

GENDER DIFFERENCES IN ONLINE SHOPPERS' DECISION-MAKING STYLES

Chyan Yang, Chia Chun Wu

Institute of Business and Management, National Chiao Tung University, Sec. 1, Zhongsiao W. Rd, Taipei, Taiwan(ROC)

Keywords: Internet shopping, Decision-making styles, Gender differences, Exploratory factor analysis, Discriminant analysis

Abstract: Because of the SARS epidemic in Asia, people chose to the Internet shopping instead of going shopping on streets. In other words, SARS actually gave the Internet an opportunity to revive from its earlier bubbles. The purpose of this research is to provide managers of shopping Websites regarding consumer purchasing decisions based on the CSI (Consumer Styles Inventory) which was proposed by Sproles (1985) and Sproles & Kendall (1986) . According to the CSI, one can capture the decision-making styles of online shoppers. Furthermore, this research also discusses the gender differences among online shoppers. Exploratory factor analysis (EFA) was used to understand the decision-making styles and discriminant analysis was used to distinguish the differences between female and male shoppers. Managers of Internet shopping Websites can design a proper marketing mix with the findings that there are differences in purchasing decisions between genders.

1 INTRODUCTION

Taiwan's Internet users reached 8.76 million by June 2003, as reported by Institute for Information Industry ECRC-FIND Center. Compared with last year, the Internet users only grew by 90 thousands. This means that Taiwan's Internet market has become more mature gradually. In spite of the mature Internet market, there is seldom successful E-business and this phenomenon leads to the Internet bubbles.

Unfortunately the SARS epidemic broke out in spring 2003 in Asia. However, this crisis did give the slow Internet market a boost because people stayed at home whenever possible. In consideration of the chance to recover the prosperity, this research attempts to help marketing managers provide suitable marketing strategies. Therefore, this research used exploratory factor analysis to find consumers' decision-making styles by the CSI, which was proposed by Sproles (1985) and Sproles & Kendall (1986) . By understanding the consumers' decision-making styles, managers of shopping Websites can hold more advantageous activities to arouse the consumers' interest and improve sales

In-store purchases account for the vast majority of consumer buying. Increased time pressure on

either genders, especially on women, has been cited as one of the principal advantages of catalogue and online shopping. It has been broken gradually that the stereotype of an Internet shopper appears to be a youngish, well-educated man (Alreck & Settle, 2002). As reported by Nielsen/NetRatings, there are 35 millions of female internet users in Europe, which is almost 42% of European Internet users. Moreover, concerning the ranking of the main countries in the World, the percentage of American female Internet users is 51%, and the highest and it's about 51%. In Sweden and UK, the proportions of female Internet users are both over 45%. Other counties such as Netherlands, France, Switzerland, Spain and German are all over 40%. The report also shows that shopping, travelling, education, finance, health, and beauty care Websites are the most attractive to female Internet users (Institute for Information Industry, ECRC-FIND).

The same phenomenon can also be found in Asia-Pacific region. Female Australian Internet users are 48% of the whole Australian Internet users, 46% of New Zealand, 45% of South Korea, 44% of Hong Kong, 42% of Singapore, and 41% of Taiwan. Among these countries, the growth of South Korea female Internet users is the fastest, which rate reaches 55%. The rest are Taiwan (27%), Singapore (16%), Australia (16%), and Hong Kong (11%).

New Zealand is 10%, which is the lowest growth rate (Institute for Information Industry, ECRC-FIND).

2 LITERATURE REVIEW

2.1 Decision-Making Style

A consumer decision-making style is defined as a mental orientation characterizing a consumer's approach to making choices. It has cognitive and affective characteristics (Sproles & Kendall, 1986). Extant research in this field has identified three approaches to characterize consumer styles: (1) the Consumer Typology Approach; (2) the Psychographics/Lifestyles Approach; and (3) the Consumer Characteristics Approach. The Consumer Characteristics Approach is one of the most promising as it deals with the mental orientation of consumers in making decisions (Durvasula, Lysonski, and Andrews, 1993).

The original of this approach was based on an exploratory study by Sproles (1985) that identified fifty items related to this mental orientation. Afterward, Sproles & Kendall (1986) reworked this inventory and developed a more parsimonious scale with forty items (Durvasula, Lysonski, and Andrews, 1993). These items were titled Consumer Style Inventory. Many studies that discussed consumer decision-making style referred to Sproles (1985) and Sproles & Kendall (1986) as the base. Some relative studies were shown as Table 1.

2.2 Gender Differences in Internet

There have been many studies which contribute to gender differences in the application of Internet. Gefen & Straub (1997) extended the Technology Acceptance Model to IT diffusion and used this structure to discuss gender differences in the perception and use of E-Mail. They found that gender differences indeed influenced the use of E-Mail. Jackson, Ervin, Gardner & Schmitt(2001) used path analysis to discuss the use of Internet between the two genders and found some influential factors such as motivational, affective and cognitive factors. The results were shown that women used Internet as a communication tool while men used it as a search tool.

Boneva, Kraut & Frohlich(2001) discovered that women used E-Mail as a personal relationship tool more than men did. Furthermore, Teo & Lim(1997) investigated 1370 Singapore residents. They used Internet to understand the gender gap

about usage patterns and perception of the Internet. The result has important implication for business who seeks to sell products targeted at female consumers via the Internet. The reason is female are well-educated.

Based the above studies, we added gender difference in consumer decision-making styles. There must be some differences while online shoppers make decisions because Internet shopping is a kind of application of Internet.

3 METHODOLOGY

3.1 Questionnaire Design

Translation was used to prepare the forty-item CSI scale for the investigation because of the language and culture in Taiwan. Slight changes must do owing to the purpose of this research, for example, we added such words like "online shopping" in the items. A five-point scale was used, ranging from strongly disagree to strongly agree. Moreover, we used Internet questionnaire instead of traditional one. The reason was lain on convenience and time-saving to use this kind of method to delivery questionnaire.

3.2 Sample Selection

Convenient sampling of 209 Internet users that consisted of 102 females and 107 males is conducted. Besides, all these 209 responses were from those with Internet shopping experiences. For the sake of deciding online shoppers' decision-making styles, this research used exploratory factor analysis (EFA). Although there were many researches that discussed CSI, none used CSI to online shopper. Additionally, we contested that the gender differences might lead to different decision-making styles. The method we adopt to recognize genders differences is discriminant analysis. EFA and discriminant analysis were tested by using SAS 8.2, and results were shown next section.

4 RESULTS

4.1 Reliability and Validity

In social science research, one of the most widely-used indices of internal consistent reliability is Cronbach Alpha (Cronbach, 1951). It can save time to measure the reliability comparing with test-retest

reliability and its measurement effect is as well as test-retest reliability. A widely-used rule of the thumb of 0.7 has been suggested by Nunnally (1978). Reliability coefficient in this research is more than 0.7 (Cronbach coefficient $\alpha=0.86$), so the questionnaire we used has internal consistent reliability. Besides internal consistent reliability, we should consider the validity of the questionnaire. The questionnaire possessed content validity because we adopted from CSI which was suggested by Sproles (1985) and Sproles & Kendall (1986).

4.2 Results of Exploratory Factor Analysis

An exploratory factor analysis (EFA) was performed to categorize online shoppers' decision-making styles. Consistent with Sproles & Kendall (1986), principal components analysis with varimax rotation was used. Because principal components analysis didn't produce a single solution but left the decision about the right number of factors largely to researchers, we chose eigenvalue-one as criterion to decide the number of factors (Kaiser, 1960). The rule of eigenvalue-one is that the number of factors is decided when eigenvalue is greater than one. This research we classified seven factors (Table 2). The results of EFA were shown in Table 3.

Factor 1: Perfectionism

This kind of online shopper values the quality of products. When it comes to purchasing products, they try to get the very best or perfect choice. In general, they usually try to buy the best overall quality.

Factor 2: Novel-Fashion Consciousness

This kind of online shopper likes to buy the fashionable and novel goods. They are the early adopter. They keep their wardrobe up-to-date with the changing fashions. Fashionable, attractive styling is very important to them.

Factor 3: Price Consciousness

This kind of online shopper very considers the value of money. The lower price products are usually their choice. They usually take the time to shop carefully for best buys

Factor 4: Confused by Overchoice

This kind of online shopper is worry about much information about products. Too much information will disturb them to make right purchase decisions. The more they learn about products, the harder it seems to choose to best. All the information they get on different products confuses them.

Factor 5: Brand Consciousness

This kind of online shopper values the brand of products. The well-known national brands are best for them to choose. They think the more expensive brands are usually their choice.

Factor 6: Recreational Shopping

This kind of online shopper thinks shopping will waste time unless it can please him. A product doesn't have to be perfect, or the best, to satisfy them. They enjoy shopping just for the fun of it.

Factor 7: Brand-Loyal Consciousness

This kind of online shopper is brand loyalist. They have favorite brands they will buy over and over. Once they find a product or brands they like, they will stick with it.

Table 1: Relative Research on Consumers' Decision-Making Styles

Researchers	Sample Structure	Decision-Making Styles
Sproles (1985)	A sample of 111 undergraduate women in two classes of the School of Family and Consumer Resources, University of Arizons	Six Decision-Making Styles: 1. Perfectionism 2. Value conscious 3. Brand consciousness 4. Novelty-fad-Fashion consciousness 5. Shopping Avoider 6. Confused, support-seeker style
Sproles & Kendal (1986)	482 students in 29 home economics classes in five high schools in the Tucson area	Eight Decision-Making Styles: 1.Perfectionistic, high-quality conscious 2.Brand conscious 3.Novel-fashion conscious 4.Recreational, hedonistic consumer 5.Price conscious 6.Impulsive, careless consumer 7.Confused by overchoice consumer 8.Habitual, brand-loyal consumer
Hafstrom, Chae & Chung (1992)	310 college students at four universities in Taegu	Eight Decision-Making Styles: 1. Brand conscious 2.Perfectionistic, high-quality conscious 3. Recreational-shopping consumer 4.Confused by overchoice consumer 5.Time-engery conserving consumer 6. Impulsive, careless consumer 7. Habitual, brand-loyal consumer 8. Price-value conscious
Durvasula, Lysonsk & Andrews (1993)	210 undergraduate business students at a large university in New Zealand	Eight Decision-Making Styles: 1.Perfectionistic, high-quality conscious 2. Brand conscious 3. Novel-fashion conscious 4. Recreational, hedonistic consumer 5. Price conscious 6. Impulsive, careless consumer 7.Confused by overchoice consumer 8. Habitual, brand-loyal consumer
Jessie X. Fan & Jing J. Xlao (1998)	271 undergraduate students from Zhongshan University, South China Normal University, South China University of Technology, Guangdong Commercial College and Jinan University	Five Decision-Making Styles: 1. Brand consciousness 2. Time consciousness 3. Quality consciousness 4. Price conscious 5.Information utilization
Gianfranco Walsh, Vincent-Wayne Mitchell & Thorsten Hennig-Thurau(2001)	455 male and female shoppers who are entering or leaving a shop in Lüneburg and Hamburg	Seven Decision-Making Styles: 1. Brand consciousness 2.Perfectionism 3.Recreational/hedonistic 4. Confused by overchoice 5. Impulsiveness Price conscious 6. Novel-fashion consciousness 7.Varity seeking

Researchers	Sample Structure	Decision-Making Styles
Alice S. Y. Hiu, Noel Y. M. Siu, Chaile C. L. Wang & Ludwig M. K. Chang(2001)	387 consumer who are in shopping malls or places nearby shopping center in Guangzhou, China	Seven Decision-Making Styles: 1.Perfectionistic, high-quality 2. Brand conscious 3. Novel-fashion conscious 4. Recreational/hedonistic 5. Price conscious 6. Confused by overchoice 7. Habitual, brand-loyal consumer
Cathy Backwell & Vincent-Wayne Mitchell(2003)	244 female undergraduate students aged between 18 and 22	Five Decision-Making Styles: 1. Recreational quality seeker 2. Recreational discount seeker 3. Shopping and fashion uninterested 4. Trend setting loyal 5. Confused time/money conserve

4.3 Results of Discriminant Analysis

First, we should test if the means have significant differences between seven factors in two populations (female and male) by one-way MANOVA before discriminant analysis. The result shows that seven factors' mean have significant differences between two populations (Wilks' Lambda=0.86, F=4.52, p=0.0001, see Table 4).

Second, we chose the factors by stepwise discriminant analysis that could obviously discriminant difference between female and male. The result suggested that only Factor1, Factor 2, Factor 3 and Factor 5 could differentiate female from male.

Finally, we used Factor1, Factor 2, Factor 3 and Factor 5 to implement discriminant analysis. This research only had two populations, so there was only one discriminate function $L = -0.3104F1 - 0.9435F2 + 0.5004F3 + 0.8142F5$. The standardized canonical coefficients are shown in Table 5. The total classification error rate is 0.4070, and the classification results are list in Table 6. This error rate means that we can classify correctly by this discriminant function and its correct rate is about sixty percentages. From the discriminate function, we can obtain discriminate scores. If the scores are higher than total mean, then it would be males' decision-making. If the scores are lower than total mean, then it would be females' decision-making. In general, it exists differences between female and male's decision-making style. Figure 1 shows the differences between two populations.

5 CONCLUSIONS

According to the CSI, online shoppers could be categorized into seven main decision-making styles: perfectionism, novel-fashion consciousness, price consciousness, confused by overchoice, brand consciousness, recreational shopping and brand-loyal consciousness. Compared with the findings of Sproles & Kendal (1986), online shoppers lack of the type of "impulsive careless consumer". This means that online shoppers are programmed problem solving while making purchase decisions. When people adapt online shopping, it means that they have already thought it carefully and might get used to shopping through Internet. Therefore, consumers in cyberspace and reality environment may act differently to some degrees.

Secondly, this research also discussed the gender differences among online shoppers. Discriminant analysis was employed to distinguish the differences between female and male shoppers. We discovered that female and male indeed exhibited some difference on decision-making styles from the discriminate function. Males are dominated over price consciousness and brand consciousness and females are dominated over perfectionism and novel-fashion consciousness. Meanwhile, these findings can provide managers of Internet shopping Websites to design a proper homepage and marketing mix for males and females.

Third, further researchers can use the seven online shoppers' decision-making styles as segmentation variables to capture more details about online shoppers. This research can propose some aspects for both researchers and practitioners who are interested in consumer behavior in E-Commerce.

Table 2: The Criterion to Decide Factor Numbers

	Eigenvalue	Difference	Proportion	Cumulative
1	6.50897283	3.20199722	0.3178	0.3178
2	3.30697562	0.91748347	0.1615	0.4793
3	2.38949214	0.45218978	0.1167	0.5960
4	1.93730236	0.31031516	0.0946	0.6906
5	1.62698720	0.40328094	0.0794	0.7701
6	1.22370625	0.18305716	0.0598	0.8298
7	1.04064909	0.10621954	0.0508	0.8806

Table 3: Taiwan Online Shoppers' Style Characteristics: Seven-Factor Model (wordings are directly adopted from Sproles (1985) and Sproles & Kendall (1986))

Factor	Items	Factor Loadings
Factor 1	1Getting very good quality is very important to me.	0.74
	2When it comes to purchasing products, I try to get the very best or perfect choice.	0.83
	3In general, I usually try to buy the best overall quality.	0.86
	4I make special effort to choose the very best quality products.	0.74
	6My standards and expectations for products I buy are very high.	0.60
Factor 2	15I usually have one or more outfits of the very newest styles.	0.51
	16I keep my wardrobe up-to-date with the changing fashions.	0.75
	17Fashionable, attractive styling is very important to me.	0.79
	18To get variety, I shop different stores and choose different brands.	0.69
	19It's fun to buy something new and exciting.	0.52
Factor 3	24I make my shopping trips fast.	0.54
	25I buy as much as possible at sale prices.	0.54
	26The lower price products are usually my choice.	0.60

Factor	Items	Factor Loadings
	31I take the time to shop carefully for best buys.	0.61
	32I carefully watch how much I spend.	0.55
Factor 4	34Sometimes it's hard to choose which stores to shop.	0.48
	35The more I learn about products, the harder it seems to choose to best.	0.83
	36All the information I get on different products confuses me.	0.82
Factor 5	9The well-known national brands are best for me.	0.68
	10The more expensive brands are usually my choice	0.75
	11The higher the price of a product, the better its quality.	0.54
Factor 6	5I usually don't give my purchases much thought or care.	0.48
	7I shop quickly, buying the first product or brand I find that seems good enough.	0.41
	8A product doesn't have to be perfect, or the best, to satisfy me.	0.50
	23I enjoy shopping just for the fun of it.	0.49
Factor 7	37I have favorite brands I buy over and over.	0.76
	38Once I find a product or brands I like, I stick with it.	0.77

Table 4: Multivariate Analysis Results

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.86407272	4.52	7	201	0.0001
Pillai's Trace	0.13592728	4.52	7	201	0.0001
Hotelling-Lawley Trace	0.15731001	4.52	7	201	0.0001
Roy's Greatest Root	0.15731001	4.52	7	201	0.0001

Table 5: Standardized Canonical Coefficients

Variable	Can1
F1	-.3104382119
F2	-.9434892732
F3	0.5004005177
F5	0.8141717820

Table 6: Classification Results

Actual Group \ Predicted Group	Predicted Group		Total
	Female	Male	
Female	59 (57.84%)	43 (42.16%)	102 (100%)
Male	42 (39.25%)	65 (60.75%)	107 (100%)
Total	101 (48.33%)	108 (51.67%)	209 (100%)

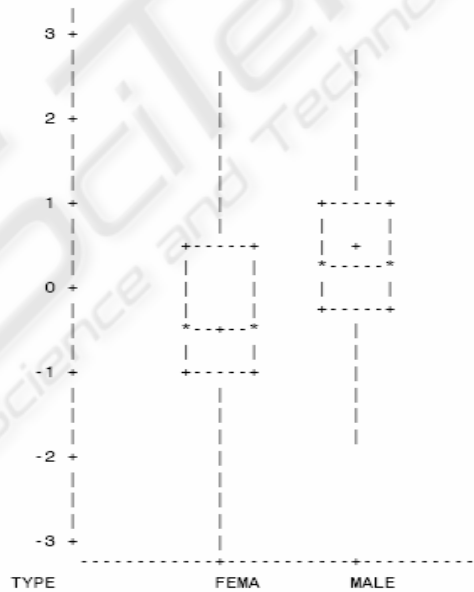


Figure 1: Gender Differences in Decision-Making Styles (Show by box-and-whisker plot)

REFERENCES

- Taiwan Regular Internet Users Reached 8.76 Millions By June 2003, 2003/8/15, http://www.find.org.tw/0105/howmany/howmany_disp.asp?id=57, Institute for Information Industry ECRC-FIND Center (in Chinese)
- American Female Internet Users Are More Than Male and Female Internet Users Has Grown Rapidly in Asia-Pacific Region, 2001/8/31, http://www.find.org.tw/0105/property/0105_property_disp.asp?board_id=24, Institute for Information Industry ECRC-FIND Center (in Chinese)
- European Female Internet Users Reaches 35 Millions, 2003/7/1, http://www.find.org.tw/0105/news/0105_news_disp.asp?news_id=2737, Institute for Information Industry ECRC-FIND Center (in Chinese)
- Alreck, Pamela & Settle, Robert B., 2002, Gender Effects on Internet, Catalogue and Store Shopping, *Journal of Database Marketing & Customer Strategy Management*, Jan, 9, 2, 150-162
- Bakewell, Cathy & Mitchell, Vincent-Wayne, 2003, Generation Y Female Consumer Decision-Making Styles, *International Journal of Retail & Distribution Management*, 31(2), 95-106.
- Boneva, Bonka, Kraut, Robert & Frohlich, David, 2001, Using E-Mail for Personal Relationships: the Difference Gender Makes, *The American Behavioral Scientist*, Nov, 45, 3, 530-549
- Briones, Maricris G., 1998, On-line Retailers Seek Ways to Close Shopping Gender Gap, *Marketing News*, Sep 14, 32, 19.
- Durvasula, Srinivas, Lysonski, Steven & Andrews, J. Craig, 1993, Cross-Culture Generalizability of a Scale for Profiling Consumers' Decision-Making Styles, *Journal of Consumer Affairs*, 27(1), 55-65
- Fan, J. X. & Xiao, J. J., 1998, Consumer Decision-Making Styles of Young-Adult Chinese, *Journal of Consumer Affairs*, 32, 275-294.
- Gefen, David & Straub, Detmar W., 1997, Gender Difference in the Perception and Use of E-Mail: An Extension to the Technology Acceptance Model, *MIS Quarterly*, Dec, 21, 4, 389-400
- Hafstrom, Jeanne L. & Chae, J. S., 1992, Consumer Decision-Making Styles: Comparison between United States and Korean Young Consumers, *Journal of Consumer Affairs*, 26(1), 146-158.
- Hui, Alice S.Y., Siu, Noel Y. M., Wang, Charlie C.L., & Chang Ludwig M. K., 2001, An Investigation of Decision-Making Styles of Consumers in China, *Journal of Consumer Affairs*, 35(2).
- Jackson, Linda A., Ervin, Kelly S., Gardner, Philip D. & Schmitt, Neal, 2001, Gender and the Internet: Women Communication and Men Searching, *Sex Role*, Mar, 44, 5/6, 363-379
- Kaiser, H. F., 1960, The Application of Electronic Computers to Factor Analysis, *Educational and Psychological Measurement*, 20, 141-151.
- Nunnally, J., 1978, *Psychometric Theory*, New York: McGraw-Hill.
- Sproles, G. B. & Kendall, E. L., 1986, A Methodology for Profiling Consumers' Decision-Making, *Journal of Consumer Affairs*, 20(2), 367-379.
- Sproles, G. B., 1985, From Perfectionism to Fadism: Measuring Consumers' Decision-Making Styles, in *Proceedings of American Council on Consumer Interest*, pp. 79-85.
- Teo, Thompson S. H. & Lim, Vivien K.G., 1997, Usage Patterns and Perceptions of the Internet: the Gender Gap, *Equal Opportunities International*, 16, 6/7, 1-8
- Walsh, G., Mitchell, Vincent-Wayne, & Hennig-Thurason, Thorsten, 2001, German Consumer Decision-Making Styles, *Journal of Consumer Affairs*, 35, 73-99.