A measurement model of brand image and perceived quality

Hallouz Mohamed Amine[1][*], Hachemaoui Kamel[2]

[1]Mascara University (Algeria), amine.hallouz@univ-mascara.dz

[2] Mascara University (Algeria), hachemaoui.kamel@univ-mascara.dz

Abstract:

This study aimsto investigate the determinantsof brand image and perceived quality trough a measurement model,these determinantsconcerning to non-product related attributes (price and consumer imaginary side) and perceived quality in sport shoes market to Algeria. This study falls within the field of consumer behavior, and aims to test a scale of psychological spects related to the brand image and its suitability with perceived quality. Accordingly, this will help future studies in applying these measurements in the Algerian market. A questionnaire tool adopted in order to collect data for 208 consumers, we used exploratory factor analysis and confirmatory factor analysis to confirm the study model. The results of this study shows that there is a relationship between brand image and perceived quality through the measurement model.

Keywords: Consumer Behavior, Brand Image, perceived quality.

[*]Corresponding author.

Introduction:

Previous studies indicate the importance of building a strong brand image (Aaker, 1991)(Biel, 1992)(Keller, 1993), dimensions of the brand image constitute the competitive advantage that affects each of perceived quality of the consumer and contributes to the formation of satisfaction, trust, and loyalty. Some previous studies focused on product-related attributes in building of the brand image (Suh, 2009)(Anca & Roderick, 2007). The other stream of researchers focused on non-related attributes of the brand image as (Yoo & Donthu, 2000) work, which focused on the marketing mix elements in creating of the brand image. However, other researchers have turned to the psychological aspects of the brand through the dimensions of the brand personality as a major factor to brand image (Aaker & Jennifer, 1997)(Kim, 2000)(Wijaya, 2013),Theoretically; the majority of previous studies focused on the physical attributes of product to define the brand image, the other studies that dealt with the brand personality was not in direct relationship with perceived quality, and practically; there are few previous studies in the context of the Algerian consumer that dealt with brand image. Nor did it specify models to measure its determinantswith perceived quality link.

Our study starts from the main problematic,which is the research of how to find the elements to measure each of the psychological aspect and the perceived price that constitute the brand image and the measurements elements of the perceived quality in the context of Algerian consumers, The second part of the problematic is the extent to which these two main variables are related through the measurement elements of the study model, which in the end will give us an explanation of the most important psychological aspects related to the brand for the sport shoes consumers in Algeria.

1. The theoretical framework of the study.

Through the theoretical framework, we compare between the various theories and approaches of the brand image and perceived quality, which will help us define the dimensions of the applied study.

1.1. Brand Image (non-related attributes):

(Keller, 1993)defined the brand image "as perceptions about a brand as reflected by the brand associations held in consumer memory"

Keller 1993 Provide a classification of brand image for non-product related attributes through four dimensions (price/packaging/user imagery/ usage imagery),

(Korchia, 1999)Through the new typology of brand image, non-product related attributes classification included: product category; price; communication; distribution,

The evoked universeincluded: brand personality; life style; celebrities; users; usages, each of non-product related attributes and evoked universe stem from the brand associations.

Contrarily to Keller, packaging in (Korchia, 1999) is considered as product-related attribute, for example some products as perfumes, ties, cultural goods); it is a necessary ingredients for consumers. (Korchia, 1999) Consider brand personality as a lifestyle: human characteristics associated with the brand.

(Yoo & Donthu, 2000)Work focused on selected marketing mix elements as a non-product attributes (price; store image; distribution intensity; advertising spending; price deals) and the creation of brand equity.

(Wang & Tang, 2011)Experimented the non-product related attributes model of (Keller, 1993) and (Keller, 1998) through four dimensions (price; user image; usage image; brand personality) from its literature: associations of a typical usage situation may be based on time of day, week, or type of activity (formal or informal), among other aspects.

User imagery may result in a profile or mental image by consumers of actual users or more aspirational, idealized users (Keller, 2003) often prefer brands with images consistent with or closest to their own self-image (Sirgy, 1982)(Slama & Tashchian, 1985) consumers' self-image can be inferred from the brands they use. Their attitudes toward different brands and the meanings brands have for them. The perceptions consumers have of themselves influences their brand decisions. Consumers form favorable attitudes toward those products, which possess images most similar to the images they either prefer or wish of themselves. Consequently, they buy those products, which match their desired self-image; because those products help, consumers express themselves (Hong & Zinkhan, 1995). (Solomon & Somerlot, 1987) Also noted that consumers often purchase products that maintain and enhance their self-image.

(Zeithaml, 1988)Consider price as a quality indicator. This finding supported practically in (Yoo & Donthu, 2000), from the literature of (Cass & Lim, 2001) the importance of price as an association in brand image has been identified in a number of studies (Etgar & Malhotra, 1981)(Lichtenstein, et al., 1993). These studies indicated that U.S. consumers rely heavily on price as a cue to determining product quality and preferences.

1.2 Perceived quality:

The perceived quality definition in (Zeithaml, 1988) as "the consumer's [subjective] judgment about a product's overall excellence or superiority" (p. 3). (Yoo & Donthu, 2000) Consider the high-perceived quality as result of the long-term experience related to the brand. Moreover, provides an applied model to measure the perceived quality from the work of (Dodds & Monroe, 1991).

2. The experimental framework:

data were collected in December 2020, from some stores in Tiaret, a city located in the west of Algeria, sport shoes were chosen as a product category because these products has importance, especially among the young people, brands in these products are characterized by high knowledge, experience and familiarity. The questionnaire is divided into two parts. One section for the study items; in the brand section, we leave the participants the freedom to choose the brand they prefer, and the other part was dedicated for the personal information of customers, through the previous works. We selected five factors for brand image and six factors for perceived quality, which are shown in Table 03.We distributed250 questionnaires, while 208 valid questionnaires retrieved.

2.1 Descriptive analysis:

The demographic results showed that 65.4 of the sample are less than 30 years old; we focused on this age group because they most influenced by advertising messages by sports shoes brands. Moreover, they in the following categories in table 01.

Table (1): Age group table

Age	The ratio
Less 18	11.5%
18-25	33.2%
25-30	19.7%
More 30	35.6%

source : by the author, SPSS Software.

The rest of the demographic characteristics were as follows: 63.5 percent were male and 36.5 percent were female. The educational level in the following categories.

Table (2): The educational level categories.

educational level	The ratio
pre-secondary	7.7%
Secondary level	39.3%
University level	63%

source :by the author, SPSS Software.

2.2 Reliability indicators:

The reliability indicators from the most important factors that contribute to the presented results quality and to generalizing it for the total community of the sample, reliability indicator refers to the ability of the measurement model to produce the same results if the measurement repeated multiple times in the same circumstances.

We used the Alpha Cronbachindicator to find out the reliability of the measurement, we calculated the alpha coefficient for each factor, alpha lies between 0 and 1, the closer to 1, the more reliable of the scale. The recommended value is greater than 0.6, the alpha coefficient for the whole Questionnaire is 0.933

Table (3): Cronbach alpha coefficient for each factor.

Factors	Alpha Cronbachindicators
IMG1 : I feel proud of it	0.928
IMG2 : It is a proper price	0.940
IMG3 : It is related to my lifestyle	0.928
IMG4 : It give me confidence	0.926
IMG5 : It give me feeling of youth	0.927
QUA 1 : Brand X offers very good quality products	0.925
QUA 2 : Brand X offers products of consistent quality	0.928
QUA 3 : Brand X offers products with excellent features	0.923
QUA 4 : Brand X is Good brand name	0.924
QUA 5 : Brand X offers very reliable products	0.923
QUA 6 : Even after repeated use, this brand remains good	0.925

source :by the author, SPSS Software.

From the previous table, we find that all the factors are greater than 0.9; although the recommended value is 0.6, which indicates that the scale is very reliable.

2.3 Exploratory factor analysis:

After performing the exploratory factor analysis test by the vari max rotation, the results were identical to the assumed elements in the theoretical measurement model. Five elements for the brand image in the first variable and six elements for the perceived quality in the second variable. The Kaiser index (Kaiser, 1960) is 0.919, which indicating the good

quality of the measurement. In Table 4 we have each factor's representation ratio of the variables, the matrix to factors loadings of items.

**Table (4):the matrix to factors loadings of items andfactor's representation ratio.**

	VARIABLE 1 (brand image)	VARIABLE 2 (perceived quality)	Qualityof representation
	IMG1: 0.711		0.662
	IMG2: 0.742		0.555
	IMG3: 0.741		0.694
	IMG4: 0.766		0.759
	IMG5: 0.706		0.688
		QUA 1: 0.816	0.763
		QUA 2: 0.731	0.616
		QUA 3: 0.866	0.834
		QUA 4: 0.855	0.813
		QUA 5: 0.819	0.798
		QUA 6: 0.829	0.761
Latent root	4.705	3.239	
The variance ratio	42.772	29.444	

source :by the author, SPSS Software.

From the table N° 04; Brand image in the first variable with a variance ratio 42.772 and the perceived quality in the second variable with a variance ratio 29.444, the Latent root of each variable is not less than 1 according to Kaiser's test, where 2 factors were obtained that summarize about 72.216% of the total information. These finding represent a good percentage in the social sciences. The representation rate for all factors are more than 0.5, this indicates a good representation of these elements.

2.4 Confirmatory factor analysis:

Figure (1): the measurement model.
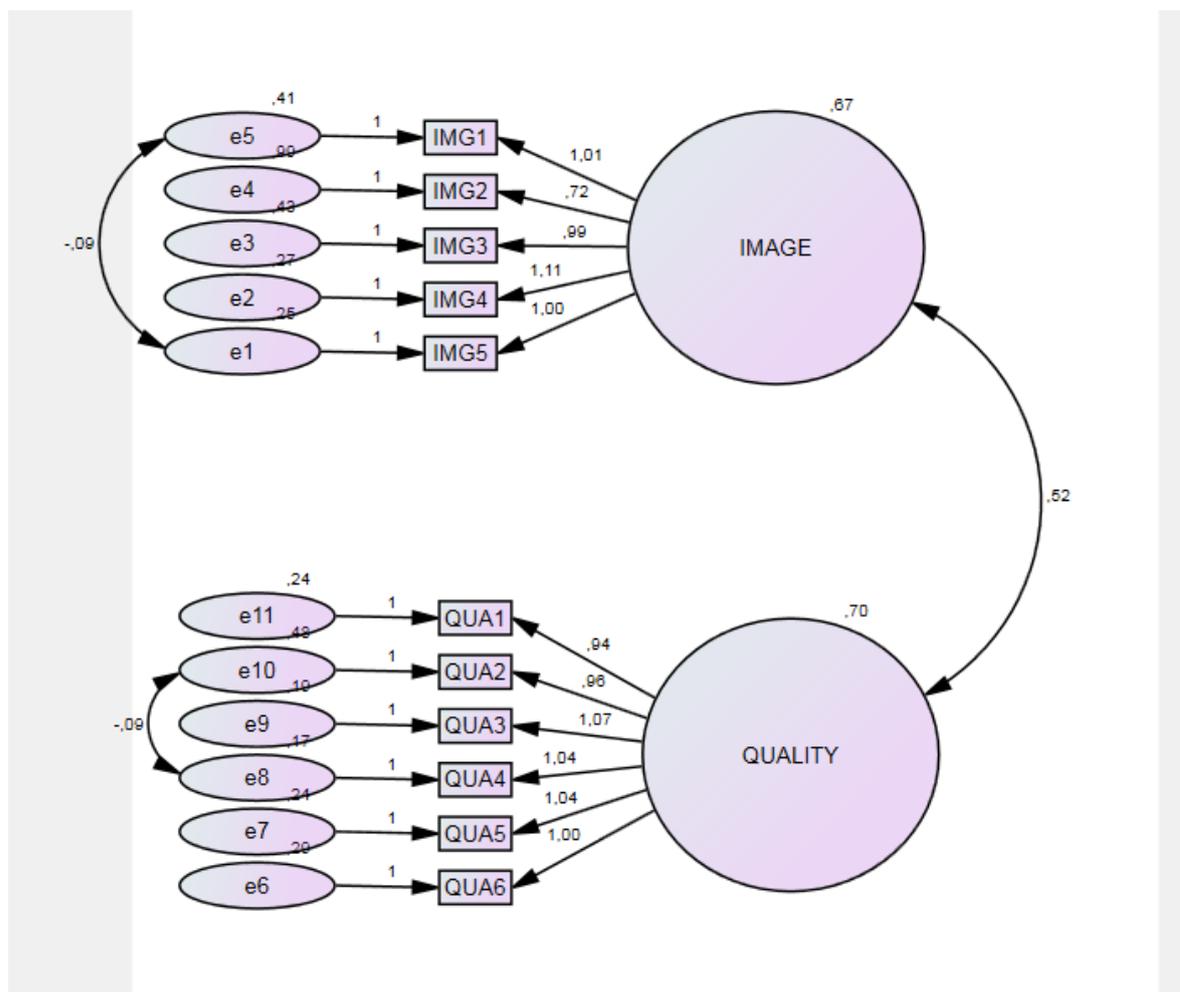
After confirming the factors through the exploratory factor analysis, we use the Amos software for confirmatory factor analysis in order to ensure the correctness of the measurement model.

Table (5): Fitting indicators of the measurement model.

the indicator	the test	Recommended value
CMIN / (DF)	2.089	less than 5.00
RMSEA	0.073	0.05 to 0.08
RMR	0.032	less than 0.08
GFI	0.935	more than 0.90
AGFI	0.895	more than 0.80
NFI	0.953	more than 0.95
CFI	0.975	more than 0.95
IFI	0.975	more than 0.95
TLI	0.966	more than 0.95

Through the seven values in the table, we find that the measurement model is acceptable, which confirms the strength of the relationship between the two variables:

Chi-Square Ratio X² / (df) : 2.089 (less than 5.00) The value of this indicator is affected by the size of the sample, if its value is less than 5 this indicating acceptance of the model, and other researchers argue that if its value is less than 3 and greater than 1, we can accept the model.

Root mean square (RMSEA): 0.073 (0.05 to 0.08) the model fit to the sample data.

Root mean square residual (RMR): 0.032 (less than 0.08).

Goodness of Fit Index (GFI): 0.935 (more than 0.90) the closer to 1 indicates More fit to the model with the sample data, whereas a value greater than 0.9 indicates a good fit.

Adjust Goodness of Fit Index (AGFI): 0.895 (more than 0.80) the closer to 1 indicates More fit to the model with the sample data, whereas a value greater than 0.8 indicates a good fit.

Normed Fit Index (NFI): 0.953 (more than 0.95): According to this value. The model is fit.

Comparative Fit Index (CFI): 0.975 greater than 0.95 indicates a good fit of the model.

Incremental Fit Index (IFI): 0.975 (more than 0.95) greater than 0.95 indicates a good fit of the model.

Tucker-Lewis Index (TLI): 0.966: (more than 0.95) greater than 0.95 indicates a good fit of the model.

Table (6): covariance matrix

			Estimate	S.E.	C.R.	P
Quality	<-->	image	0.519	0.070	7.454	***

source : by the author, AMOS Software.

Dividing the covariance estimate by the estimate of its standard error gives

$z = 0.519/0.070 = 7.454$.

In other words, the covariance estimate is 7,454 standard errors above zero

The probability of getting a critical ratio as large as 7,454 in absolute value is less than 0,001. In other words, the covariance between IMAGE and QUALITY is significantly different from zero at the 0,001 level (two-tailed).

These statements are approximately correct for large samples under suitable assumptions. (From Amos software).

Conclusion and Recommendations:

Through the previous results. We find that the brand image and perceived quality measurement is acceptable and is in line with previous studies from other societies, these factors evidenced in each of (Yoo & Donthu, 2000)(Tong & Hawley, 2009) and (del Rio, et al., 2001). The psychological aspects of brand image with perceived price have a direct relationship with the perceived quality; this is consistent with the proposition and hypotheses that answer the problematic questions, so that this result greatly contributes to establishing a basis for measuring these two variables in the Algerian consumer community in the sports shoes market, which will help future studies to build other models with opening the way for different hypotheses by adding other variables. The small size of the sample in our study and its concentration in one geographical area represents the most important limits of our study.

Through the results, we find that IMG 4 element"It give me confidence",is the most contributor in terms of factor loadings and in terms of the representation. Therefore, we find that the element of trust needs to be explained more through future research, and it can be as a variable in relationships in brands studies in this context, Alsowe find that QUA 3 "Brand X offers products with excellent features", and QUA 4 "Brand X is Good brand name" elements are the most contributory in the building of the perceived quality factor, Therefore, we recommend the future studies focus to the identifying of the most important attributes that consumers relate directly to the quality of each product, which is considered as a measure to of the strengths and weaknesses between different brands. The brand name is also considered as an expression of quality. So that the consumer associates the brand name directly with the perceived quality.

We also recommend that new experimentation studies should be done with a larger sample of these elements and testing them on different product categories in order to understand the purchasing behavior of the Algerian consumer.

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Appendices:

Appendix1:

Age

		Effectifs	Pourcentage	Pourcentagevalide	Pourcentagecumulé
Valide	Under 18	24	11,5	11,5	11,5
	From 18 to 25	69	33,2	33,2	44,7
	From 25 to 30	41	19,7	19,7	64,4
	more than 30	74	35,6	35,6	100,0
	Total	208	100,0	100,0	

Kind

		Effectifs	Pourcentage	Pourcentagevalide	Pourcentagecumulé
Valide	Male	132	63,5	63,5	63,5
	female	76	36,5	36,5	100,0
	Total	208	100,0	100,0	

Educational level

		Effectifs	Pourcentage	Pourcentagevalide	Pourcentagecumulé
Valide	Pre-secondary	16	7,7	7,7	7,7
	Secondary level	61	29,3	29,3	37,0
	University level	131	63,0	63,0	100,0
	Total	208	100,0	100,0	

Appendix 2:

Statistiques de fiabilité

Alpha de Cronbach	Nombred'éléments
,933	11

Statistiques de total des éléments

	Moyenne de l'échelle en cas de suppression d'un élément	Variance de l'échelle en cas de suppression d'un élément	Corrélation complète des éléments corrigés	Alpha de Cronbach en cas de suppression de l'élément
Feel proud of it	20,47	62,898	,704	,928
Proper price	20,12	65,929	,448	,940
Related to my lifestyle	20,46	62,887	,707	,928
Gives confidence	20,49	62,222	,753	,926
Give me feeling of youth	20,54	63,631	,726	,927
Brand X offers very good quality products	20,69	63,366	,781	,925
Brand X offers products of consistent quality	20,36	62,889	,691	,928
Brand X offers products with excellent features	20,50	61,932	,813	,923
Brand X is Good brand name	20,67	62,637	,795	,924
Brand X offers very reliable products	20,52	61,903	,815	,923
Even after repeated use this brand remains good.	20,52	62,656	,764	,925

Appendix 3:

Indice KMO et test de Bartlett

Mesure de précision de l'échantillonnage de Kaiser-Meyer-Olkin.		,919
Test de sphéricité de Bartlett	Khi-deuxapproximé	1770,794
	ddl	55
	Signification de Bartlett	,000

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Qualité de representation

	Initial	Extraction
Feel proud of it	1,000	,662
Proper price	1,000	,555
Related to my lifestyle	1,000	,694
Gives confidence	1,000	,759
Give me feeling of youth	1,000	,688
Brand X offers very good quality products	1,000	,763
Brand X offers products of consistent quality	1,000	,616
Brand X offers products with excellent features	1,000	,834
Brand X is Good brand name	1,000	,813
Brand X offers very reliable products	1,000	,798
Even after repeated use this brand remains good.	1,000	,761

Appendix 4:

Composante	Extraction Sommes des carrés des facteurs retenus	Somme des carrés des facteurs retenus pour la rotation		
	% cumulés	Total	% de la variance	% cumulés
1	61,641	4,705	42,772	42,772
2	72,216	3,239	29,444	72,216
3				
4				
5				
6				
7				
8				
9				
10				
11				

Appendix5:

Matrice des composantes après rotation[a]

	Composante	
	1	2
Feel proud of it		,711
Proper price		,742
Related to my lifestyle		,741
Gives confidence		,766
Give me feeling of youth		,706
Brand X offers very good quality products	,816	
Brand X offers products of consistent quality	,731	
Brand X offers products with excellent features	,866	
Brand X is Good brand name	,855	
Brand X offers very reliable products	,819	
Even after repeated use this brand remains good.	,829	

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