Sojump.com.

After reviewing the literature related to product classes and attributes (Girard and Dion, 2010; Wan et al., 2012), a total of twelve products with four classes (i.e., search, experience, service, and credence products) were defined in the survey. Search products include books, music-CDs, and game software; experience products include shoes, cookies, and cosmetics; service products include online meal ordering, travel booking, and air insurance; and credence products include supplements, diet food, and hair-restorer. To avoid order bias, the target products in the survey will be given randomly from each class.

The survey is constructed in a number of interrelated parts as follow:

Part 1: Contents, objectives, notes, and term explanations.

Part 2: Items related to participant profiles, including gender, age, country, education, and experience with online shopping.

Part 3: Items related to consumer online purchase intention. In this part, participants are required to respond with their online purchase intentions for four product classes. The intentions are measured on a 5-point scale (1=Very unlikely to 5=Very likely) by asking "How likely do you feel purchasing this product from the Internet is?"

Part 4: Items related to the degree of risk perception. In this part, participants are required to respond with the degree of risk they perceived, including vendor, product performance, financial, psychological, time, and privacy risks. Similarly, the degree of risk perception was also measured on a 5-point scale by asking "How risky do you feel shopping this product from the Internet is?" which is from 1=Not risky at all to 5=Very risky.[1]

A total of 1867 responses are collected in this survey. After deleting invalid data with missing values, the effective response sample is 1148 copies, which accounts for an effective rate of 61.5%.

Table 1: Distributions of target products and participants' profiles

Product Classes	Freq.	Percent (%)	Characteristics	Freq.	Percent (%)
Search products			**Gender**		
book	395	34.41	1 = Male	573	49.91
music-CD	382	33.28	2 = Female	575	50.09
game soft	371	32.32	**Age**		
Service products			1 = Under 20	145	12.63
online meal ordering	377	32.84	2 = 20 -- 29	361	31.45
travel booking	391	34.06	3 = 30 -- 39	468	40.77
air insurance	380	33.10	4 = 40 -- 49	121	10.54
Experience products			5 = Over 50	53	4.62
shoes	367	31.97	**Country**		
cookies	414	36.06	1 = China	563	49.04
cosmetic	367	31.97	2 = Japan	318	27.70
Credence products			3 = USA	267	23.26
supplements	374	32.58	**Education**		
diet food	414	36.06	1 = Under high school	355	30.92
hair-restorer	360	31.36	2 = College	561	48.87
			3 = Graduate	232	20.21
			Frequency of shop online per month		
			1 = Less than 3 times	226	19.69
			2 = 3 times to 9 times	548	47.74
			3 = 10 times or above	374	32.58

Table 2: Descriptive statistics of intentions (N=1148)

Product classes	Obs.	Mean	Std.Dev.	Min	Max
Search products	**1148**	**3.78**	**0.68**	**2**	**5**
book	395	3.77	0.68	2	5
music-CD	382	3.81	0.70	3	5
game soft	371	3.76	0.66	3	5
Service products	**1148**	**3.53**	**0.66**	**2**	**5**
online meal ordering	377	3.50	0.66	2	5
travel booking	391	3.53	0.65	2	5
air insurance	380	3.54	0.66	2	5
Experience products	**1148**	**2.88**	**0.73**	**1**	**5**
shoes	367	2.90	0.75	1	5
cookies	414	2.92	0.74	1	5
cosmetic	367	2.82	0.71	1	5
Credence products	**1148**	**2.46**	**0.66**	**1**	**4**
supplements	374	2.49	0.69	1	4
diet food	414	2.40	0.61	1	4
hair-restorer	360	2.51	0.68	1	4

Table 1 provides the distributions related to the target products and characteristics of participants. As shown in the table, respondents are nearly evenly

split between males and females. The modal age categories are 20s and 30s. Also, most of the participants seem to have a relatively high education and a certain degree of online shopping experience. We found that the sample used in this study is similar to those used in prior studies (e.g., Levin et al., 2005). In addition, about half of the respondents are Chinese, the rest are nearly evenly split between Japanese and American. Table 2 provides the descriptive statistics of intentions.

4. Analysis

To investigate the relationship between consumer purchase intention and product class, the 5-point scale of online purchase intention was tested for significant differences across the product classes using an ANOVA, if at all.

Table 3: Results of the ANOVA

| | Number of obs = 4592 | | R-squared = 0.37 | |
| | Root MSE = 0.68 | | Adj R-squared = 0.37 | |
Source	Partial SS	df	MS	F	Prob
Model	**1242.93**	**3**	**414.31**	**888.02**	**0.000**
Product Class	1242.93	3	414.31	888.02	0.000
Residual	**2140.55**	**4588**	**0.47**		
Total	**3383.48**	**4591**	**0.74**		

H1 predict that online purchase intention may differ across product classes. Table 3 represents the results of the ANOVA for this hypothesis. As shown in the results, the main effect of product class is significant ($F_{(3,4588)} = 888.02$, $p < 0.01$), demonstrating that the classes of products have significant impacts on consumer online purchase intention. Therefore, H1 is supported.

The rest hypotheses (i.e., H2, H3, and H4) relate to the power degree of online purchase intention for the four product classes. Due the specific differences cannot be directly obtained in ANOVA model, Tukey–Kramer post-hoc-tests were performed in this study.

Before doing post-hoc tests, as a precondition, we briefly confirmed the homoscedasticity and normality of the samples. Figure 1 provides a plot of the distributions of the online purchase intentions for search, service, experience, and credence products. Figure 2 depicts the means of online purchase intentions for all the four classes of products.

Table 4 provides post-hoc-tests to verify the hypotheses H2, H3, and H4. H2 states that online purchase intention is the highest for search products, but the lowest for credence products. As expected with the speculation based on Girard and Dion (2010), the results in the post-hoc-tests reveal that online purchase intention is significantly higher for search products than that for experience

products ($t = 30.55$, $p < 0.01$) and credence products ($t = 47.19$, $p < 0.01$), meanwhile the intention for experience products is higher than for credence products ($t = 14.28$, $p < 0.01$). Therefore, H2 is supported.

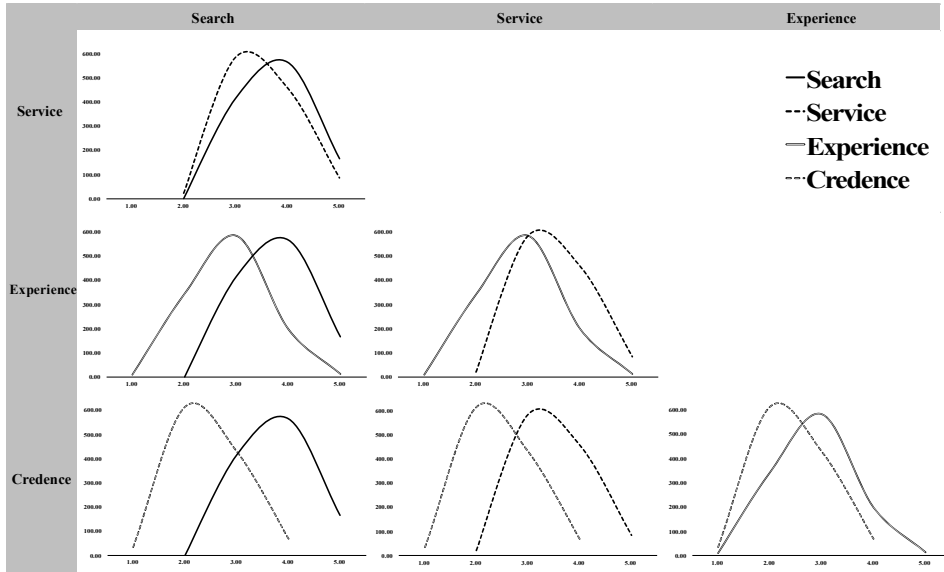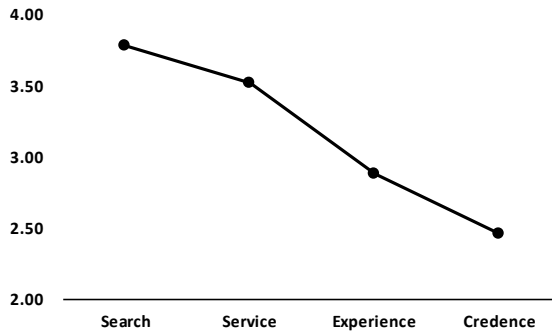Figure 1: Density Plots of Online Purchase Intentions

Figure 2: Means of Online Purchase Intentions

H3 proposes that consumer online purchase intention is significantly lower for service products than for search products. As shown in Table 4, the results show the mean intentions significantly differ between search and service products ($t = 9.06$, $p < 0.01$), which means that the finding supports H3. Nonetheless, it is worth noting that the difference in online purchase intentions between search and service products is very small.

Similar to H3, H4 predicts online purchase intention is significantly higher for service products than for credence products. The mean of the intentions for

service products is 3.53, while for credence product it is only 2.46 (Table 2). As expected, the results indicate that the online purchase intention is significantly higher for service products than for credence products ($t = 38.69$, $p < 0.01$), supporting H4. In addition, a further insight is gained from the findings is that the online purchase intention for service products is also significantly higher than for experience products ($t = 22.61$, $p < 0.01$).

Table 4: Post-hoc-test Results for H2, H3, and H4

Product-class (A)	Product-class (B)	Mean-diff. (A-B)	Std.Err.	t-stat.	
Search	Service	**0.25**	0.03	**9.06**	***
	Experience	**0.90**	0.03	**30.55**	***
	Credence	**1.32**	0.03	**47.19**	***
Service	Experience	**0.65**	0.03	**22.26**	***
	Credence	**1.06**	0.03	**38.69**	***
Experience	Credence	**0.41**	0.03	**14.28**	***

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

5. Conclusions and Discussion

In this study, the author focuses on the relationship between consumer online purchase intention and product class, and examines the difference in purchase intention for Internet among four product classes (i.e., search, experience, service, and credence products). Specifically, this study performs this examination through the development and administration of an Internet survey, of which 1148 valid responses were returned. On the basis of the analysis we performed on this survey data, the main conclusion is shown that purchase intentions for the Internet are the highest for search products, followed by service products, then as experience products, and lowest for credence products.

Prior research related to product classification has inferred that the intentions for shopping online are particularly strong for search products, while the credence products are most likely to be purchased in shops. This is because of the degree of perceived risk (e.g., Girard and Dion, 2010). As an extension, this study examines not only the online purchase intentions for SEC-products, but also the intentions for service products. The findings provide much needed empirical support to the relationship between SEC-products and online purchase intentions, on which relevant literature has speculated. As a new finding, service products seem more likely to be purchased from the Internet than experience and credence products. Given the strict management in online markets and the third-party guarantee (e.g., Alipay and PayPal) in e-commerce, more and more consumers prefer buying service items from the Internet, because it

helps them to save time (Rajamma et al., 2007). Since service products do not need shipping, consumers can obtain the service quickly through the Internet. Another possibility is that most of the online service products are provided by official flagship stores, which can reduce consumer risk perceptions. In addition, although online purchase intentions significantly differ between search and service products, the difference is only slightly.

The present study contributes to the existing literature in two ways. The first contribution is that this paper adds service products into the product classes as a separate product class, and examines the differences in online purchase intentions among the four product classes (i.e., search, service, experience, and credence products). In the literature, service products were mixed in the search and credence classes of products. This study attempts to serve service products as a separate product class on a par with SEC-products, and demonstrates that the intentions for shopping online are higher for service products than that for experience and credence products. The second contribution is that compared with the majority of studies which are mainly focused on the United States, the data in this study refers to the United States, China, and Japan, which are three of world's largest online markets with different cultures and economic policies. The author claims that this can help to control for bias from culture and economic policy, and to draw a relatively general conclusion. Also, this study can provide the literature with some needed empirical supports.

In light of the findings, several important managerial implications can be gleaned from this study. First, sellers of search or service products should pay more attention to online markets. With the rapid growth of e-commerce, some physical stores, like book shops and flower shops, may be replaced by online shops such as Amazon.com. Also, it is the same with the service industry, such as travel agency. Second, sellers of experience and credence products could consider building an O2O commerce model, and explore both online and offline channels to expand sales performance. Especially for sellers of experience products, though the likelihood of in-shop purchase is relatively high because product attribute information cannot be easily obtained from the Internet, a single offline channel also seems to be somewhat negative due to the effects of showrooming.[2]

Inevitably, this study has two major limitations. First, the author serves services as an independent class and discusses the online purchase intentions across four classes of products (i.e., search, service, experience, and credence products). However, products in each class are enumerated insufficiently (i.e., three products per class), which causes the existence of product bias in the study. Second, because the research is based on a cross-section of data, which was collected by survey, it cannot reflect the continuous relationship of purchase inten-

tion with the class of product, and may cause the analysis results to be unstable and underestimated. Given these possibilities, the author suggests that it is better to repeat the examination on the relationship between product class and patronage intentions by using different products.

Note

[1] Part 4 of the Internet survey is not used in this study.
[2] Showrooming is that the practice of examining merchandise in a traditional store, and then buying it online, sometimes at a lower price.

Reference

Beldona, Srikanth, Pradeep Racherla, and Gokul Das Mundhra (2011). "To Buy or Not to Buy: Indian Consumers' Choice of Online Versus Offline Channels for Air Travel Purchase," *Journal of Hospitality Marketing & Management*, 20(8), pp. 831-854.

Chiang, Kuan-Pin and Ruby Roy Dholakia (2003). "Factors Driving Consumer Intention to Shop Online: An Empirical Investigation," *Journal of Consumer Psychology*, 13(1), pp. 177-183.

Cho, Sung-Eui and Kwangtae Park (2003). "Empirical Taxonomy of Services and Service Products in Electronic Commerce," *Electronic Commerce Research and Applications*, 1(3), pp. 339-350.

Chocarro, Raquel, Mónica Cortiñas, and María-Luisa Villanueva (2013). "Situational Variables in Online Versus Offline Channel Choice," *Electronic Commerce Research and Applications*, 15(5), pp. 347-361.

Copeland, Melvin T (1923). "Relation of Consumers' Buying Habits to Marketing Methods," *Harvard Business Review*, 1(3), pp. 282-289.

Dimoka, Angelika, Yili Hong, and Paul A Pavlou (2012). "On Product Uncertainty in Online Markets: Theory and Evidence," *MIS Quarterly*, 36(2).

Ford, Gary T, Darlene B Smith, and John L Swasy (1988). "An Empirical Test of the Search, Experience and Credence Attributes Framework," *Advances in Consumer Research*, 15(1), pp. 239-243.

Girard, Tulay and Paul Dion (2010). "Validating the Search, Experience, and Credence Product Classification Framework," *Journal of Business Research*, 63(9), pp. 1079-1087.

Girard, Tulay, Ronnie Silverblatt, and Pradeep Korgaonkar (2002). "Influence of Product Class on Preference for Shopping on The Internet," *Journal of Computer-Mediated Communication*, 8(1), pp. 1-22.

Levin, Aron M, Irwin P Levin, and C Edward Heath (2003). "Product Category Dependent Consumer Preferences for Online and Offline Shopping Features and Their Influence on Multi-Channel Retail Alliances," *Journal of Electronic Commerce Research*, 4(3), pp. 85-93.

Levin, Aron M, Irwin P Levin, and Joshua A Weller (2005). "A Multi-Attribute Analysis of Preferences for Online and Offline Shopping: Differences across Products, Consumers, and Shopping Stages," *Journal of Electronic Commerce Research*, 6(4), pp. 281-290.

Levitt, Theodore (1981). "Marketing Intangible Products and Product Intangibles," *Cornell Hotel and Restaurant Administration Quarterly*, 22(2), pp. 37-44.

Lynch, Patrick D, Robert J Kent, and Srini S Srinivasan (2001). "The Global Internet Shopper: Evidence from Shopping Tasks in Twelve Countries," *Journal of Advertising Research*, 41(3), pp. 15-24.

Nelson, Phillip (1974). "Advertising as Information," *The Journal of Political Economy*, pp. 729-754.

Pi, Shih-Ming, Hsiu-Li Liao, and Hui-Min Chen (2012). "Factors that Affect Consumers' Trust and Continuous Adoption of Online Financial Services," *International Journal of Business and Management*, 7(9), pp. 108-119.

Rajamma, Rajasree K, Audhesh K Paswan, and Gopala Ganesh (2007). "Services Purchased at Brick and Mortar Versus Online Stores, and Shopping Motivation," *Journal of Services Marketing*, 21(3), pp. 200-212.

Sheth, Jagdish N (1983). *An Integrative Theory of Patronage Preference and Behavior*, College of Commerce and Business Patronage Behavior and Retail Management, North-Holland, New York.

Wan, Yun, Makoto Nakayama, and Norma Sutcliffe (2012). "The Impact of Age and Shopping Experiences on The Classification of Search, Experience, and Credence Goods in Online Shopping," *Information Systems and e-Business Management*, 10(1), pp. 135-148.