

ELECTRONIC CONSUMER STYLE INVENTORY: FACTOR EXPLORATION AND MULTI-COMPARISON ANALYSIS

Manoj Kumar Dash and Anil Kumar*

*Behavioural Economics Experiments and Analytics Laboratory,
213, D Block, ABV-Indian Institute of Information Technology and Management,
Morena Link Road, 474015, Gwalior, Madhya Pradesh, India*

*Corresponding author: anilror@gmail.com

ABSTRACT

The objective of this research article is to identify the factors of consumer decision-making style in the context of electronic purchasing and test the significance of these factors on the basis of gender and age of respondents through multi-comparison analysis. Data for this report came from a survey of consumers (N = 411) with a structured questionnaire design. Exploratory Factor Analysis (EFA), ANOVA and Post-hoc (for multiple comparisons) were used to achieve the objectives of the study. To contribute to an internationally valid and reliable research instrument for consumer decision-making style in the context of electronic purchasing, new constructs were identified, which we will call Electronic Consumer Style Inventory (ECSI). Consistent with the hypotheses, in general, the extracted factors in consumers' electronic buying decision-making style are found to be significant on the basis of respondent gender and age. Customers' evaluations of e-service quality are critical to service firms that aim to improve their marketing strategies; consequently, accurate measurement of e-service quality is a major concern for management. The resultant implications of this research are discussed by the authors and can help e-vendors and marketing managers achieve a sustainable competitive advantage in global markets and enhance their performance.

Keywords: electronic commerce, decision-making style, enhancing performance, post-hoc analysis

INTRODUCTION

In the post-liberalisation period, with an increase in Gross Domestic Product (GDP), rising per capita income and proliferation of brands, there has been a change in Indian consumers' consumption pattern and shopping behaviour (Khare, 2011; Mukherjee, Satija, Goyal, Kantrala, & Zon, 2011); this change, in turn, has led to a shift in consumption pattern from centring on necessities to discretionary consumption. In 2007, India ranked twelfth among the largest consumer markets and is expected to be the fifth-largest consumer market by 2025 after the US, Japan, China and the UK (Ablett et al., 2007). With rising GDP and disposable incomes, there is a notable change in the spending pattern of

Indian consumers (Dahiya, 2012), signalling positive developments in the growth of the e-commerce market in India. A massive array of choices for consumers poses a challenge for marketers who seek to understand customers in these emerging markets (D'Andrea, Marcotte, & Morrison, 2010).

The rapid diffusion of computer and information technologies throughout the business and consumer communities has resulted in dramatic changes (Rajasekera, 2013). The application of the Internet for purchasing behaviour is a notable change in the way buyers and sellers interact (Topaloğlu, 2012). Implementation of e-commerce is changing the economy and affecting all aspects of business globally. Today, no company can afford to ignore e-commerce. E-commerce revenues in India will increase by more than five times by 2016, jumping from USD1.6 billion in 2012 to USD8.8 billion in 2016 (Wigder & Bahl, 2012). An increasing number of global companies are eyeing the rapidly growing e-commerce market in India as the country's infrastructure is improved and its economy grows. To fill e-vendors' need for customer services, India is becoming home to some of the finest IT companies in the world (Rajkumar, 2013). Internet penetration in India is 11.4% of the entire population; however, with 5.7% of the world's population, India is third among the top 20 Internet users' countries (Internet World Stats, 2012). Internet access is accelerating and is projected to reach 800 million users by 2020 (Technopak, 2012). E-tailing, a sub-set of the e-commerce market, is a new industry in India. Due to robust growth in Internet access for the entire population, the e-tailing market in India will grow at a compound annual growth rate (CAGR) of 70.94% over the period 2011–2015 (TechNavio, 2012). The size of the e-commerce market (which encapsulates all financial transactions conducted on the Internet) in India for 2012 is estimated to be USD10 billion and is projected to grow at a CAGR of 45% to reach USD200 billion by 2020 (Technopak, 2012). With a 41% increase in online users, India has seen growth across demographic segments. Seventy-five per cent of total users are between the ages of 15 and 34, and females contribute to almost 40% of total users; India has one of the world's youngest online demographics. This trend is expected to continue in the coming years, given the age distribution in India. Within the above age segment, users of 15–24 years of age have made up the fastest growing age segment online, with both males and females contributing to the user growth (ComScore, 2012). Recent trends in retailing have emphasised the critical need for retailers to focus on market segmentation and market specialisation rather than product specialisation and mass marketing (Yoon & Barker, 2013). Indian consumers continue to turn to the Internet to shop for and purchase items, and retailers continue to increase their online visibility through active marketing campaigns. In this environment of a changing behaviour pattern of e-commerce, consumers' electronic purchase decision-making style factors play a crucial role in helping marketers serve consumers. Therefore, the most significant finding of this study is that there is a

clear need for research to identify the factors in consumer decision-making style in India's growing online market.

LITERATURE REVIEW

Consumer decision-making is a consumer buying decision process that characterises how consumers make purchasing decisions (Kumar & Dash, 2014). When consumers buy goods online, a number of factors may influence their decisions, such as website design, availability of products and e-service quality dimensions. Researchers (Kim, Kim, & Leong, 2005; Hernández, Jimenez, & Martin, 2010; Lee, Shi, Cheung, Lim, & Sia, 2011) have concentrated on investigating factors that influence consumer electronic purchasing behaviour. As one of these factors, decision-making styles have received a significant amount of attention from consumer behaviour researchers (Chen, Chen, & Lin, 2012; Kumar & Dash, 2014) over the years. Understanding consumer decision-making styles is increasingly important due to their inextricable relationship with buying behaviour (Kumar & Dash, 2013). To understand the preferences and needs of different groups of consumers, examining their decision-making styles is important for the marketers and retailers to better understand and serve their customers. Initially, Sproles (1985) examined consumer decision-making style and defined it as “a patterned, mental, cognitive orientation towards shopping and purchasing, which constantly dominates the consumer’s choices and these traits are ever-present, predictable, central driving force in decision-making.” Later, Sprotles and Kendall (1986) refined and developed a shorter version of the original instrument, called the Consumer Style Inventory (CSI), to measure consumer decision-making style. They proposed eight different factors for decision-making style: quality-conscious, brand-conscious, innovative/fashion-conscious, recreation-conscious, price-conscious, impulsive, confused by excessive choice, and brand-loyal. The purchase of goods or services includes a number of factors that affect each decision, and making consumer decisions today is more complex than ever before and even more important for consumers who are confronted with multiple choices for each type of product (Lysonski & Durvasula, 2013). Consumers are besieged by advertising, direct mailing and new articles that provide an abundance of information, much of it with mixed messages (Park & Gretzel, 2010). A series of investigations have tested the generalisability and cross-cultural applicability of decision-making style in different cross-cultural populations, which are depicted in Table 1. These cross-cultural studies on consumer decision-making style confirmed portions of the original style and are not consistent in other cultures.

Table 1
Generalisability test of the CSI in the last decade

Sr.	Country	Studies
1.	USA	Wickliffe (2004); Wesley et al. (2006); Chen et al. (2012)
2.	South Korea	Wickliffe (2004); Jackson & Lee (2010)
3.	China	Tai (2005); Kwan et al. (2008); Zhou et al. (2010); Zhijie et al. (2011)
4.	UK	Bakewell & Mitchell (2004); Bauer et al. (2006); Wesley et al. (2006)
5.	India	Patel (2008); Mishra (2010); Khare (2011); Lysonski & Durvasula (2013); Kumar & Dash (2014)
6.	Germany	Mitchell & Walsh (2004); Bauer et al. (2006)
7.	South Africa	Radder et al. (2006)
8.	Turkey	Kavas & Yesilada (2007)
9.	Iran	Hanzaee & Aghasibeig (2008); Azizi & Makkizadeh (2012)
10.	Malaysia	Omar et al. (2009); Madahi et al. (2012)
11.	Taiwan	Hou & Lin (2006)

In the context of online channels, Yang and Wu (2007) distinguished between female and male shoppers in their online decision-making styles and revealed differences in purchasing decisions between online female and male Internet users. The applicability of the CSI dimensions to travel-related shopping was established by Park (2007). Park and Gretzel (2010) linked decision-making styles with comparison shopping. They suggested that some consumer decision-making style dimensions influence proneness to comparison shopping, while others have no influence.

Zhijie, Xiangmin and Yanfeng (2011) identified how different decision-making styles produce different behaviour in consumers shopping for apparel online. There is a vast literature available to test the generalisability of the CSI in the context of offline channels; however, in the context of online channels, very few studies are available, especially in India, where no such study has been conducted despite rapid Internet penetration.

METHODOLOGY FRAMEWORK

To collect data, the researchers used judgement and snowball sampling. Initially, a set of respondents was selected on the basis of judgement sampling. Subsequently, additional units were obtained on the basis of information that was given by the initial sampling unit; further referrals were then taken from those selected in the sample. Judgement sampling was based on specific parameters, such as a sample comprising people who had made an online purchase and a sample composed of people whose minimum educational level was some

undergraduate education; all samples in the study were taken from two reputable Indian universities. Drenan, Mort and Previte (2006) argued that university students represent a dominant cohort of online users. College students are experienced and regular users of the Internet, representing the most appropriate population of e-commerce users for e-commerce research.

We received a total of 495 questionnaires, and after eliminating incomplete and inappropriate responses, we used a total sample of 411 completed questionnaires for analysis. The study was conducted during the first two weeks of an academic session (July 2012 to November 2012), which is considered a leisurely time for students, during which they have sufficient time to use the Internet and purchase required materials. The demographic characteristics of respondents, such as age and gender, are depicted in Table 2.

Table 2
Demographic profile of respondents

		Number of respondents	Percentage (%)
Gender	Male	253	61.5
	Female	158	38.5
Age	16–20	72	17.5
	21–25	248	60.3
	26–30	86	20.9
	31–35	5	1.3

A structured questionnaire with a five-point Likert-type scale was developed in which respondents were asked to indicate their level of agreement (1 = strongly disagree to 5 = strongly agree) to measure their electronic purchase decisions. The items that determine electronic consumers' decision-making style were developed based on the extensive literature review that was described in section two and is fully listed in the Appendix. A pilot study was designed and conducted to test the instruments that were used for data collection. The pilot test data were collected through a questionnaire that was distributed to academicians, marketing managers and the following two groups of customers: (a) those with less than three years of electronic purchasing experience; and (b) those with more than three years of electronic purchasing experience. Next, a focus group interview was conducted, consisting of open-ended questions and a set of questions in the form of a questionnaire. A total of 30 students were selected for the focus group, with almost equal representation on the basis of gender, type of institution, level of study and positive or negative Internet/online purchasing experience. A focus group was conducted under the guidance of a moderator, and guidelines developed by Morgan (1988) were used during the focus group discussion. Participants were asked to deliberate on items shortlisted from a review of the

literature (see Appendix) and suggest other items that they felt were important to add to the final questionnaire. Some items were added to our questionnaire after conducting the focus group interview and pilot test. The final questionnaire contained three sections. Section A contained the demographic profile of respondents, Section B contained the electronic purchasing experience of the respondents, and Section C contained 37 statements related to consumers' electronic purchase decision-making style.

EMPIRICAL DATA ANALYSIS

The assessment of the measurement model includes the estimation of internal consistency for reliability, which was calculated using Cronbach's alpha. Reliability coefficients of all variables are higher than the minimum cut-off score of 0.70 (Nunnally, 1978). Each item in each construct has reliability (α) > 0.65, and a correlation total score > 0.50 for each construct indicates convergent validity.

Table 3
Reliability and convergent validity

Construct	Items	Reliability (α)	Convergent validity (correlation of item with total score-item)
Innovative product-conscious	7	0.919	0.916, 0.916, 0.916, 0.917, 0.915, 0.916, 0.917
Brand value-conscious	8	0.917	0.917, 0.917, 0.918, 0.918, 0.916, 0.918, 0.918, 0.919
Trendy/sophisticated	4	0.724	0.919, 0.919, 0.918, 0.918
E-service quality	4	0.710	0.917, 0.918, 0.917, 0.918
Price-sensitive	3	0.710	0.911, 0.921, 0.918
Impulsive buying behaviour	3	0.713	0.920, 0.919, 0.917
Misperception	3	0.711	0.919, 0.918, 0.916
Social consciousness	3	0.721	0.916, 0.916, 0.919

Exploratory Factor Analysis (EFA)

The first objective of our research paper is pursued through a factor analysis approach using a matrix of 37×37 statements. The details of the model are as follows: The factor analysis mathematical model expresses the variation and co-variation in a set of observed continuous variables y ($j = 1, 2, \dots, p$) as a function of factors η ($k = 1, 2, \dots, m$) and residuals ε ($j = 1, 2, \dots, p$). For person i ,

$$\begin{cases} y_{i1} = v_1 + \lambda_{11}\eta_{i1} + \lambda_{12}\eta_{i2} + \dots + \lambda_{1k}\eta_{ik} + \dots + \lambda_{1m}\eta_{im} + \varepsilon_{i1} \\ \dots \\ y_{ij} = v_j + \lambda_{j1}\eta_{i1} + \lambda_{j2}\eta_{i2} + \dots + \lambda_{jk}\eta_{ik} + \dots + \lambda_{jm}\eta_{im} + \varepsilon_{ij} \\ \dots \\ y_{ip} = v_p + \lambda_{p1}\eta_{i1} + \lambda_{p2}\eta_{i2} + \dots + \lambda_{pk}\eta_{ik} + \dots + \lambda_{pm}\eta_{im} + \varepsilon_{ip} \end{cases} \quad (4.1)$$

where v_j are intercepts, ℓ_{jk} are factor loadings, η_{ik} are factor values, and ε_{ij} are residuals with zero means and correlations of zero with the factors. In matrix form,

$$y_i = v + \Lambda\eta_i + \varepsilon_i \quad (4.2)$$

where v is the vector of intercepts v_j , \dots is the matrix of factor loadings ℓ_{jk} , \square is the matrix of factor variances/co-variances, and \therefore is the matrix of residual variances/co-variances with the population covariance matrix of observed variables Σ ,

$$\Sigma = \Lambda\Psi\Lambda' + \Theta \quad (4.3)$$

We utilised SPSS 21.0 software for this function. The purpose was also to assess the dimensionality, measurement and psychometric properties of the scale items used in the study. After running the factor analysis, the determinant of the matrix is 7.94E-010 greater than 0.000001; therefore, multicollinearity is not a problem for these data (Field, 2000). The data validity for the factor analysis is tested with the help of the Kaiser-Meyer-Olkin (KMO) measure of sample adequacy and Bartlett's test of sphericity, which represents the ratio of the squared correlation between variables to the squared partial correlation between variables. The value varies from 0 to 1 (Field, 2000). A value close to 1 indicates that the patterns of the correlations are relatively compact and that factor analysis should yield distinct and reliable factors (Field, 2000). After inspecting the factor solution, the item loadings and the anti-image correlation matrix, one item out of 37 was deleted. The remaining 36 items were again subjected to EFA, and a final eight-factor model was estimated, with none of the items exhibiting low factor loadings (< 0.40) or high cross-loadings (> 0.40) (Field, 2000; Hair, Anderson, Tatham, & Black, 1998). The eight-factor solution accounted for 67.86% of the total variance and exhibited a KMO measure of sampling adequacy of 0.808; according to the Kaiser (ref. Field, 2000), this measure is in the good category. For these data, Bartlett's test was highly significant ($p < 0.001$). The varimax rotation method was used to enhance the interpretation of the component loading to minimise the number of scales that had high loadings on a particular factor. The rotated component matrix indicated that all of the indicator items loaded very

high (above 0.60) on their respective factors and below 0.40 on all of the other factors, and the KMO for each construct was > .50 (Table 4) suggesting good convergent validity and discriminant validity for each latent variable (Field, 2000; Hair et al., 1998) and that the data set was reliable and valid for further research. A result of factor analysis together with the percentage of the total variance for each of the factors is given in Table 5.

Table 4
KMO and Bartlett's test significance for each construct

	IPC	BVC	TS	e-SQC	PSC	IC	MOC	SC
KMO and Bartlett's Test	0.919 <i>p</i> = .000	0.912 <i>p</i> = .000	0.722 <i>p</i> = .000	0.706 <i>p</i> = .000	0.618 <i>p</i> = .000	0.670 <i>p</i> = .000	0.608 <i>p</i> = .000	0.639 <i>p</i> = .000

Table 5
Results of factor analysis

Factor name and statements	Mean	S.D.	Communities	Factor loading
1. Innovative product-conscious (28.122% of variance explained with 9.843 eigen value)	2.08	0.79	–	–
IPC1	2.71	1.24	0.784	0.846
IPC2	2.72	1.26	0.789	0.842
IPC3	2.72	1.22	0.751	0.823
IPC4	2.72	1.25	0.711	0.815
IPC5	2.81	1.35	0.772	0.812
IPC6	2.77	1.29	0.642	0.655
IPC7	2.70	1.17	0.655	0.523
2. Brand value-conscious (10.815% of variance explained with 3.785 eigen value)	2.21	0.96	–	–
BVC1	2.64	1.22	0.727	0.827
BVC2	2.68	1.24	0.715	0.817
BVC3	2.70	1.26	0.748	0.815
BVC4	2.81	1.32	0.671	0.794
BVC5	2.62	1.29	0.718	0.782
BVC6	2.62	1.29	0.575	0.730
BVC7	2.72	1.23	0.565	0.686
BVC8	2.53	1.18	0.637	0.625
3. Trendy/sophisticated (8.468% of variance explained with 2.964 eigen value)	2.07	0.83	–	–
TS1	2.55	1.23	0.765	0.851
TS2	2.60	1.24	0.739	0.831
TS3	2.52	1.16	0.696	0.798
TS4	2.68	1.25	0.659	0.737

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Table 5 (continued)

Factor name and statements	Mean	S.D.	Communities	Factor loading
4. E-service quality-conscious (6.671% of variance explained with 2.335 eigen value)	1.93	0.88	–	–
e-SQC1	2.74	1.30	0.717	0.770
e-SQC2	2.66	1.29	0.674	0.716
e-SQC3	2.67	1.26	0.684	0.681
e-SQC5	2.79	1.35	0.703	0.664
5. Price sensitivity (3.860% of variance explained with 1.351 eigen value)	1.93	0.88	–	–
PSC1	2.59	1.24	0.691	0.796
PSC2	2.78	1.95	0.551	0.704
PSC3	2.57	1.31	0.617	0.696
6. Impulsive buying behaviour (3.612% of variance explained with 1.264 eigen value)	1.81	0.72	–	–
IC1	2.78	1.94	0.744	0.815
IC2	2.50	1.24	0.678	0.767
IC3	2.58	1.21	0.660	0.566
7. Misperception by excessive choice (3.196% of variance explained with 1.119 eigen value)	1.64	0.68	–	–
MOC1	2.43	1.26	0.712	0.767
MOC2	2.52	1.24	0.685	0.678
MOC3	2.53	1.27	0.634	0.546
8. Socially conscious (3.124% of variance explained with 1.098 eigen value)	1.56	0.529	–	–
SC1	2.59	1.25	0.562	0.641
SC2	2.72	1.22	0.641	0.586
SC3	2.69	1.20	0.482	0.534

Comparison of Factors on the Basis of Gender and Age

To compare variance and means of factors, we used a one-way ANOVA. The one-way classification refers to the comparison of the means of several (univariate) populations. The first ANOVA test was run on the sample to identify any significant difference in online buying decision-making styles on the basis of the respondents' gender. The ANOVA results show no such difference of any significance in any of the eight factors (Table 6). The factor innovative product-conscious is equally important for males and females, with $F(1, 410) = 12.08$, $p < 0.05$. Individuals of both genders are very conscious of obtaining innovative products during electronic purchasing. For the factor brand value-conscious, there is no difference in opinions by gender, with $F(1, 410) = 8.115$, $p < 0.05$. Both males and females seek trendy products in electronic buying, with $F(1, 410) = 4.456$, $p < 0.05$. While there is no personal interaction with the

customer during electronic purchasing, the e-service quality consciousness factor explains the degree of consumers' consciousness of e-service quality of e-vendors, and there is no difference between males' and females' opinions related to this factor, $F(1, 410) = 7.133, p < 0.05$ during online buying. There is no difference, $F(1,410) = 5.969, p < 0.05$ between males and females related to the factor of price sensitivity. The impulsive buying behaviour factor plays the same role during electronic buying without any difference between the opinions of males and females, $F(1,410) = 6.778, p < 0.05$. The availability of many brands on the offline market confuses the customer; the same phenomenon occurs during electronic buying, with no gender-based difference, $F(1,410) = 8.971, p < 0.05$. With growing consumer sensitivity to social and environmental problems, market segmentation based on consumers' societal orientation is emerging; markets will be evaluated (increasingly) according to the degree to which consumers accept the consumer-citizen concept and buy as individuals concerned not only with their personal satisfaction but also with societal (and environmental) well-being. It is through the analysis of (social and) environmental developments and through new marketing policies that management responds to the pressures and opportunities presented by social/environmental change. People are socially conscious; today, this factor plays a pivotal role both online and offline, and people seek products/services from companies that give back to society, with no gender-based difference, $F(1, 410) = 8.199, p < 0.05$.

Table 6
ANOVA on the basis of gender of respondents

Factor		Sum of squares	df	Mean square	F	Sig.
Innovative product-conscious	Between groups	7.524	1	7.524	12.08	0.001
	Within groups	254.63	409	0.623		
	Total	262.15	410			
Brand value-conscious	Between groups	7.386	1	7.386	8.115	0.005*
	Within groups	372.27	409	0.910		
	Total	379.66	410			
Trendy/sophisticated	Between groups	3.057	1	3.057	4.456	0.035*
	Within groups	280.61	409	0.686		
	Total	283.67	410			
E-service quality-conscious	Between groups	4.108	1	4.108	7.133	0.008*
	Within groups	235.54	409	0.576		
	Total	239.65	410			

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Table 6 (continued)

Factor		Sum of squares	df	Mean square	F	Sig.
Price sensitivity	Between groups	4.574	1	4.574	5.969	0.015*
	Within groups	313.45	409	0.766		
	Total	318.02	410			
Impulsive buying behaviour	Between groups	3.464	1	3.464	6.778	0.010*
	Within groups	209.03	409	0.511		
	Total	212.49	410			
Misperception by excessive choice	Between groups	4.017	1	4.017	8.970	0.003*
	Within groups	183.16	409	0.448		
	Total	187.18	410			
Socially conscious	Between groups	2.255	1	2.255	8.199	0.004*
	Within groups	112.51	409	0.275		
	Total	114.77	410			

Note: *The mean difference is significant at the 0.005 level

The second ANOVA test was run on the age groups sample of multi-generational respondents. The p -values range from .012 to .928, with p -values of consumer decision-making style attributes related to innovative product consciousness $F(3, 407) = 2.705$, $p < 0.05$, price sensitivity $F(1, 407) = 3.724$, $p < 0.05$, impulsive buying behaviour $F(1, 407) = 2.869$, $p < 0.05$ and misperception by excessive choice $F(1, 407) = 3.335$, $p < 0.05$ significant at the .005 level. However, multi-generational consumers and respondents in different age groups differ relating to brand value consciousness $F(1, 407) = 1.452$, $p > 0.05$, trendy/sophisticated $F(1,407) = 0.153$, $p > 0.05$ and e-service quality consciousness $F(1, 407) = 1.210$, $p > 0.05$. The significant differences for brand value consciousness reflect the difference in the degree of brand value consciousness for different age groups of multi-generational consumers. Respondents in different age groups have different perceptions about the factors: trendy/sophisticated and e-service quality consciousness characterises their electronic decision-making style.

Table 7
ANOVA on the basis of age of respondents

Factor		Sum of squares	df	Mean square	F	Sig.
Innovative product-conscious	Between groups	5.124	3	1.708	2.705	.045*
	Within groups	257.03	407	0.632		
	Total	262.15	410			
Brand value-conscious	Between groups	4.021	3	1.340	1.452	.227
	Within groups	375.64	407	0.923		
	Total	379.66	410			
Trendy/sophisticated	Between groups	0.319	3	0.106	0.153	.928
	Within groups	283.35	407	0.696		
	Total	283.67	410			
E-service quality-conscious	Between groups	2.118	3	0.706	1.210	.306
	Within groups	237.53	407	0.584		
	Total	239.64	410			
Price sensitivity	Between groups	8.495	3	2.832	3.724	.012*
	Within groups	309.55	407	0.761		
	Total	318.02	410			
Impulsive buying behaviour	Between groups	4.400	3	1.467	2.869	.036
	Within groups	208.09	407	0.511		
	Total	212.49	410			
Misperception by excessive choice	Between groups	4.490	3	1.497	3.335	.019*
	Within groups	182.68	407	0.449		
	Total	187.18	410			
Socially conscious	Between groups	1.095	3	0.365	1.307	.272
	Within groups	113.67	407	0.279		
	Total	114.76	410			

Note: *The mean difference is significant at the 0.005 level

The Tukey’s post-hoc tests were conducted for all eight of the consumers’ electronic purchase decision-making style variables to understand the differences among the various age segments. The post-hoc results for “innovative product-conscious” show differences among multiple comparisons of mean differences in respondents’ ages. The results show that for different age groups, consumers’ decision-making styles related to innovative product consciousness have different meanings. For each age group, comparisons with other age groups are not significant on the single confidence interval. The “brand value conscious” variable shows a significant difference between the age groups under 20 and the other multiple comparison age groups. The definition of brand value differs between the groups because the consumers prefer to buy products online. Significant differences among the mean differences of multiple comparisons of different age groups indicate that the definition of trendy/sophisticated varies

with different age groups. Different age groups have different perceptions about trendy products during online purchasing. The e-service quality-conscious variable shows a significant difference among multiple comparisons of different age groups, and different age groups have different perceptions related to the factor of e-service quality consciousness in consumers' electronic decision-making styles. Different age groups have different mind-sets related to the e-service quality conscious factor in electronic purchasing, and the feel-good factor varies according to the age of the consumer group. Identical results for the 'price sensitive' variable show that there is a significant difference among multiple comparisons of different age groups and that different degrees of sensitivity exist. The 'impulsive buying behaviour' variable shows that the age groups of under 20 and 20–24 do not significantly differ in online consumer decision-making style ($p < .05$), which is the same in the mean comparison of consumers aged 20–24 and under 20. However, in other age groups of consumers, there are significant differences related to the factors of consumers' electronic decision-making style. The "misperception by excessive choice" variable shows that the age groups of under 20 and 20–24 do not differ significantly in consumers' electronic decision-making style ($p < .05$), which is identical in a mean comparison of consumers aged 20–24 and under 20. However, in other age groups, there are significant differences related to the factor of consumers' electronic decision-making style. The post-hoc test for the "socially conscious" variable shows that there are significant differences among different age groups of consumers in electronic decision-making style. Consumers of different ages have different thinking processes about the social factor in online consumer decision-making style; they are willing to buy and pay more for the products/services of online retailers that contribute to the societal welfare, and consumers are most conscious of the social factor among the electronic purchase decision-making style factors. They are ready to invest in and buy products from companies that are doing something for social welfare; however, this thinking process varies according to the age group of the consumer.

Table 8
 Post-hoc (multiple comparisons) analysis on the basis of age of respondents

Dependent variable	(I) Age of respondent	(J) Age of respondent	Multiple Comparisons			95% confidence interval	
			Mean Difference (I - J)	Std. Error	Sig.	Lower bound	Upper bound
Innovative product-conscious	under 20	20-24	0.154	.119	.56	-.157	0.4620
		25-34	0.086	.153	.92	-.3081	0.4815
		over 35	-1.282	.572	.11	-2.765	0.1894
	20-24	under 20	-0.154	.119	.56	-.4620	0.1537
		25-34	-0.067	.115	.93	-.3658	0.2309
		over 35	-1.442**	.563	.05	-2.896	0.0125
	25-34	under 20	-0.086	.153	.94	-.4815	0.3081
		20-24	0.067	.115	.93	-.2309	0.3658
		over 35	-1.374**	.571	.07	-2.849	0.1008
	over 35	under 20	1.287	.572	.11	-.1894	2.7650
		20-24	1.442**	.563	.05	-.0125	2.8963
		25-34	1.374**	.571	.07	-.1008	2.8497
Brand value-conscious	under 20	20-24	-0.133	.144	.79	-.5051	0.2392
		25-34	-0.356	.185	.22	-.8336	0.1209
		over 35	-0.585	.692	.83	-2.371	1.1999
	20-24	under 20	0.133	.144	.79	-.2392	0.5051
		25-34	0.224	.139	.38	-.5841	0.1373
		over 35	-0.453	.681	.91	-2.211	1.3053
	25-34	under 20	0.356	.185	.22	-.1209	0.8336
		20-24	0.223	.139	.31	-.1373	0.5841
		over 35	-0.229	.691	.98	-2.013	1.5539
	over 35	under 20	0.585	.692	.83	-1.199	2.3717
		20-24	0.453	.681	.91	-1.305	2.2112
		25-34	0.229	.691	.98	-1.553	2.0130
Trendy/sophisticated	under 20	20-24	0.048	.125	.98	-.2744	0.3721
		25-34	0.049	.160	.99	-.3649	0.4641
		over 35	-0.283	.601	.96	-1.832	1.2691
	20-24	under 20	-0.048	.125	.98	-.3721	0.2744
		25-34	0.007	.121	1.0	-.3125	0.3140
		over 35	-0.331	.591	.94	-1.857	1.1963
	25-34	under 20	-0.049	.160	.99	-.4641	0.3649
		20-24	-0.002	.121	1.0	-.3140	0.3125
		over 35	-0.332	.600	.95	-1.880	1.2174
	over 35	under 20	0.282	.601	.96	-1.269	1.8329
		20-24	0.332	.591	.94	-1.196	1.8578
		25-34	0.332	.600	.94	-1.217	1.8804

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Table 8 (continued)

Dependent variable	(I) Age of respondent	(J) Age of respondent	Mean Difference (I - J)	Std. Error	Sig.	95% confidence interval	
						Lower bound	Upper bound
E-service quality-conscious	under 20	20-24	0.105	.114	.79	-.1903	0.4016
		25-34	0.091	.147	.96	-.2886	0.4705
		over 35	-0.813	.550	.45	-2.232	0.6073
	20-24	under 20	-0.131	.114	.79	-.4016	0.1903
		25-34	-0.015	.111	.99	-.3015	0.2721
		over 35	-0.918	.541	.33	-2.316	0.4797
	25-34	under 20	-0.091	.147	.92	-.4705	0.2886
		20-24	0.015	.111	.99	-.2721	0.3015
		over 35	-0.904	.549	.35	-2.321	0.5145
	over 35	under 20	0.813	.550	.45	-.6073	2.2328
		20-24	0.918	.541	.33	-.4797	2.3166
		25-34	0.904	.549	.35	-.5145	2.3219
Price sensitivity	under 20	20-24	0.307	.130	.08	-.0302	0.6455
		25-34	0.237	.167	.49	-.1975	0.6690
		over 35	-1.205	.628	.22	-2.826	0.4159
	20-24	under 20	-0.307**	.130	.09	-.6455	0.0302
		25-34	-0.071	.126	.94	-.3993	0.2555
		over 35	-1.513**	.618	.07	-3.108	0.0832
	25-34	under 20	-0.235	.167	.49	-.6690	0.1975
		20-24	0.072	.126	.94	-.2555	0.3993
		over 35	-1.441	.627	.10	-3.059	0.1780
	over 35	under 20	1.205	.628	.22	-.4159	2.8262
		20-24	1.513**	.618	.07	-.0832	3.1088
		25-34	1.441	.627	.10	-.1780	3.0598
Impulsive buying behaviour	under 20	20-24	1.308*	.107	.02	.0319	0.5859
		25-34	0.237	.137	.31	-.1178	0.5926
		over 35	-0.001	.515	1.0	-1.330	1.3278
	20-24	under 20	-0.309*	.107	.02	-.5859	0.0319
		25-34	-0.072	.104	.90	-.3400	0.1969
		over 35	-0.310	.507	.93	-1.618	0.9983
	25-34	under 20	-0.237	.137	.31	-.5926	0.1178
		20-24	0.072	.104	.90	-.1969	0.3400
		over 35	-0.238	.514	.96	-1.566	1.0886
	over 35	under 20	0.002	.515	1.0	-.1.327	1.3305
		20-24	0.311	.507	.93	-.9983	1.6189
		25-34	0.242	.514	.97	-1.088	1.5662

(continue on next page)

Table 8 (continued)

Dependent variable	(I) Age of respondent	(J) Age of respondent	Mean Difference (I - J)	Std. Error	Sig.	95% confidence interval	
						Lower bound	Upper bound
Misperception by excessive choice	under 20	20-24	0.285*	.100	.02	.0262	0.5453
		25-34	0.118	.129	.79	-.215	0.4506
		over 35	-0.003	.482	1.0	-1.248	1.2425
	20-24	under 20	-0.285*	.100	.02	-.5453	0.0262
		25-34	-0.168	.097	.31	-.4195	0.0836
		over 35	-0.288	.475	.93	-1.514	0.9375
	25-34	under 20	-0.117	.129	.79	-.4506	0.2151
		20-24	0.167	.097	.31	-.0836	0.4195
		over 35	-0.122	.482	.99	-1.364	1.1231
	over 35	under 20	0.003	.482	1.0	-1.242	1.2483
		20-24	0.288	.475	.93	-.9375	1.5148
		25-34	0.121	.482	.99	-1.123	1.3644
Socially conscious	under 20	20-24	-0.145	.079	.26	-.3495	0.0599
		25-34	-0.178	.101	.29	-.4415	0.0836
		over 35	-0.223	.380	.93	-1.205	0.7593
	20-24	under 20	0.145	.079	.26	-.0599	0.3495
		25-34	-0.034	.076	.97	-.2326	0.1642
		over 35	-0.078	.374	.99	-1.045	0.8890
	25-34	under 20	0.178	.101	.29	-.0836	0.4415
		20-24	0.034	.076	.97	-.1642	0.2326
		25-34	-0.044	.380	.99	-1.025	0.9370
	over 35	under 20	0.223	.380	.94	-.7593	1.2054
		20-24	0.078	.374	.99	-.8890	1.0454
		25-34	0.044	.380	.99	-.9370	1.0251

Note: *significant at 0.05 level

CONCLUSION AND IMPLICATIONS

The study identifies the factors in consumer electronic buying decision-making style and compares these factors on the basis of the gender and age of respondents. Good reliability and validity of an instrument is important to the generalisability of findings (Churchill, 1979). This study found that the CSI as previously established is not a reliable and valid measure of consumer decision-making styles in the context of electronic purchasing. This study contributes to the literature the following new factors: innovative product-conscious, trendy/sophisticated, e-service quality-conscious, and socially conscious and concludes that consumer decision-making style factors vary according to consumers' mode of purchase. It is crucial for e-service vendors to keep a close

watch on customer satisfaction, customer loyalty and customer intention to recommend the company. However, because there is no personal interaction between buyers and sellers in electronic buying, it is difficult to properly gauge customers' perceptions and needs. The findings of this research can help e-service providers target potential customers and minimise their costs in segmenting groups for market positioning.

The e-service quality of service providers affects consumers' electronic buying behaviour even simply in that high quality minimises consumers' confusion in assessing the availability of a number of products and brands on e-retailer websites. This study shows no gender difference in these extracted instruments of consumer electronic decision-making style. E-service providers (e-retailers) and marketers can use this information to be more strategic in segmenting and targeting electronic consumers and positioning their brands. Online service provider managers manifest significantly higher levels of commitment than their offline service provider counterparts. Changes in decision-making style show that consumers are now more conscious about their electronic purchasing. These changes may signal that Indians are becoming more materialistic and more focused on the products that they buy electronically, which can lead to excessive consumption and debt. The Indian consumer market will largely be an urban affair, with 62% of consumption occurring in urban areas versus 38% in rural areas by 2015 (Ablett et al., 2007). This change represents an important opportunity for many companies; however, seizing it will completely depend on how well we know our target consumers' behaviour and understand their decision-making factors; in this way, the findings of our study can help e-retailers and marketers. Moreover, this study shows that while there is no gender difference in the extracted factors of electronic users in our target sample, there are differences in some factors (brand value, trendy sophisticated and e-service conscious) on the basis of age group. Managers of electronic service providers must focus on these factors if they are considering the age of respondents in their target groups. These findings have theoretical and managerial implications for managing the adoption of new marketing strategies in India and are significant because the increased competitive environment necessitates effective marketing strategies by MNC subsidiaries in diverse markets.

LIMITATION OF THIS STUDY

This article reports an empirical data analysis to expand the research on consumer decision-making style and antecedents in the context of the growing electronic market in India only. Snowball sampling, which is non-probabilistic, is used for sampling; consequently, there is some chance of bias in the result because

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the target population of interest that was referred by the referral group and for the generalisability of the results can be tested by probability sampling methods.

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APPENDIX

Summary of the Factors and Sub-Factors of Consumer's Decision Making Styles Evaluations

Dimensions	Sample items	Support references
Innovative product conscious	1. Varieties of brands	Wang et al. (2004); Kwan et al. (2008); Mishra (2010); Kumar and Dash (2014)
	2. Attractive features	
	3. Up-to-date products	
	4. Innovative style	
	5. The best quality products	
	6. High standard and expectations	
	7. Specialty electronic stores' products ^a	
Brand value conscious	1. Brand loyal	Wickliffe (2004); Mishra (2010); Park and Gretzel (2010); Zhijie et al. (2011); Mukherjee et al. (2011); Lysonski and Durvasula (2013)
	2. Favourite brands	
	3. Number of branded companies products	
	4. Wish to purchases the best brand	
	5. Value for money	
	6. Care of purchase brands	
	7. Brand loyalty	
	8. Online advertised brands	
Trendy sophisticated	1. Trendy products	Mishra (2010); Kumar and Dash (2014)
	2. Product satisfaction	
	3. New products	
	4. Hard to choose stores to shop ^a	
E-service quality conscious	1. Time saving	Kumar and Dash (2013)
	2. Convenient	
	3. Easy accessibility	
	4. Attractiveness ^b	
	5. Personal information	
Price sensitive	1. Online products price comparing	New items
	2. Economical ^a	
	3. Time taking to shop online	
Impulsive consumer	1. Careful plan to shop	Frijda (2010); Verhagen and Van Dolen (2011)
	2. Impulsiveness	
	3. Change regularly online buying brands	
Misperception by over choice	1. Availability of many online brands	Kwan et al. (2008); Yao and Zhijie (2011); Lysonski and Durvasula (2013)
	2. The harder it seems to choose the best	
	3. Hard to choose which online store to shop	
Socially-conscious	1. Give something back to society	New items
	2. Willingness to pay extra ^a	
	3. Online store and society welfare	

Notes: ^a added after pilot testing and focus group interviews; ^b item deleted because of low factor loading.

REFERENCES

- Ablett, J., Bajjal, A., Beinhooker, E., Bose, A., Farrell, D., Gersch, U., Greenberg, E., Gupta, S., & Gupta, S. (2007, May). *The 'bird of gold': The rise of India's consumer market*. McKinsey Global Institute, pp. 1–17. Retrieved 10 January 2012, from http://www.mckinsey.com/mgi/reports/pdfs/india_consumer_market/MGI_india_consumer
- Azizi, S., & Makkizadeh, V. (2012). Consumer decision-making style: The case of Iranian young consumers. *Journal of Management Research*, 4(2), 88–111.
- Bakewell, C., & Mitchell, V. W. (2004). Male consumer decision-making styles. *The International Review of Retail, Distribution and Consumer Research*, 14(2), 223–240.
- Bauer, H. H., Sauer, N. E., & Becker, C. (2006). Investigating the relationship between product involvement and consumer decision-making styles. *Journal of Consumer Behaviour*, 5(4), 342–354.
- Chen, Y., Chen, P., & Lin, K. (2012). Gender differences analysis cross-culturally in decision-making styles: Taiwanese and Americans comparison. *Journal of International Management Studies*, 7(1), 175–182.
- Churchill, G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16(3), 64–73.
- ComScore (2012). *State of e-commerce in India*. Retrieved 20 January 2012, from http://www.assoccham.org/Comscore_%20ASSOCHAM-report-state-of-ecommerce-in-India.pdf
- Dahiya, R. (2012). Impact of demographic factors of consumers on online shopping behaviour: A study of consumers in India. *International Journal of Engineering and Management Sciences*, 3(1), 43–52.
- D'Andrea, G., Marcotte, D., & Morrison, G. D. (2010). Let emerging market customers be your teachers. *Harvard Business Review*, 88(12), 115–120.
- Drenan, J., Mort, G. S., & Previte, J. (2006). Privacy, risk perception, and expert online behaviour: An exploratory study of household end users. *Journal of Organizational and End User Computing*, 18(1), 1–22.
- Field, A. (2000). *Discovering statistics Using SPSS for Windows*. London: SAGE Publication.
- Frijda, N. H. (2010). Impulsive action and motivation, *Biological Psychology*, 84(3), 570–579.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate analysis*. Englewood: Prentice Hall International.
- Hanzaee, K. H., & Aghasibeig, S. (2008). Generation Y female and male decision-making styles in Iran: Are they different? *The International Review of Retail, Distribution and Consumer Research*, 18(5), 521–537.
- Hernández, B., Jimenez, J., & Martin, J. M. (2010). Customer behaviour in electronic commerce: The moderating effect of e-purchase experience. *Journal of Business Research*, 63(9), 964–971.
- Hou, S. C., & Lin, Z. H. (2006). *Shopping styles of working Taiwanese female*. Paper presented at Proceedings of International Conference on Business and Information, Singapore, 12–14 July.

- Internet World Stats (2012). *Top 20 countries with the highest number of internet users*. Retrieved 25 March 2013, from <http://www.internetworldstats.com/top20.htm>
- Jackson, V. P., & Lee, M. Y. (2010). Generation Y in the global market: A comparison of South Korean and American female decision making styles. *Journal of the Korean Society of Clothing and Textiles*, 34(6), 902–912.
- Kavas, A., & Yesilada, F. (2007). Decision making styles of young Turkish consumers. *European Journal of Economics, Finance and Administrative Sciences*, 9(11), 73–85.
- Khare, A. (2011). Mall shopping behaviour of Indian small town consumers. *Journal of Retailing and Consumer Services*, 18(1), 110–118.
- Kim, L. H., Kim, D. J., & Leong, J. K. (2005). The effect of perceived risk on purchase intention in purchasing airline tickets online. *Journal of Hospitality and Leisure Marketing*, 13(2), 33–53.
- Kumar, A., & Dash, M. K. (2013). Constructing a measurement in service quality for Indian banks: Structural equation modeling approach. *Journal of Internet Banking & Commerce*, 18(1), 1–13.
- Kumar, A., & Dash, M. K. (2014). Factor exploration and multi-criteria assessment method (AHP) of multi-generational consumer in electronic commerce. *International Journal of Business Excellence*, 7(2), 213–236.
- Kwan, C. Y., Yeung, K. W., & Au, K. F. (2008). Relationships between consumer decision making styles and lifestyle characteristics: Young fashion consumers in China. *Journal of the Textile Institute*, 99(3), 193–209.
- Lee, M. K. O., Shi, N., Cheung, C. M. K., Lim, K. H., & Sia, C. L. (2011). Consumer's decision to shop online: The moderating role of positive informational social influence. *Information and Management*, 48(6), 185–191.
- Liu, Y., Li, H., & Hu, F. (2013). Website attributes in urging online impulse purchase: An empirical investigation on consumer perceptions. *Decision Support Systems*, 55(3), 829–837.
- Lysonski, S., & Durvasula, S. (2013). Consumer decision making styles in retailing: Evolution of mindsets and psychological impacts. *Journal of Consumer Marketing*, 30(1), 75–87.
- Madahi, A., Sukati, I., Mazhari, M. Y., & Rashid, W. N. (2012). Consumer decision making styles amongst young generation in Malaysia. *European Journal of Social Sciences*, 30(2), 263–275.
- Mishra, A. (2010). Consumer decision-making styles and young-adult consumers: An Indian exploration. *Management and Marketing-Craiova*, 8(2), 229–246.
- Mitchell, V., & Walsh, G. (2004). Gender differences in German consumer decision-making styles. *Journal of Consumer Behaviour*, 3(4), 331–346.
- Morgan, D. L. (1988). *Focus groups: The qualitative research*. Newbury Park, CA: Sage Publications.
- Mukherjee, A., Satija, D., Goyal, T. M., Kantrala, M., & Zon, S. (2011, August). Impact of the retail FDI policy on Indian consumers and the way forward. *ICRIER Policy Series No.5*, pp. 1–25. Retrieved 2 January 2013, from http://www.icrier.org/pdf/policy_Series_no_5.pdf
- Nunnally, J. (1978). *Psychometric theory*. New York: McGraw-Hill Publishing.

- Omar, M. W., Ali, M. N. M., Hussin, Z. H., & Rahim, H. A. (2009). Decision orientations towards shopping and buying among young-adult Malays in the universities. *International Journal of Business and Management*, 4(7), 26–30.
- Park, Y. (2007). *Investigating online decision-making styles*. Unpublished doctoral dissertation, Texas A&M University.
- Park, Y., & Gretzel, U. (2010). Influence of consumers' online decision-making style on comparison shopping proneness and perceived usefulness of comparison shopping tools. *Journal of Electronic Commerce Research*, 11(2), 342–354.
- Patel, V. (2008). Consumer decision making styles in shopping malls: An empirical study. In U. Dhar et al. (Eds.), *New age marketing: An emerging realities* (pp. 627–637). New Delhi: Excel Books.
- Radder, L., Li, Y., & Pietersen, J. J. (2006). Decision-making styles of young Chinese, Motswana and Caucasian consumers in South Africa: An exploratory study. *Journal of Family Ecology and Consumer Science*, 34(1), 20–31.
- Rajasekera, J. (2013). Challenges to Toyota caused by recall problems, social networks and digitisation. *Asian Academy of Management Journal*, 18(1), 1–17.
- Rajkumar, P. (2013). A study of the factors influencing the location selection decisions of information technology firms. *Asian Academy of Management Journal*, 18(1), 1–17.
- Sproles, G. B. (1985). From perfectionism to fadism: Measuring consumers' decision-making styles. In K. P. Schnittgrund (Ed.), *The proceedings of the American council on consumer interests* (pp. 79–85). Columbia, MO: The American Council on Consumer Interests.
- Sprotles, G. B., & Kendall, E. L. (1986). A methodology for profiling consumers' decision-making styles. *Journal of Consumer Affairs*, 20(2), 267–279.
- Tai, S. H. (2005). Shopping styles of working Chinese females. *Journal of Retailing and Consumer Services*, 12 (3), 191–203.
- TechNavio (2012). E-tailing market in India 2011–2015. *TechNavio's analysts*. Retrieved 20 January 2013, from <http://www.technavio.com/content/e-tailing-market-india-2011-2015>
- Technopak (2012, August). *E-tailing pushing the retail frontier*. Retrieved 25 March 2013, from <http://www.rasci.in/downloads/e-downloads/e-tailing-pushing-retail-frontier.pdf>
- Topaloğlu, C. (2012). Consumer motivation and concern factors for online shopping in Turkey. *Asian Academy of Management Journal*, 17(2), 1–19.
- Verhagen, T., & Van Dolen, W. (2011). The influence of online store beliefs on consumer online impulse buying: A model and empirical application. *Information & Management*, 48, 320–327.
- Wesley, S., LeHew, W., & Woodside, A. G. (2006). Consumer decision-making styles and mall shopping behaviour: Building theory using exploratory data analysis and the comparative method. *Journal of Business Research*, 59(5), 535–548.
- Wickliffe, V. P. (2004). Refinement and re-assessment of the consumer decision-making style instrument. *Journal of Retailing and Consumer Services*, 11(1), 9–17.
- Wigder, Z. D., & Bahl, M. (2012, 13 August). Trends in India's e-commerce market. *Forrester Research Report*. Retrieved from ASSOCHAM website: http://www.assochem.org/arb/Forrester_Trends_In_Indias_eCommerc.pdf

- Yang, C., & Wu, C. (2007). Gender and Internet consumers' decision-making. *Cyber Psychology and Behavior*, *10*(1), 86–91.
- Yoon, H. S., & Barker Steege, L. M. (2013). Development of a quantitative model of the impact of customers' personality and perceptions on Internet banking use. *Computers in Human Behavior*, *29*(3), 1133–1141.
- Zhijie S., Xiangmin, K., & Yanfeng, W. (2011). Understanding the link between consumer decision-making style and online apparel. *Journal of Software purchasing*, *6*(10), 2068–2075.
- Zhou, J. X., Arnold, M. J., Pereira, A., & Yu, J. (2010). Chinese consumer decision-making styles: A comparison between the coastal and inland regions. *Journal of Business Research*, *63*(1), 45–51.