MARKETING

EVALUATING THE PSYCHOMETRIC PROPERTIES OF CONSUMER DECISION-MAKING STYLE INSTRUMENT

AVALIAÇÃO DAS PROPRIEDADES PSICOMÉTRICAS DO ESTILO DE TOMADA DE DECISÃO DOS CONSUMIDORES

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ABSTRACT

This study examined the cross-cultural applicability of CSI scale for profiling consumers' decision-making style in Brazil. The investigation began with the belief that decision-making styles, much like personality traits, are likely to be largely independent of the culture and descriptive of a personal orientation. The method used was a survey, where a total of 394 observations were possible, using three universities and a faculty as application place. The results show that the eight factors structure exists i.e. Perfectionism or High-Quality; Brand Consciousness; Novelty-Fashion Consciousness; Recreational and Hedonistic Shopping Consciousness; Price and Value for Money Shopping Consciousness; Impulsiveness, Careless Consumer Orientation; Confusion from over Choice of Brands, Stores and Consumer Information; and Habitual, Brand-Loyal Orientation. The study concludes that the scale, taking as overall, is suitable to be used in Brazil.

KEYWORDS

Scale. Validy. Reliability. Consumer Decision Making.

RESUMO

Este estudo analisou a aplicabilidade da escala CSI do perfil dos consumidores no estilo da tomada de decisão no Brasil. A pesquisa teve início com a crença de que os estilos de tomada de decisões, muito como personalidade, são susceptíveis de ser em grande parte, independente da cultura e descritivo de uma orientação pessoal. O método utilizado foi um survey com 394 alunos de três universidades. Os resultados mostram a existência de oito fatores estruturais e o estudo conclui que a escala CSI é adequada para ser utilizada no Brasil.

PALAVRAS-CHAVE

Escala, Validade, Reliability, Consumer Decision Making

INTRODUCTION

Profiling consumers' decision-making styles has been the focus of a multitude of consumer interest studies (Sproles and Kendall, 1986). Consumer affairs specialists use such profiles to understand consumer's shopping behavior, while advertisers and marketing researchers use them to segment the consumers into various niches for product positioning (Durvasula, Lysonski and Andrews, 1993), to understand a consumer's shopping behavior, and to use these profiles as a counseling device (Lysonski, Durvasula and Zotos, 1996).

However, measuring the different consumers' profiles has been a great challenge in marketing. Looking for fulfilling this gap, Sproles and Kendall (1986) proposed the *Consumer Decision-Making Style Instrument* (CSI), an eight-dimension instrument designed exclusively for measuring decision-

making styles. Characteristics of decision-making styles, used in CSI for instance, can be useful in profiling an individual's consumer style, in educating consumers, and in counseling families on financial management (Sproles and Kendall, 1986).

Nevertheless, the problem with previous research using the Consumer Style Instrument is that it is *Emic* in nature. That is, the instrument was designed for domestic use, but has been used in other cultural settings, and also all of the research uses the same sample units (Wickliffe, 2004). Jacoby (1978, p.91) goes beyond Etic/Emic problem and comment that "most of our measures are only measures because someone says that they are, not because they have been shown to satisfy standard measurement criteria (validity, reliability and sensitivity)". It means that if a finding is significant or we can doubtful of it, because the data collection instrument

generated invalid data at the outset (Jaboby, 1978).

Based on this context, as a main goal, this study examined the cross-cultural applicability of CSI scale for profiling consumers' decision-making style. The paper is structured as follow. First, we examine the consumer decision-making style features, according to the literature and other studies that used that. Second, we present other international studies that analyzed the CSI reliability and discuss their results. Next, we present the methodology used in the empirical part. Then, we present the results, using structural equation modeling. Finally, we close with a debate on the data and suggestions for future research.

CONSUMERS' DECISION-MAKING STYLES

CSI scale helps to profile an individual's consumer style, to educate consumer about its specific decision-making characteristics, and to counsel families on financial management (Sproles and Kendall, 1986). In fact, the phenomena consumer decision-making style can be defined as "a mental orientation characterizing a consumer's approach to making choices" (Sproles and Kendall, 1986, p.267).

According to Durvasula, Lyonski and Andrews (1993) there are three approaches to characterize consumer style: (a) the consumer typology; (b) the psychographics/lifestyles approach and (c) the consumer characteristics approach. The *Consumer Typology* approach attempts to define general consumer types. On the other hand, the *Consumer Psychographic* orientation is closely related to consumer choices,

and the *Consumer Characteristics* approach focuses on cognitive and affective orientations specifically related to consumer decision-making (Sproles and Kendall, 1986). The unifying theme among these three approaches is the tenet that all consumers engage in shopping with certain fundamental decision-making modes or styles, including rational shopping, consciousness regarding brand, price and quality (Lysonski, Durvasula and Zotos, 1996).

Among these three approaches, the *Consumer Characteristics* approach is one of the most promising, since it deals with the mental orientation of consumers in making decisions and focuses on the cognitive and affective orientation in consumer decision making. Thus, it is valuable to consumer affair specialists because it provides a measurement system for standardized testing of consumer decision-making styles and for practical applications, such as counseling consumers (Durvasula, Lyonski and Andrews, 1993, p.56). In summary, although no approach is specifically designed to serve consumer interest professionals, useful approaches to characterize consumer styles are suggested, and, therefore, these three approaches ground the CSI instrument.

Based on this context, Sproles (1985) initially identified 50 items related to mental orientation. As a consequence, Sproles and Kendall (1986) identified 40 items, from the original 50, creating the CSI instrument. Note that many of the original 50 items are not directly comparable to the CSI final (Durvasula, Lysonski and Andrews, 1993). Specifically, Sproles and Kendall (1986) factor analysis identified eight mental characteristics

of consumer decision making: they are described as (1) **Perfectionism or High-Quality Consciousness** – consumers seek the very best quality products; (2) **Brand Consciousness** – consumers are oriented toward expensive and well-known (inter)national brands and feel price is an indicator of quality; (3) **Novelty-Fashion Consciousness** – consumers gain excitement and pleasure from seeking out new things and are conscious of the new fashions and fads; (4) **Recreational and Hedonistic Shopping Consciousness** – consumers find shopping pleasant, enjoyable; they shop just for the fun of it; (5) **Price and Value for Money Shopping Consciousness** – consumers who are looking for sale prices and appear conscious of lower prices in general (benefit/cost relationship); (6) **Impulsiveness, Careless Consumer Orientation** – consumers that do not plan their shopping and appear unconcerned about how much they spend or about the "best purchases"; (7) **Confusion from over Choice of Brands, Stores and Consumer Information** – consumers find the marketplace confusing, view brands as alike and seek help from friends; and (8) **Habitual, Brand-Loyal Orientation toward consumption** – consumers who are likely to have favorite brands and stores and to have formed habits in choosing these. Habitual behavior is a well-know aspect of consumer decision-making and this factor reinforces its existence as a general characteristic.

In fact, there have been many attempts to profile the decision-making styles (Westbrook and Black, 1985). If decision-making styles of consumers vary among countries, advertising and other elements of the marketing mix must be adjusted to accommodate these differences. For example, if there is a large segment of impulsive buyers in a specific country, advertising appeals may be formulated with this in mind. As a consequence, CSI can be a useful instrument in providing information to classify these decision-making styles. Based on the circumstances, the purpose of this research is to investigate the decision-making profiles of consumer and to examine the applicability of an instrument designed to measure consumer decision-making in another culture.

OTHER STUDIES ON CONSUMERS' DECISION-MAKING STYLE INSTRUMENT

In practical terms, after Sproles and Kendall (1986) have created the CSI instrument, other studies tested it and did not achieve singular results. For instance, Hafstrom, Chae and Chung (1992) compared the CSI scale of young Korean and American students and confirmed all but one of the eight original constructs, i.e. Novelty-Fashion. These authors comment "that there is reasons for cautions optimism that the CSI has elements of construct validity and has potential use across international populations" (p.120). A closer look at the reliabilities of the study indicates that Time-Energy ($\alpha=0.35$), Habitual-Brand Loyal ($\alpha=0.34$) and Price-Value Conscious ($\alpha=0.31$) were not reliable measures of the construct. The newly identified Time-energy construct contains items from the Brand Conscious and Habitual Brand-Loyal decision-making styles found in US consumers. Korean consumers, who were characterized as Time-Energy decision-makers, tend to conserve energy by shopping in the same stores and by

consulting magazines and advertisements before they actually buy a product. In additional, "only the Novelty-Fashion construct identified by both Sproles (1985) and Sproles and Kendall (1986) was not confirmed in the Korean data. However, two items ('I usually buy very newest style' and 'I keep my wardrobe up-to-date with the changing fashions') that loaded on this factor in the Sproles and Kendall study loaded on the Brand Conscious, Price Equals Quality factor in the present study. It may indicate that brand consciousness and fashion consciousness are linked in some way by Korean young consumers" (Hafstrom, Chae and Chung, 1992, p.156).

Durvasula et al (1993) examined the dimensionality of CSI scale and found that the factor loadings of the New Zealand sample were not entirely equivalent to the USA. Thus the factor analysis with Varimax rotation revealed eight factors for both samples; however, the Cronbach Alphas revealed that the Perfectionistic, Novelty-Fashion Conscious, and Recreational Shopping Conscious factors were found to be the most stable of all. Based on the alphas, the researchers found that the factors entitled Price-Value Conscious, Confused by Overchoice, and Habitual, Brand-Loyal require further refinement (Durvasula, Lysonski and Andrews, 1993). The Brand Conscious factor showed lower reliability for the New Zealand sample than the American sample, which may indicate that underlying factors are influencing the outcomes. The main conclusion of this study is that "overall the New Zealand results compare favorably to those of the United States and provide general support

for this inventory" (Durvasula, Lysonski and Andrews, 1993, p.64).

Lysonski et al., (1996) surveyed college students in developing countries to determine if consumer decision-making styles are universal. The researchers found that the instrument was more applicable to the United States and New Zealand than to India and Greece, and that seventy one percent of the New Zealand, Greek and Indian samples had alpha coefficients exceeding 0,60. The results indicated that Price-Value Conscious was not reliable measure of the constructs, supporting Hafstrom, Chae and Chung (1992) result.

Fan and Xiao (1998) researched Chinese consumers using CSI instrument. They found that Impulsive overlaps with the Habitual-Brand-Loyal construct, that the Time Energy Conserving construct overlaps with the Recreational Shopping Consciousness dimension, and that the new dimension "Information Utilization" include the Confused by Overchoice construct. According to Wickliffe (2004, p.11) "[t]his factor [Information Utilization] describes how consumers use product information. Those that score low on this scale take advantage of product information and those that score high seem to be overwhelmed by the abundance of information".

Wickliffe (2004), by another examination of psychometric properties of the CSI instrument, revealed that the scale is not a reliable or valid measure of decision-making style in both Korea and in the United States. The author commented that variations were found as to the formulation of the decision-making styles, item loadings, and reliabilities of the constructs. An interesting find

is that new constructs were identified, which were in contrast with previous studies. In addition, Wickliffe's (2004, p.16) conclusion was that "the reliability of findings in both cultures suggests that researchers cannot generalize that a particular phenomena exist in both cultures. Variations could suggest that perhaps the decision-making styles are characterized differently in each culture". The newly identified construct, entitled, Confused, Impulsive had an alpha of 0.718 for the American consumer group and 0.622 for the Korean consumer group. The results showed that although this factor was found to be a reliable measure for the samples used, it was not identified in previous studies.

As a consequence of the literature review, Table 1 summarizes the results from these studies discussed. The Cronbach Alpha is presented for each dimension evaluated. Thus, there are six studies (except Sproles, 1985) that worked with CSI instrument. The blank spaces in the columns represent dimensions not reliable. In Hafstrom, Chae and Chung (1992) research, for instance, the dimension Price-Value (α=0,30) and Habitual, Brand Loyal (α=0,34) are under the value used by Sproles and Kendall (α=0,40) as **cut-off**. In addition, Lyonski, Durvasula and Zotos (1996) found a low value in Habitual, Brand Loyal dimension (α=0,34). Taking as a general view, the CSI instrument appears to be reliable in many countries, except in Oriental countries, where the language and the orientation for consumption are very different from those of USA.

TABLE 1
Reliability Assessment of CSI scale (Cronbach Alphas)

Dimensions	Sproles and Kendall (1986)		Hafstrom et al (1992)	Durvasula et al (1993)		Lyonski et al (1996)				Fan and Xiao (1998)	Wickliffe (2004)	
	USA[a]	USA[b]	Korean	USA	New Zealand	New Zealand	Greek	USA	Indian	Chinese	USA	Korean
Perfectionist-Quality	0,74	0,69	0,77	0,74	0,75	0,80	0,65	0,72	0,61	0,59	0,65	
Brand Conscious	0,75	0,63	0,84	0,75	0,59	0,59	0,68	0,63	0,71	0,60	0,84	0,83
Novelty-Fashion	0,74	0,76		0,74	0,70	0,75	0,63	0,75	0,72	0,59		
Recreational-Hedonistic	0,76	0,71	0,70	0,76	0,82	0,82	0,61	0,85	0,45			
Price-Value Money	0,48	0,48	0,31	0,48	0,50		0,64	0,68				0,56
Impulsive	0,48	0,41	0,54	0,48	0,71	0,71	0,64	0,68	0,41			0,62
Confused by Overchoice	0,55	0,51	0,54	0,55	0,66	0,66	0,55	0,69	0,64			
Habitual-Brand Loyal	0,53	0,54	0,34	0,53	0,58	0,54	0,34	0,62	0,51			
Confused-Impulsive											0,72	0,62
Information Use										0,55		
Time Energy			0,35									

Source: Authors based on Wickliffe (2004); * Identified; alpha values; [a] all items; [b] top three items

METHOD AND RESEARCH DESIGN

This topic describes the methodology used in the field investigation. *Research Design.* First, double back translation was used to create the Brazilian version of the CSI instrument. Three Portuguese fluent academics (in the first moment) and other three English fluent academics did this job (Malhotra, 2001). As a consequence, the questionnaire was pre-tested with 23 undergraduate business students, looking for ambiguities and misleading of the instrument. Modifications were implemented and a final version of the scale was shaped. In the field research, the theory suggests that exist between 5 and 10 cases for each variable in the scale (Hair et al., 1998). As the CSI original instrument uses 40 variables, our sample was expected to have a minimum near 40 x 5 = 200 observations. A total of 394 observations was possible using three universities and a faculty as application place. All people were or undergraduate business students or undergraduate communication students (private and non-private business schools – first semester of 2005). In this context, the sample was defined as non-probabilistic by convenience (Malhotra, 2001).

Data analysis. First, the scale was reviewed according to the content validy. Next, for achieving the validity we use (i) Exploratory Factor analysis (EFA) with Varimax rotation to reduce the items, (iii) Discriminant Validity to access the constructs association, and (iii) Confirmatory Factor Analysis (CFA) to analyze each dimension of the scale. CFA is useful as complement to EFA because the former recognizes the errors in the measurement model (Bagozzi, Yi and Philips, 1991; Bagozzi and Yi, 1989). Internal consistency analysis was used for achieving reliability in the scale based on exploratory factor analysis.

RESULTS DISCUSSION

The total sample was 394 undergraduate business students. Males represented 50%. The age ranged from 17 to 63 years (M=24). The majority of the students (14%) had near 21 years. Single was also the majority of the sample with 79%. Wage was measured as individual wage and, 11% of the students earned above R\$ 3001,00 (US\$ 1,00 = R\$ 2,30), most of the students (52%) earned until R\$ 1000,00.

The missing values found were below 5% and they were substituted by means (Kline 1998). Outliers were verified according two criteria: one is based on score Z, where values above ±3 were identified (they were retained), and the second one was based on Mahalanobis distance D², where values under $p<0,001$ were deleted (none case). Normality was checked in terms of Kurtosis (±5) (Olsson et al. 2000), Skweness (±2) and Kolmogorov Smirnoff test ($p<0,01$). In these three features, the non-normality was found, although within the moderator parameters. Multicolinearity was assessed using Pearson correlations, where values above ±0,90 were excluded (none case).

After these initial analyses, Exploratory Factor Analysis was used for a preliminary analysis of the dimensionality of the scale. Unidimensionality is defined as the existence of one construct underlying a set of items (Gerbing and Hunter, 1987). Consequently, unidimensionality is the degree to which items represent

one and only underlying latent variable (Garver and Mentzer, 1999, p.35). In the first step, factor analysis was performed to identify characteristics of consumer decision making. First, we found it difficult to interpret the eight-factor solution when using all 40 items of the CSI inventory. Five items of the original inventory were found to be problematic, because they dropped to other factors (they are explained ahead). Cut-off values under $\lambda=0,35$ for EFA were used. The results can be viewed in Table 2.

According to the results, the first dimension explains 14,43% of variance explained and it was the same found by Sproles and Kendall (1986). This dimension is defined as *Brand Conscious*. None item in this factor was deleted by EFA. Item's loading on this factor indicate that Brazilian consumers who score high are likely to buy well-known national brands that are the latest style and expensive at nice department or specialty stores (Hafstrom, Chae and Chung, 1992). Sproles and Kendall (1986) defined that factor as consumers are oriented toward expensive and well-known national brands and feel price is an indicator of quality. These items dealt with the importance of nice department stores, national brands and price as indicators of quality (Wickliffe, 2004). The other items in this factor reflected the consumers concern for highly advertised, well-known, national, designer brands, keeping their wardrobe up-to-date, and buying items that were the nicest of styles.

The second dimension is factor 2 - *Confused by Over-Choice* Consumer. Items in this dimension range from $\lambda=0,73$ to $\lambda=0,76$ and no items were deleted. The second dimension explains 8,84% of variance explained. The results appear to indicate that Brazilian consumers are consumers who gain excitement and pleasure from seeking out new things and are conscious of the new fashions and fads. High scorers on this characteristic fell the quantity of different consumer brands alone is confusing, and the amount of information available about these different brands adds to confusion.

Novelty Fashion is the factor 3, where it alone explains 7,65% of variance. None item in this factor was also deleted by EFA. However, two items had low loads. These two items were (q18) "To get variety, I shop different stores and choose different brands" and (q19) "It is fund to buy something new and exciting". A possible explanation is that question 18 was difficult to translate and question 19 was difficult for Brazilian students understand the difference between new and exciting (identified in the pre-test phase).

Perfectionistic, High Quality Conscious is the fourth factor, where the variable number 5 and 7 were deleted. Question 5 "I really do not give my purchases much thought or care" and question 7 "I shop quickly, buying the first product or brand I find that seems good enough" dropped to factor Recreational (scores $\lambda=0,55$ and $\lambda=0,62$). Question 8 "A product does not have to be perfect, or the best, to satisfy me" was not supposed to be included because it did not achieve the minimum value to be included in factor. All of the items deal with the importance of quality when selecting a product. Price was equated with quality among these consumers.

The fifth factor, *Impulsive* Careless Consumer, had an item deleted (q31) "I take the time to shop carefully for best buys". In fact, question 31 not only was the lowest value in Impulsive factor ($\lambda=0,43$), but also dropped to both factors: Recreational and Habitual. Variance explained was equal to 5,31%. The items in this factor suggest that these consumers tend to get confused by too much information on products and brands, and may, therefore, impulsively shop. Purchases made may be regretful.

In the sixth factor, *Recreational/ Hedonistic Consumer* explains 4,95%. Question 22 dropped to factor Impulsive and was deleted ($\lambda=0,47$). Moreover, just question 24 had an intermediary score ($\lambda=0,55$). Based on the suggestion of Hafstrom, Chae and Chung (1992, p.154), we believed that "factor loadings indicate that [Brazilian] shoppers compare brands and take time to shop carefully indicating that they are comparison shoppers".

Habitual Brand-Loyal consumer is seventh dimension. All items were loaded in the same factor and question 40 was the only deleted because it was lower than $\lambda=0,35$. The other values are all above $\lambda=0,722$. According to Sproles (1986) high scorers on this factor indicates that people buy their favorite brands over and over again, thus the high negative loading on the statement that brands bought are changed regularly indicates strong feelings of brand loyalty.

The least factor was *Price Conscious.* Just question 27 had a low value (0,382). The other two questions in this dimension had good values ($\lambda=0,71$ and $\lambda=0,72$). In addition, all questions in this dimension were loaded in the same factor. In summary, the factor solution presented in Table 2 explains 55,82% of the variation, a very reasonable proportion (Sproles and Kendall = 46%). In addition, all eigenvalues exceeded 1.0 (the lowest was 1,266) and more important, the eight factors confirm the characteristics proposed.

TABLE 2
Exploratory Factor Analysis of CSI instrument

	Component							
	Brand	Confused	Novelty	Quality	Impulsive	Recreational	Habitual	Price
Q1				,699				
Q2				,711				
Q3				,720				
Q4				,692				
Q6				,539				
Q9	,442							
Q10	,562							
Q11	,699							
Q12	,622							
Q13	,731							
Q14	,714							
Q15			,656					
Q16			,684					
Q17			,733					
Q18			,575					
Q19			,505					
Q20						,777		
Q21						,734		
Q23						,650		
Q24						,552		
Q25								,711
Q26								,724
Q27								,382
Q28					,632			
Q29					,784			
Q30					,704			
Q32					,654			
Q33		,764						
Q34		,733						
Q35		,734						
Q36		,746						
Q37							,751	
Q38							,759	
Q39							,722	
§	14,43%	8,84%	7,65%	7,00%	5,31%	4,95%	3,92%	3,73%
δ	14,43%	23,27%	30,92%	37,92%	43,23%	48,18%	52,10%	55,82%

Source: Authors; Extraction Method: Principal Component Analysis;

Rotation Method: Varimax with Kaiser Normalization.; a Rotation converged in 10 iterations;

KMO=0,760, Bartlett p=0,000; χ^2=3544 and d.f.=561; § =Variance Explained; δ =Variance Acumulated;

Note: Comunality < 0,50 (Hair et al 1998) were q6; q9; q12; q9; q23; q27; q32.

Reliability Coefficient for Scale. In the second step of the analysis, Cronbach's alpha was used. For consistency, it was decided that reliabilities should not be below α=0,60, the same level used by Sproles and Kendall (1986). Malhotra (2001), p.264) defines as a "reliability measure of internal consistence that is the average of all possible estimates resultant of the different separation/division of the scale in two halves". A low coefficient alpha indicates the sample of items performs poorly in capturing the construct, which motivated the measure. Conversely, a large alpha indicates that the *k*-item test correlates well with true scores (Churchill, 1996, p. 68). According to Table 3, the Alpha de Cronbach identified good values for scale reliability. The items selected for assessing the scale reliability were the ones retired from Table 2. The only factor below α=0,60 (suggested by Malhotra, 2001, p.265) was Price Value (α=0,45).

Price Value dimension can be considered a problematic factor in the instrument, since it either scored very poorly in other studies (for example, Sproles and Kendall, 1986 [α=0,48]; Hafstrom, Chae and Chung, 1992 [α=0,30]; Durvasula, Lysonski and Andrews 1993 [α=0,48/0,50]; Wickliffe 2004 [α=0,56]) or did not achieve a minimum result (Wickliffe 2004; Fan and Xiao, 1998; Lyonski, Durvasula and Zotos, 1996).

Interestingly, the Recreational dimension (α=0,68) scored good in some studies (see Table 1 as comparative) and nothing/low in others (see for instance in Xiao 1998 and Wickliffe 2004). It appears that either this dimension exists and is very well defined in some cultures or this dimension did not exist in others (i.e. China and Korean). The other values, according to Table 4, are all above α=0,68 and the overall scale reliability was α=0,76.

TABLE 3
Alpha de Cronbach for each factor and for overall

Factor	Alpha de Cronbach
Perfectionist-Quality	0,71
Brand Conscious	0,76
Novelty-Fashion	0,72
Recreational	0,68
Price-Value	**0,45**
Impulsive	0,70
Confused by Overchoice	0,77
Habitual, Brand Loyal	0,70

Source: Authors

The table 4 presents the correlation matrix. It also analyzes the multicolinearity of the constructs. It means that constructs with correlation above ±0,85 (Kline, 1985) can be consider the same. Conform table 4 no correlation above this value was found. On the other hand, the strongest correlation found was between Novelty and Brand. It appears that a consumer characterized as novel could be looking for the brand more innovator/newest. In addition, Price and Novelty had a negative value indicating that they are correlated inversely. It was hoped, since more low price, less indicative of novelty (new things).

TABLE 4
Correlation Matrix

	Quality	Brand	Hab.	Impul.	Confus	Recre.	Price	Nove.
Quality	1							
Brand	,035	1						
Habitual	,102*	,323**	1					
Impulsive	-,073	,129*	,193**	1				
Confused	-,055	,206**	,095	,285**	1			
Recreati	,092	,033	,122*	,145**	-,062	1		
Price	,034	-,086	,037	-,048	,087	,008	1	
Novelty	,027	,442**	,221**	,203**	,127*	,275**	-,187**	1

Source: Authors; * Correlation is significant at the p<0.05 level (2-tailed); ** Correlation is significant at the p<0.01 level (2-tailed).

Composite Reliability (CR) and Variance Extracted (VE) estimative were used to assess the construct reliability (Bagozzi, Yi and Philips, 1991). The outcomes can be viewed in Table 4 (last two columns). Some measures, such as alpha cronbach, are not adequate to structural equation models because they do not analyze measurement errors (Hair et al., 1998, Viana, Cunha and Slongo, 1999). Because of that, we use the construct reliability estimative (suggested by Fornell and Larcker, 1981). The values above 0,70 for composite reliability and above 0,50 for variance extracted are indicated (Steenkamp and Van Trijp, 1991; Johnson et al., 2001). Novelty-Fashion (0,78 and 0,54) was the only model that had scores above the indicated. All other items did not were supported according to this indicator.

Structural Equation was used to calculate the confirmatory factor model. To Baggozi, Yi an Phillips (1991, p.429) "confirmatory factor model allows methods to affect measure of traits in different degrees and to correlate freely among themselves, such as: (1) measures of

the overall degree of fit are provided in any particular application (e.g., the chi-squared goodness-of-fit test), (2) useful information is supplied as to if and how well convergent and discriminant validity are achieved (i.e., through chi-squared difference tests, the size of factor loadings for traits, and the estimates for trait correlations), and (3) explicit results are available for partitioning variance into trait, method, and error components (i.e. through squared factor loadings and error variance)". According to Table 5, the factors Novelty-Fashion, Impulsive and Habitual/Brand Loyal had good scores in the fits used (GFI, AGFI, TLI, CFI, RMSEA). However, Brand Conscious (TLI=0,77), Recreational (RMSEA=0,11), Price-Value (TLI=0,57; CFI=0,72; RMSEA=0,15) and Confused by Overchoice (AGFI=0,74; TLI=0,72; RMSEA=0,22) had poor estimative in the model. Perfectionist-Quality not only had very good scores in the model, but also was the only one that $p>0,05$. The Price-Value construct was again problematic, since its TLI, CFI were below the indicated and RMSEA was above 0,05. As a comparative, Lyonski, Durvasula and Zotos, (1996), Fan and Xiao (1998) and Wickliffe (2004) did not support the price-value construct in their research. It could means that this dimension is not adequate for this kind of scale. Taking as general and according to Figure 1 and Table 5, the Overall Measurement Model had partial acceptable values in the estimative. However, some of them were below the indicated by theory (GFI=,88; TLI=0,82; AGFI=0,85 and CFI=0,85 [Hair et al., 1998]), albeit they were near the boundary. In a comparative analysis, Durvasula, Lysonski and Andrews (1993) found a GFI=0,71; RMSEA=0,13 in their study.
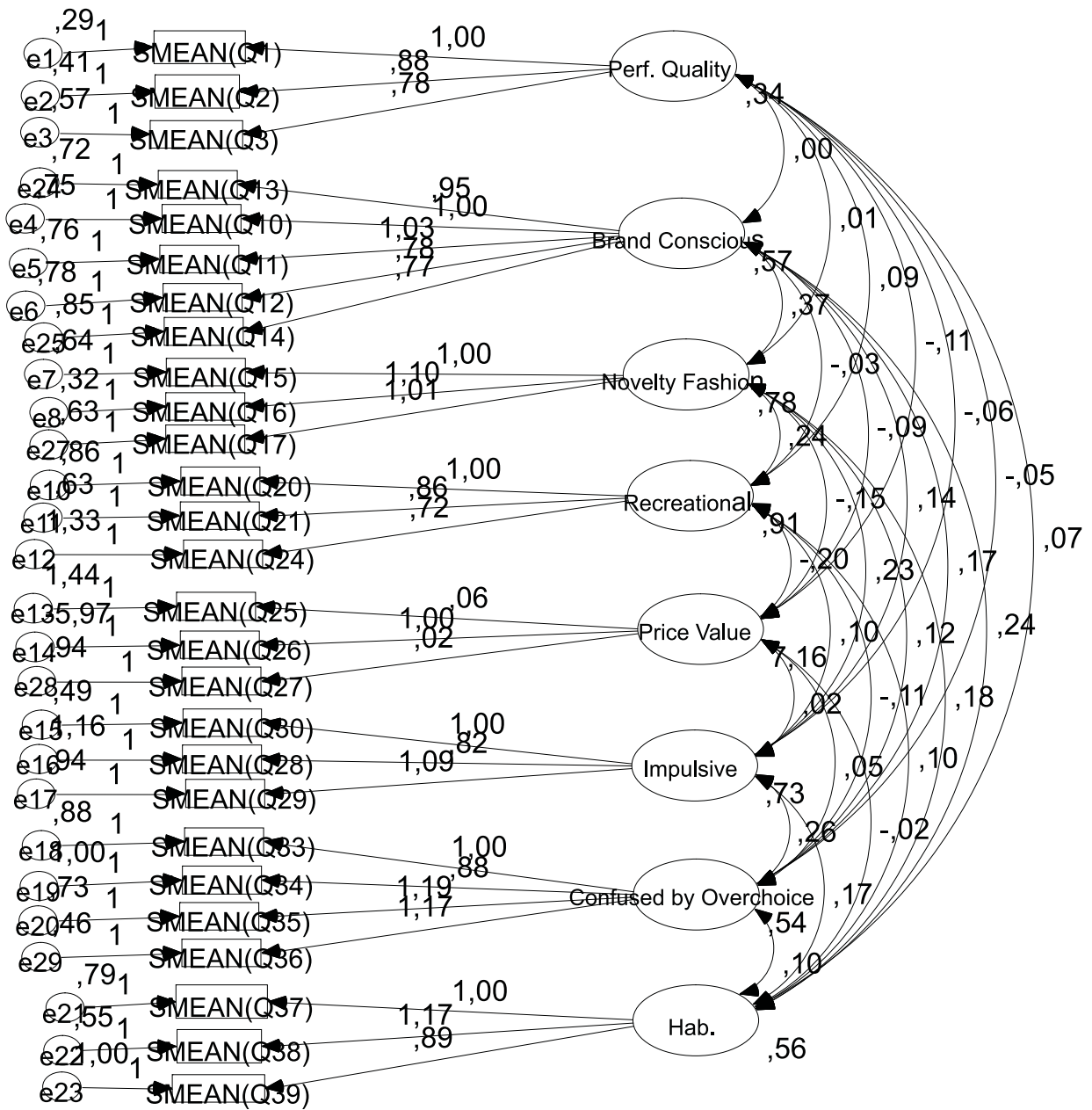
FIGURA 1 - Confirmatory Factor Analysis CSI Instrument

Source: Autors; values Non-standartized

TABLE 5
Confirmatory Factor Analysis of the constructs

Construct	χ^2	d.f.	χ^2/d.f.	p	GFI	AGFI	TLI	CFI	RMSEA	CR	VE
Perfec.-Quality	3,90	2	2	,142	,99	,98	,98	,99	,05	,74	,48
Brand Conscious	55,47	5	11,1	,000	,95	,84	,77	,88	,16	,71	,33
Novelty-Fashion	7,17	2	3,6	,028	,99	,97	,98	,99	,08	,78	,54
Recreational	10,89	2	5,4	,004	,98	,95	,93	,95	,11	,60	,31
Price-Value	18,88	2	9,4	,000	,97	,91	,57	,72	,15	,48	,28
Impulsive	7,36	2	3,7	,025	,99	,96	,96	,98	,08	,61	,34
Confused	41,28	2	20,6	,000	,95	,74	,72	,90	,22	,70	,37
Habitual	5,95	2	3,0	,051	,99	,97	,97	,98	,07	,62	,35
Overall Model	696,56	296	2,35	0,00	,88	,85	,82	,85	,06		

Source: Authors; Perfectionist-Quality (q1, q2, q3); Brand Conscious (q10, q11, q12, q13, q14); Novelty-Fashion (q15, q16, q17); Recreational (q20, q21, q24); Price-Value (q25, q26, q27); Impulsive (q28, q29, q30); Confused (q33, q34, q35, q36); Habitual (q37, q38, q39); estimative using maximum likelihood; CR= composite reliability; VE= variance extracted

Discriminant Validy. According to Churchill (1979, p.70) discriminant validy "is the extent to which the measure is indeed novel and not simply a reflection of some other variable. The researcher examines the degree to which the operationalization is not similar to (diverges from) other operationalizations that it theoretically should be not similar" (Trochim, 2002). The process used for achieving discriminant validy was the one suggested by Fornell and Larcker (1981). This test, presented in Table 6, compares the variance extracted of each construct with the squared correlation coefficient. It means that, for achieving discriminant validity, the constructs should have variance extracted greater than shared variance. The results indicate that all eight constructs represent different concepts.

TABLE 6
DISCRIMINANT VALIDY MATRIX

	Quality	Brand	Habitual	Impulsive	Confused	Recreati	Price	Novelty
Quality	**0,484**							
Brand	0,001	**0,330**						
Habitual	0,010	0,104	**0,353**					
Impulsive	0,005	0,017	0,037	**0,344**				
Confused	0,003	0,042	0,009	0,081	**0,374**			
Recreational	0,008	0,001	0,015	0,021	0,004	**0,308**		
Price	0,001	0,007	0,001	0,002	0,008	0,000	**0,285**	
Novelty	0,001	0,195	0,049	0,041	0,016	0,076	0,035	**0,540**

Source: Authors

In addition to discriminant validity, the convergent validity was assessed. In other words, convergent validity is the degree to which multiple measures of the same construct demonstrate agreement or convergence (Marsh, Beard and Bailey, 2002, p.94). In order to indicate the convergent validity, the factor loads should be significant ($t > 1,96$; $p < 0,05$). The data indicated that all values were significant and it supported the convergent validity.

CONCLUSIONS

According to Peter (1979, p.6) "valid measurement is the *sine qua non* of science. In a general sense, validity refers to the degree to which instruments truly measure the constructs which they are intended to measure". The instrument relevance is so notorious that "it is clear that if measurement is disregarded in marketing research, the field will be slow to advance (Ray 1979, p.1)".

Parameswaran et al., (1979, p.18) comment that marketing scholars "are urged to pay more attention to data [measurement] because theory construction is a product of the interaction between data and models". Thereby, these authors annotate that there are three basic requirements of measurement. First, measurement must be an operationally definable process. Second, measurement should be valid. Third, the outcome of the measurement process must be reproducible. However, what most observers do not recognize beyond these two requirements is that measurement development is not only a scientific requirement, but also a practical necessity (Ray, 1979).

In this context, this study examined the cross-cultural applicability of CSI scale for profiling consumers' decision-making style in Brazil. The investigation began with the belief that decision-making styles, much like personality traits, are likely to be largely independent of the culture and descriptive of a personal orientation (Sproles and Kendall, 1986). In fact, it appears that the overall

structure proposed by Sproles and Kendall is very consistent with the theory, despite some low values in the factor analysis and in the confirmatory factor analysis fits.

Based on this context, the eight factors structure seems to exist (i.e. Perfectionism or High-Quality; Brand Consciousness; Novelty-Fashion Consciousness; Recreational and Hedonistic Shopping Consciousness; Price and Value for Money Shopping Consciousness; Impulsiveness, Careless Consumer Orientation; Confusion from over Choice of Brands, Stores and Consumer Information; and Habitual, Brand-Loyal Orientation). These factors appear to represent the consumer decision-making style and are in comfortable with other results (Lysonski, Durvasula and Zotos, 1996; Wickliffe, 2004; Fan and Xiao, 1998; Hafstrom, Chae and Chung, 1992).

In addition, we found that reverse items in the scale presented operational problems. For instance, questions 5, 7, 8, 22, 31 and 40 were deleted to the scale, indicating that it is difficult to work with them (see Appendix I for more details). Sometimes this difficult was either because they were dropped to other factors or because their scores were low.

Third, according to Lysonski and Durvasula (1996) "the inventory appears to be more applicable to the more developed countries (i.e. New Zealand and the USA) than to the developing countries (i.e. India and Greece)". A possible explanation for that is that many factors were not found to be reliable. However, contrary to Lysonski and Durvasula (1996) in this study, the results

indicate that CSI instrument appears to be applicable to developing countries too.

Future Research. In summary, the next step is to test the CSI in noncollege groups and in more adult general population in Brazil. Moreover, the similarity in the findings indicates that construction of a Profile of Consumer Style, following the model suggested by Sproles and Kendall (1986), is possible and profile of consumer style should prove useful in pointing a direction for consumer education. In addition, other studies could also test the Sproles structure in other developing countries, looking for to verify the proposition of Lysonski and Durvasula (1996).

Limitations of the study. Although the study tries to improve the knowledge in the instruments that measure consumers' decision-making styles, tries to understand more about scales and ties to help more the development of international scales, it has some limitations. For instance, undergraduate students sample could have a bias in the results, since they are (in majority) part of the same segment and it could not discriminate the decision making style. Therefore, a more general and probabilistic sample could generated more validy results. Second, the face validity (which is "other researcher's judgment, and insights" [Garver and Mentzer, 1999, p.34]) and the nomological validity (if the scale "behaves as expected with respect to some other construct to which it is theoretically related" [Churchill 1996, p.538]) could bring additional results to the paper. Therefore, future research could undertake these issues.

APPENDIX I

Consumer Decision-Making Style Instrument translated to Portuguese

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Perfectionism-Quality q1.Obter alta qualidade é muito importante para mim; q2.Quando eu compro um produto, eu tento fazer a melhor escolha, ou a mais perfeita; q3.Em geral, eu freqüentemente tento comprar o produto com a melhor qualidade de todos; q4.Eu faço um esforço especial/adicional para escolher o produto com a melhor qualidade; q5.Eu realmente não fico pensando muito e nem dou muita atenção para minhas compras (R); q6.Meus padrões e expectativas em relação aos produtos que eu compro são muito altos; q7.Minha compra é rápida, eu compro o primeiro produto ou marca que me parece bom (R); q8.Um produto não precisa ser perfeito e nem o melhor para me satisfazer (R);

Brand-Concious q9.As marcas nacionalmente mais conhecidas são as melhores para mim; q10.As marcas mais caras são geralmente minha escolha; q11.Quanto maior o preço de um produto, melhor é a sua qualidade; q12.As boas lojas de departamentos e especialidades oferecem me os melhores produtos; q13.Eu prefiro comprar as marcas mais vendidas; q14.As marcas mais anunciadas normalmente são escolhas muito boas;

Novelty-Fashion q15.Eu normalmente tenho uma ou mais roupas do último modelo; q16.Eu mantenho meu guarda-roupa atualizado com as mudanças da moda; q17.Um estilo atrativo e na moda é muito importante para mim; q18.Para ter variedade, eu compro em várias lojas e escolho diferentes marcas; q19.É divertido comprar alguma coisa nova e excitante;

Recreational q20.Fazer compras não é uma atividade agradável para mim (R); q21.Fazer compras é uma das atividades prazerosas de minha vida; q22.Comprar em outras lojas é uma perda de tempo (R); q23.Eu gosto de comprar simplesmente pela diversão que isso me proporciona; q24.Eu faço minhas compras de modo rápido (R);

Price-Value q25. Eu compro o máximo possível durante as promoções/liquidações; q26.Eu geralmente escolho os produtos com menor preço; q27.Eu procuro cuidadosamente os produtos que tenham a melhor relação custo-benefício;

Impulsive q28.Eu deveria planejar minhas compras com maior cuidado do que costumo fazer; q29.Eu sou impulsivo quando compro; q30.Normalmente eu faço compras sem tomar precauções das quais eu me arrependo depois; q31.Eu vou as compras com tempo, afim de comprar melhor (R); q32.Eu controlo cuidadosamente o quanto eu gasto (R);

Source: Authors
(R) indicates reverse score; Factors: Perfectionist-Quality (1 to 8); Brand Conscious (9 to 14); Novelty-Fashion (15 to 19); Recreational (20 to 24); Price-Value (25 to 27); Impulsive (28 to 32); Confused (33 to 36); Habitual (37 to 40)

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