A MATHEMATICAL MODEL FOR IDENTIFYING THE INFLUENTIAL FACTORS ON BRAND KNOWLEDGE

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ABSTRACT
The present paper provided a mathematical model for distinguishing effective factors on brand knowledge in terms of consumers' viewpoints about the branches of Sepah Bank in Tabriz, Iran. In this study the factors affecting brand knowledge in banking industry have been investigated. The extent of their effects on the relations between predictor variables and criterion variables were also determined. Descriptive-analytical method was used in this study. The population of the research is all the clients of Tabriz Sepah bank's branches. For initial statistical computations, SPSS was used. Independent T-test, ANOVA, and multiple regressions in a stepwise manner are statistical computations used in this study. Results show that, in terms of consumers' viewpoints, factors such as judgments, brand salience, brand performance, feelings, innovation, and resonance influence brand knowledge. Eventually, a mathematical model for distinguishing effective factors on brand knowledge from consumers' viewpoints is provided.
KEY WORDS: Brand Knowledge, Brand Equity, Banking, Brand Salience, Innovation, Resonance.

INTRODUCTION

A brand is the most important property of a company in international businesses. One of the important factors that lead to success in consumption business is high brand knowledge which is accessible through high level of brand knowledge (Alimen and Cerit, 2009). In order to answer the question," What is a brand? ", an initial definition of the term, "brand" is needed. This question has a variety of answers, depending on what your perspective is. Our preference is to take the familiar view of a brand as part of our lives. The obvious value of brands is their ability to translate reputation and loyalty among their users into long-lived and reliable profit streams. Thus, the importance of these brands and the power of their equity make it vital to understand how they work, what makes them tick, and what you can and cannot do with them. As Geoffrey Randall puts it, "Brands are so fundamental to the survival or success of many firms that we need to understand them in all their subtleties and complexities, so that we can manage them correctly." (Randall, 1997).

Our experience of running brands, both big and small, shows the enormous value of deep insightful brand knowledge. This is founded on a continuous dialogue with users, leading to real understanding of the product or service, and a refusal to accept received wisdom as state-of-the-art knowledge. Our view relates not only to the explicit knowledge that arises from data interpretation, internal systems and processes, but more specifically to the tacit knowledge about a brand that is tucked away and usually not shared, because it is too hard to communicate. Knowledge, then, is the essence of what a brand represents, how it can achieve competitive advantage and ultimately significant value for a business. Brands are, quintessentially, knowledge (Foster and Morgan, 1998). Brand knowledge that is formed by marketing activities clarifies the direction of suitable and unsuitable movements for brand future. Consumers decide on the basis of their beliefs and attitudes towards brands. Thus, actual value and future value of a brand depend on consumers and their brand knowledge. Brand knowledge is a key factor in creating special value of a brand, because it influences especial value of a brand by creating recognition. So, what marketers require is a method based on studies and insights about consumers in order to indicate how brand knowledge has been embodied in consumers' minds and influenced their choices. Brand knowledge can be considered as a set of ties in the mind which is related with a collection of mental associations (Keller, 1389). The present paper aims at providing a mathematical model for distinguishing the factors affecting brand knowledge in terms of consumers' viewpoints in the branches of Sepah Bank' in Tabriz (Iran). In this research influential factors on brand knowledge in banking industry have been investigated. The intensity of these factors has also been explained in relations between predictor and criterion variables. Finally, a mathematical model for distinguishing factors affecting brand knowledge in terms of consumers' viewpoints has been provided.

Theoretical Foundations of the Research
Brand Knowledge
Kaplan (2007) mentions that "a brand's overall value demonstrates its equity". According to Aaker (1996) brand equity is "a set of brand assets and liabilities linked to a brand, its name and symbol, that add to or subtract from the value provided by a product to a firm, or to a firm's customers It comprises brand related notions as brand awareness and

brand image, which compose brand knowledge and directly affect consumer responses (Keller, 1993). Brand helps to differentiate one service or product from the others (Kotler and Keller, 2009) and "embodies every undertaking of the company and represents it to the world as a hologram, plays a part in the formation of relationships, and expresses and contributes to group affiliation" (Sherry, 2005, 46). For firms, brands are the markers of their offerings and signs of quality, risk, and trust for consumers (Keller and Lehmann, 2005). Knowledge is an outcome of apprehension and information within a particular context. Probst et al (2001) described knowledge as "…the whole body of cognitions and skills that individuals use in order to solve problems…". Knowledge, which enables an individual or organization to appraise and aggregate new ideas and information, is more than a collection of experiences and values (Davenport and Prusack, 1998). Knowledge can also be regarded as the accumulation and cultivation of information and data over time (Leonard-Barton, 1995). Correlating diverse information, such as awareness, attributes, benefits, images, thoughts, feelings, attitudes, and experiences to a brand constitutes brand knowledge (Keller, 2003). Brand knowledge is based upon a constant communication with consumers that elicits real comprehension of the product or service (Richards et al., 1998). Keller (2003) defined consumer brand knowledge as all descriptive and evaluative brand-related information, which is individualistic inference about a brand stored in consumer's memory.

Factors Affecting Brand Knowledge

1. Brand awareness: Creating an appropriate identity for a brand means creating brand salience in consumers' minds. It is an index which measures the amount of brand awareness. Breadth and depth of brand awareness is an index which measures the possibility of recalling one of the brand factors and its easiness for consumers. In other words, awareness of brands which can be recalled easily is deeper. Breadth of brand awareness is, also, an index which measures the range of purchase occasions or uses in which brand factors are recalled. This index mostly depends on the organization of a brand or product information in a person's mind (Keller, 2010). Brand awareness is "the ability of a potential buyer to recognize or recall that a brand is a member of a certain product category" (Aaker, 1991). It is associated to the strength of brand clew in memory that enables consumers to ascertain the brand under dissimilar conditions (Rossiter and Percy, 1987). Brand awareness is the extent of the presence of a brand the consumers' minds (Ross, 2006). Ross (2006) proposed that experience-induced antecedents do have an impact on brand awareness, and that impact is indicated through direct relationship within the framework. Keller (1993) classifies brand awareness into ''brand recognition'' and ''brand recall'' (Figure 1). Brand recognition relates to consumers' ability to confirm prior exposure to the brand when given the brand as a cue. Brand recall relates to consumers' ability to retrieve the brand when given the product category, the needs fulfilled by the category, or some other types of probes as cues (Keller, 1993). Keller (1993) classifies brand awareness into ''brand recognition'' and ''brand recall''. Brand recognition deals with consumers' ability to confirm prior exposure to the brand when given the brand as a cue. Brand recall deals with the consumers' ability to retrieve the brand when given the product category, the needs fulfilled by the category, or some other type of probes as cues (Keller, 1993).

2. Performance of Brand: Brands with high quality can have a better financial performance than others and, they can provide investors with more output. Brand performance index explains extent to which a product or service can satisfy consumers' performance needs. Brand performance goes beyond product properties and encompasses aspects which bring about brand recognition. Brand position mostly depends on achieving performance advantages (Keller, 2010).

3. Judgments: Judgments towards a brand include: the consumers' personal ideas and their evaluations about a brand which are embodied by juxtaposing all of the performances, perceptions, and mental images of that brand. Consumers may have different judgments about a brand, but four types of judgments are more important than the others including judgment about quality and reliabilities well as speculation about a brand and its superiority (Keller, 2010).

4. Feelings: It is what people believe about a brand-their thoughts, feelings, and expectations (Kotler and Keller, 2009). Feelings towards a brand are responses and exciting and emotional consumer reactions to a brand. Feelings towards a brand are, also, related with a series of social events created by the effect of a brand. These feelings can be severe or mild and negative or positive. Excitement which is generated in people by the effect of a brand can create strong and consistent mental associations during the use time of a product (Keller, 2010).

5. Resonance: Resonance is an index which shows the intensity or depth of mental closeness with a brand and the range of activities that are induced by the effect of the resulting loyalty in consumers. Resonance with a brand and the relationships between the brands and consumers has two main dimensions: intensity and dynamicity. Intensity index measures the power of attitude dependency and sense of belongingness to a forum among the consumers of a brand. Dynamicity index indicates that how many times a consumer buys or consumes a brand and to what extent commits herself to join in other activities related to the brand (beyond purchase and consumption) (Keller, 2010).

6. Innovation: Innovation is an idea, activity or product which is identified as new by a person and the concerned groups. Innovation of services is determined by the approach to potential markets approach. Innovativeness is a kind of innovative behavior. It is a stage at which a person accepts innovation and inventions earlier than the other members of that system (Eshkan Najad, 2010).

LITERATURE REVIEW

Alimen and Cerit (2009) in a research entitled "Dimensions of brand knowledge: A case of Turkish university students' consumption of international brands". Brand has been considered and studied by many scholars, as one of the most important assets of a company. Brand knowledge, which comprises brand awareness and brand image, is the consumer side of brand. The purpose of this study is to reveal the brand knowledge of nine fashion brands which are largely consumed in Turkey. An exploratory study is performed among university students of different departments and the results are compared in terms of the departments, gender of the students and the frequency of use of these brands. In conclusion, it is suggested that students belonging to the departments that are more involved with fashion and female consumers have deeper brand knowledge. Gupta et al ., (2010) in a research entitled "Transfer of brand knowledge in business-to-business markets: a qualitative study" present the a one-to-one correspondence approach for branding in business-to-business markets. With qualitative evidence, the paper seeks to clarify the links between branding, relationship marketing and purchase intention of resellers and to discuss the contribution of brand shown as brand representatives to the brand knowledge of resellers. The aim of this paper is to understand how this transfer of knowledge by brand as representatives of the brand is reflected in the selection process of brand for resale by resellers. The theory is used to develop a testable model. Information from the field was gathered through 12 in-depth interviews of brand managers of international IT brands. These interviews helped to give a deeper insight into the topic and contributed to the categorization of different themes to be developed into constructs. Components that emerged from the interviews were from different disciplines and were useful in making links between these disciplines. Interviewees associated the role of brand personified (as brand representative) as a conduit between brand and resellers. Given the findings, when personified as a human, brand can be used to manage reseller relationships in a business-to-business network. The brand personified with its metaphorical properties enables the resellers not only to clearly understand brand-related information but also to make positive evaluations about the brand. Empirical research would be helpful to establish the indices of brand personification and to enhance the understanding of it. The study will be useful for senior managers of brands operating in competitive and complex business-to-business networks. It will enable them to use the categories and components to ensure that their brand is the preferred one for resellers operating in the network. The approach will be helpful in linking different functions of the organization to measure the contribution made by employees representing the brand to resellers in competitive markets by imparting knowledge about the brand to resellers. (Fig.1).
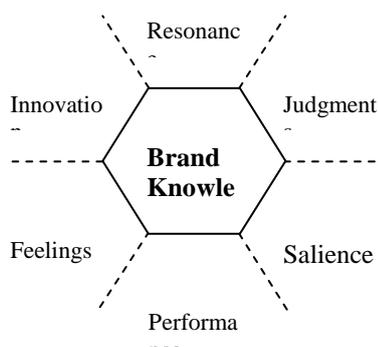
Figure 1. The theoretical framework of research

Research Hypotheses

The present study has formulated the following hypotheses:
1. There is a difference between consumers' genders and brand knowledge and its dimensions.
2. There is a difference between consumers' jobs and brand knowledge and its dimensions.
3. There is a difference between consumers' incomes and brand knowledge and its dimensions.
4. There is a difference between consumers' marital status and brand knowledge and its dimensions.
5. There is a difference between consumers' education and brand knowledge and its dimensions.
6. There is a correlation between brand knowledge and (brand salience, brand performance, intellectual imagery of brand, judgments, feelings, resonance, quality perception, risk perception, innovation, anxiety, consumer associations, and functional image).
7. The factors affecting brand knowledge are brand salience, brand performance, intellectual imagery of brand, judgments, feelings, resonance, quality perception, risk perception, innovation, anxiety, consumer's associations, and functional imagery.

MATERIALS AND METHODS

Descriptive-analytical research method is used. The statistical population of the study includes customers of the branches of Sepah Bank in Tabriz (Iran). Data collection tools consist of interview, observation and researcher-made questionnaire. The validity of the questions in the questionnaire has been confirmed through content validity. In order to compute reliability, according to table 1, it is observed that Cronbach's alpha coefficient value for questions of brand knowledge, brand salience, brand performance, mental picture of brand, judgments, feelings, resonance, quality perception, risk perception, innovation, anxiety, customer's association and functional imagery are respectively 0.8897, 0.7929, 0.8211, 0.8327, 0.9016, 0.8760, 0.8964, 0.8024, 0.8755, 0.7635, 0.8443, 0.9109 and 0.8799. So, all computed structures have a high reliability.

Table 1. Reliability of related questions to computed structures

Structure's name	N	Mean	Variance	Covariance	Correlation	α Coefficient
Brand Knowledge	9	3.6762	0.9791	0.4628	0.4717	0.8897
Salience	5	3.7750	0.8831	0.3829	0.4434	0.7929
Performance	5	3.7776	0.9651	0.4619	0.4819	0.8211
Intellectual imagery	5	3.6880	0.9583	0.4780	0.5005	0.8327
Judgments	7	3.6689	0.8636	0.4895	0.5669	0.9016
Feelings	5	3.7500	0.9873	0.5780	0.5856	0.8760
Resonance	7	3.7537	0.9540	0.5272	0.5544	0.8964
Quality perception	4	3.8411	0.8777	0.4422	0.5050	0.8024
Risk perception	4	3.8073	0.8253	0.5260	0.6374	0.8755
Innovation	4	3.8939	0.8520	0.3805	0.4605	0.7635
anxiety	4	3.7715	0.9705	0.5586	0.5742	0.8443
association	8	3.7152	0.9736	0.5462	0.5610	0.9109
Functional imagery	6	3.8598	0.9604	0.5280	0.5486	0.8799

RESULTS AND DISCUSSION

Data analysis

Descriptive and inferential statistics along with SPSS software have been used to test the hypotheses of the study.

Statistical dispersion

According to table 2, statistical dispersion of brand knowledge and effective factors have been obtained. In fact, the coefficient of brand knowledge and effective factors represent a negative slope in terms of customers' viewpoints. In addition, based on table 3, it is observed that the mean of customers' ages is 12.33 and SD (standard deviation) is obtained as 10.78; so the minimum and maximum ages are respectively 14 and 94. In fact, the slope coefficient equals to 1.49 (SK=1.49).

Table 2. Statistical dispersion of brand knowledge and effective factors on it

Frequency	N	Mean	Std. Deviation	Variance	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Minimum	Maximum
Salience	384	69.37	17.37	301.82	-0.59	0.125	0.375	0.248	15	100
Performance	384	66.44	18.75	351.57	-0.66	0.125	0.297	0.248	0	100
Intellectual imagery	384	67.201	18.94	358.78	-0.45	0.125	0.007	0.248	0	100
Judgments	384	66.723	18.42	339.33	-0.63	0.125	0.529	0.248	0	100
Feelings	384	68.750	20.30	412.40	-0.92	0.125	1.214	0.248	0	100
Resonance	384	68.843	19.17	367.62	-0.78	0.125	0.756	0.248	0	100
Quality perception	384	71.02	18.55	344.41	-0.81	0.125	1.060	0.248	0	100
Risk perception	384	70.182	19.37	375.51	-0.91	0.125	1.105	0.248	0	100
Innovation	384	72.347	17.64	311.46	-0.83	0.125	1.099	0.248	0	100
Anxiety	384	69.287	20.33	413.48	-1.04	0.125	0.97	0.248	0	100
Association	384	67.879	19.35	374.74	-0.802	0.125	0.563	0.248	0	100
Functional imagery	384	71.495	19.36	375.02	-0.903	0.125	0.894	0.248	0	100

Table 3. Statistical dispersion of customers' ages

	N	Mean	Std. Deviation	Variance	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Minimum	Maximum
Age	381	33.120	10.780	116.260	1.492	0.125	3.910	0.249	14	94

Correlation between brand knowledge and factors affecting it

Based on data obtained from table 4, it is observed that Pearson product coefficient (P- value) between brand knowledge and each of effective factors on it, is achieved to be meaningful (P=0.000). Since significance level is less than 0.05, there is a meaningful and direct correlation between brand knowledge questions and all mentioned factors (P-value<0.05).

Table 4. Correlation between brand knowledge and effective factors on it

Independent Variables	N	r	P	Dependent variable
Salience	384	0.778	0.000	Brand Knowledge
Performance	384	0.785	0.000	Brand Knowledge
Intellectual Imagery	384	0.743	0.000	Brand Knowledge
Judgments	384	0.805	0.000	Brand Knowledge
Feelings	384	0.752	0.000	Brand Knowledge
Resonance	384	0.753	0.000	Brand Knowledge
Quality Perception	384	0.647	0.000	Brand Knowledge
Risk Perception	384	0.673	0.000	Brand Knowledge
Innovation	384	0.576	0.000	Brand Knowledge
Anxiety	384	0.696	0.000	Brand Knowledge
Association	384	0.744	0.000	Brand Knowledge
Functional Imagery	384	0.644	0.000	Brand Knowledge

Comparing the components of job-based brand knowledge in customers' views

Based on Tables 5and 6, and according to conducted ANOVA test, it is observed that none of components of brand knowledge is meaningful, if based on job customers' views; because the significance level is more than 0.05 (P-value>0.05).

Table 5. Computing components of job-based brand knowledge, in customers' views (Descriptive)

		N	Mean	Std. Deviation	Std. Error
Brand Knowledge	collegiate/cultural	31	67.3835	17.06270	3.06455
	medic/engineer	37	59.6847	22.61063	3.71716
	employee/ worker	105	67.7249	16.77927	1.63749
	businessman	110	67.0960	18.56420	1.77003
	student	53	68.7107	17.98681	2.47068
	unemployed	18	63.7346	17.42481	4.10707
	other	30	70.4630	14.15423	2.58420
	Total	384	66.9054	18.03122	.92015
Salience	collegiate/cultural	31	69.1935	17.98596	3.23037
	medic/engineer	37	65.4054	19.23460	3.16215
	employee/ worker	105	69.4762	17.37488	1.69561
	businessman	110	71.3182	16.62701	1.58532
	student	53	68.7736	17.91823	2.46126
	unemployed	18	62.2222	21.91039	5.16433
	other	30	72.3333	11.72481	2.14065
	Total	384	69.3750	17.37319	.88657

Table 5. (Continued….)

		N	Mean	Std. Deviation	Std. Error
Performance	collegiate/cultural	31	70.3226	18.66081	3.35158
	medic/engineer	37	63.9189	21.28299	3.49890
	employee/ worker	105	69.0000	18.76474	1.83125
	businessman	110	68.7727	18.66147	1.77930
	student	53	70.9434	19.11646	2.62585
	unemployed	18	67.2222	19.34381	4.55938
	other	30	78.0000	12.21926	2.23092
	Total	384	69.4401	18.75043	.95685
Intellectual imagery	collegiate/cultural	31	66.9355	20.31737	3.64911
	medic/engineer	37	62.4324	21.65454	3.55998
	employee/ worker	105	67.1905	19.11408	1.86534
	businessman	110	67.2727	18.20672	1.73594
	student	53	66.9811	20.34178	2.79416
	unemployed	18	67.7778	16.82280	3.96517
	other	30	73.1667	14.11061	2.57623
	Total	384	67.2005	18.94168	.96661
Judgments	collegiate/cultural	31	68.8940	19.56573	3.51411
	medic/engineer	37	61.2934	21.22111	3.48873
	employee/ worker	105	67.2449	17.66696	1.72412
	businessman	110	65.8766	19.42095	1.85172
	student	53	67.0485	17.25128	2.36965
	unemployed	18	66.8651	18.44843	4.34834
	other	30	71.7857	13.53801	2.47169
	Total	384	66.7225	18.42101	.94004
Feelings	collegiate/cultural	31	67.5806	25.29397	4.54293
	medic/engineer	37	65.8108	20.93354	3.44145
	employee/ worker	105	69.2381	20.51947	2.00249
	businessman	110	68.9545	19.16964	1.82775
	student	53	69.6226	19.80309	2.72016
	unemployed	18	65.5556	24.12522	5.68637
	other	30	71.5000	16.61688	3.03381
	Total	384	68.7500	20.30769	1.03632
Resonance	collegiate/cultural	31	67.7419	20.50560	3.68291
	medic/engineer	37	66.9884	21.25267	3.49392
	employee/ worker	105	67.9932	18.98837	1.85308
	businessman	110	69.3506	19.39560	1.84930
	student	53	68.7332	19.90837	2.73462
	unemployed	18	66.4683	19.29656	4.54824
	other	30	75.0000	13.09710	2.39119
	Total	384	68.8430	19.17354	.97845
Quality perception	collegiate/cultural	31	71.1694	23.19962	4.16678
	medic/engineer	37	69.4257	23.00097	3.78134
	employee/ worker	105	70.1786	18.51327	1.80671
	businessman	110	70.2273	17.20357	1.64030
	student	53	73.7028	17.94584	2.46505
	unemployed	18	66.6667	18.81117	4.43384
	other	30	76.6667	11.94155	2.18022
	Total	384	71.0286	18.55853	.94706

Table 5. (Continued….)

		N	Mean	Std. Deviation	Std. Error
Risk perception	collegiate/cultural	31	67.3387	21.81299	3.91773
	medic/engineer	37	68.5811	22.36488	3.67676
	employee/ worker	105	68.6905	18.89955	1.84441
	businessman	110	70.8523	19.91376	1.89870
	student	53	74.1745	16.89714	2.32100
	unemployed	18	64.2361	24.14014	5.68988
	other	30	74.3750	11.41285	2.08369
	Total	384	70.1823	19.37817	.98889
Innovation	collegiate/cultural	31	70.1613	20.77344	3.73102
	medic/engineer	37	69.4257	20.71758	3.40595
	employee/ worker	105	73.0357	16.31446	1.59213
	businessman	110	74.6023	18.66912	1.78003
	student	53	69.5755	16.67337	2.29026
	unemployed	18	71.8750	13.43044	3.16559
	other	30	72.7083	14.63302	2.67161
	Total	384	72.3470	17.64825	.90061
Anxiety	collegiate/cultural	31	68.1452	23.29358	4.18365
	medic/engineer	37	67.9054	22.82948	3.75314
	employee/ worker	105	69.5238	18.48156	1.80362
	businessman	110	69.1477	21.43901	2.04413
	student	53	69.5755	22.06435	3.03077
	unemployed	18	63.8889	19.82872	4.67367
	other	30	74.5833	12.05382	2.20072
	Total	384	69.2871	20.33440	1.03769
Association	collegiate/cultural	31	69.3548	20.24298	3.63575
	medic/engineer	37	63.0068	22.22578	3.65390
	employee/ worker	105	68.6012	18.42355	1.79795
	businessman	110	67.1875	20.43618	1.94851
	student	53	68.0425	19.41568	2.66695
	unemployed	18	66.4931	17.73625	4.18047
	other	30	72.9167	14.17480	2.58795
	Total	384	67.8792	19.35832	.98788
Functional imagery	collegiate/cultural	31	72.1774	23.57973	4.23504
	medic/engineer	37	69.1441	19.43103	3.19444
	employee/ worker	105	71.7063	20.28687	1.97980
	businessman	110	70.1136	19.37856	1.84767
	student	53	74.9214	16.93475	2.32617
	unemployed	18	66.2037	17.84378	4.20582
	other	30	75.1389	15.91266	2.90524
	Total	384	71.4952	19.36551	.98824

Table 6.Comparing the components of job-based brand knowledge, in customers' view (ANOVA)

		Sum of Squares	df	Mean Square	F	Sig.
Brand knowledge	Between Groups	2744.118	6	457.353	1.416	.207
	Within Groups	121778.753	377	323.021		
	Total	124522.871	383			
Salience	Between Groups	2203.127	6	367.188	1.221	.295
	Within Groups	113396.873	377	300.787		
	Total	115600.000	383			
Performance	Between Groups	3627.832	6	604.639	1.740	.111
	Within Groups	131026.790	377	347.551		
	Total	134654.622	383			
Intellectual imagery	Between Groups	1920.340	6	320.057	.891	.502
	Within Groups	135495.220	377	359.404		
	Total	137415.560	383			
Judgments	Between Groups	2119.188	6	353.198	1.042	.398
	Within Groups	127845.603	377	339.113		
	Total	129964.791	383			
Feelings	Between Groups	842.558	6	140.426	.337	.917
	Within Groups	157107.442	377	416.731		
	Total	157950.000	383			
Resonance	Between Groups	1508.427	6	251.404	.680	.666
	Within Groups	139291.823	377	369.474		
	Total	140800.250	383			
Quality perception	Between Groups	1917.322	6	319.554	.927	.476
	Within Groups	129995.113	377	344.815		
	Total	131912.435	383			
Risk perception	Between Groups	2637.086	6	439.514	1.174	.320
	Within Groups	141184.529	377	374.495		
	Total	143821.615	383			
Innovation	Between Groups	1488.192	6	248.032	.794	.575
	Within Groups	117801.257	377	312.470		
	Total	119289.449	383			
Anxiety	Between Groups	1489.523	6	248.254	.597	.733
	Within Groups	156876.261	377	416.117		
	Total	158365.784	383			
Association	Between Groups	1850.551	6	308.425	.821	.554
	Within Groups	141676.645	377	375.800		
	Total	143527.196	383			
Functional imagery	Between Groups	1958.030	6	326.338	.868	.518
	Within Groups	141675.822	377	375.798		
	Total	143633.852	383			

Comparing the components of brand knowledge based on education level in customers' views

Based on table 7 and table 8, and according to the results of ANOVA , it is observed that nine component of brand knowledge is meaningful based on education level, in customers' views; at a significance level of more than 0.05 (P-value>0.05).

Table7. Comparing the components of brand knowledge based on educational level, in customers' views (Descriptive)

		N	Mean	Std. Deviation	Std. Error
Brand knowledge	under diploma	30	70.3704	17.17509	3.13573
	diploma	99	66.2738	18.49824	1.85914
	upon diploma	62	66.0842	18.19174	2.31035
	bachelor	139	68.1855	17.46678	1.48151
	upon bachelor and higher	54	63.7860	18.90894	2.57318
	Total	384	66.9054	18.03122	.92015
Salience	under diploma	30	75.8333	20.38776	3.72228
	diploma	99	68.3333	18.16871	1.82602
	upon diploma	62	71.9355	15.58569	1.97938
	bachelor	139	69.1367	15.97017	1.35457
	upon bachelor and higher	54	65.3704	18.70455	2.54537
	Total	384	69.3750	17.37319	.88657
Performance	under diploma	30	73.5000	21.82019	3.98380
	diploma	99	69.2929	18.07030	1.81613
	upon diploma	62	70.7258	18.87940	2.39769
	bachelor	139	69.6403	17.75069	1.50559
	upon bachelor and higher	54	65.4630	20.44940	2.78281
	Total	384	69.4401	18.75043	.95685
Intellectual imagery	under diploma	30	73.3333	19.84132	3.62251
	diploma	99	66.9192	17.86724	1.79573
	upon diploma	62	65.5645	16.29907	2.06998
	bachelor	139	68.2734	19.49277	1.65336
	upon bachelor and higher	54	63.4259	21.20929	2.88622
	Total	384	67.2005	18.94168	.96661

Table 7. Continued…

		N	Mean	Std. Deviation	Std. Error
Judgments	under diploma	30	72.8571	18.88891	3.44863
	diploma	99	66.0173	18.91450	1.90098
	upon diploma	62	65.3226	16.41593	2.08483
	bachelor	139	67.5231	18.34173	1.55573
	upon bachelor and higher	54	64.1534	19.40046	2.64007
	Total	384	66.7225	18.42101	.94004
Feelings	under diploma	30	68.0000	25.17525	4.59635
	diploma	99	67.0202	20.75021	2.08547
	upon diploma	62	68.3065	17.83218	2.26469
	bachelor	139	70.4676	19.41063	1.64639
	upon bachelor and higher	54	68.4259	21.82313	2.96975
	Total	384	68.7500	20.30769	1.03632
Resonance	under diploma	30	70.1190	21.98544	4.01397
	diploma	99	67.6407	20.09206	2.01933
	upon diploma	62	70.3917	17.80892	2.26173
	bachelor	139	68.7564	18.83499	1.59756
	upon bachelor and higher	54	68.7831	18.72147	2.54767
	Total	384	68.8430	19.17354	.97845
Quality perception	under diploma	30	71.8750	21.57273	3.93862
	diploma	99	68.6869	18.13390	1.82253
	upon diploma	62	71.5726	17.59333	2.23436
	bachelor	139	71.9424	17.61940	1.49446
	upon bachelor and higher	54	71.8750	21.15998	2.87951
	Total	384	71.0286	18.55853	.94706
Risk perception	under diploma	30	71.6667	23.13830	4.22446
	diploma	99	68.3081	19.52588	1.96242
	upon diploma	62	71.7742	17.48616	2.22074
	bachelor	139	70.7734	17.69713	1.50105
	upon bachelor and higher	54	69.4444	23.15308	3.15074
	Total	384	70.1823	19.37817	.98889
Innovation	under diploma	30	76.4583	17.50026	3.19510
	diploma	99	71.3384	18.72894	1.88233
	upon diploma	62	73.6895	16.71456	2.12275
	bachelor	139	72.2572	16.22691	1.37635
	upon bachelor and higher	54	70.6019	20.26613	2.75787
	Total	384	72.3470	17.64825	.90061
Anxiety	under diploma	30	70.6250	21.28357	3.88583
	diploma	99	67.7399	18.89204	1.89872
	upon diploma	62	69.7581	17.90062	2.27338
	bachelor	139	69.2446	21.65148	1.83645
	upon bachelor and higher	54	70.9491	21.96016	2.98840
	Total	384	69.2871	20.33440	1.03769
Association	under diploma	30	73.3333	19.77673	3.61072
	diploma	99	67.5189	18.74372	1.88381
	upon diploma	62	69.9093	15.34309	1.94857
	bachelor	139	67.0414	20.72967	1.75827
	upon bachelor and higher	54	65.3356	20.59754	2.80297
	Total	384	67.8792	19.35832	.98788
Functional imagery	under diploma	30	77.2222	21.29470	3.88786
	diploma	99	69.0657	20.91896	2.10244
	upon diploma	62	70.4973	17.10986	2.17295
	bachelor	139	73.1415	18.94307	1.60673
	upon bachelor and higher	54	69.6759	18.44692	2.51031
	Total	384	71.4952	19.36551	.98824

Table 8.Comparing the components of brand knowledge based on education, in customers' views (ANOVA)

		Sum of Squares	df	Mean Square	F	Sig.
Brand knowledge	Between Groups	1194.684	4	298.671	.918	.453
	Within Groups	123328.187	379	325.404		
	Total	124522.871	383			
Salience	Between Groups	2639.096	4	659.774	2.214	.067
	Within Groups	112960.904	379	298.050		
	Total	115600.000	383			
Performance	Between Groups	1458.838	4	364.710	1.038	.387
	Within Groups	133195.784	379	351.440		
	Total	134654.622	383			
Intellectual imagery	Between Groups	2231.483	4	557.871	1.564	.183
	Within Groups	135184.077	379	356.686		
	Total	137415.560	383			
Judgments	Between Groups	1745.255	4	436.314	1.290	.273
	Within Groups	128219.535	379	338.310		
	Total	129964.791	383			
Feelings	Between Groups	741.055	4	185.264	.447	.775
	Within Groups	157208.945	379	414.799		
	Total	157950.000	383			
Resonance	Between Groups	341.900	4	85.475	.231	.921
	Within Groups	140458.350	379	370.603		
	Total	140800.250	383			
Quality perception	Between Groups	737.492	4	184.373	.533	.712
	Within Groups	131174.943	379	346.108		
	Total	131912.435	383			
Risk perception	Between Groups	648.936	4	162.234	.429	.787
	Within Groups	143172.679	379	377.764		
	Total	143821.615	383			
Innovation	Between Groups	885.131	4	221.283	.708	.587
	Within Groups	118404.318	379	312.412		
	Total	119289.449	383			
Anxiety	Between Groups	453.848	4	113.462	.272	.896
	Within Groups	157911.936	379	416.654		
	Total	158365.784	383			
Association	Between Groups	1607.725	4	401.931	1.073	.369
	Within Groups	141919.471	379	374.458		
	Total	143527.196	383			
Functional imagery	Between Groups	2185.520	4	546.380	1.464	.212
	Within Groups	141448.332	379	373.215		
	Total	143633.852	383			

Comparing components of brand knowledge based on marital status, in terms of customers' viewpoints

Based on tables 9and10, and according to conducted T-test, it is observed that none of components of brand knowledge is meaningful based on marital status, in terms of customers' viewpoints; because significance level is more than 0.05 (P-value>0.05).

Table 9. Comparing the components of brand knowledge based on marital status customers' views (Group Statistics)

	Marital status	N	Mean	Std. Deviation	Std. Error Mean	t	df	p
Knowledge brand	single	140	67.0437	17.04608	1.44066	0.039	377	0.969
	married	239	66.9689	18.75458	1.21313			
Salience	single	140	68.5714	18.07544	1.52765	-0.702	377	0.483
	married	239	69.8745	17.05111	1.10294			
Performance	Single	140	69.5714	18.03759	1.52445	0.089	377	0.929
	married	239	69.3933	19.32550	1.25006			
Intellectual imagery	Single	140	67.5714	18.54884	1.56766	0.257	377	0.798
	married	239	67.0502	19.38068	1.25363			
Judgments	Single	140	66.6582	16.77672	1.41789	-0.138	377	0.890
	married	239	66.9307	19.49554	1.26106			
Feelings	single	140	68.8214	18.47233	1.56120	0.016	377	0.987
	married	239	68.7866	21.53735	1.39314			
Resonance	single	140	69.1582	19.35027	1.63540	0.197	377	0.844
	married	239	68.7537	19.25353	1.24541			
Quality perception	single	140	72.8571	17.22307	1.45562	1.471	377	0.142
	married	239	69.9529	19.28996	1.24776			
Risk perception	single	140	70.3571	19.16318	1.61958	0.056	377	0.955
	married	239	70.2406	19.62007	1.26912			
Innovation	single	140	71.6964	16.03452	1.35516	-0.628	377	0.531
	married	239	72.8818	18.66907	1.20760			
Anxiety	single	140	68.4375	20.78070	1.75629	-0.624	377	0.533
	married	239	69.7960	20.26165	1.31062			
Association	single	140	68.1250	19.67588	1.66292	0.140	377	0.889
	married	239	67.8347	19.38218	1.25373			
Functional imagery	single	140	73.8988	17.73840	1.49917	1.809	377	0.071
	married	239	70.1709	20.25449	1.31015			

Comparing the components of gender-based brand knowledge in customers' views
Based on table 10, and according to the results of T-test, brand knowledge and all its components are not meaningful based on gender, in customers' views; because the level of significance is more than 0.05 (P-value>0.05).

Table 10. Comparing components of brand knowledge based on marital status in customers' views (Group Statistics)

	Gender	N	Mean	Std. Deviation	Std. Error Mean	t	df	p
Knowledge brand	female	111	67.8178	16.81528	1.59604	0.722	379	0.471
	male	270	66.3477	18.53236	1.12784			
Salience	female	111	69.0541	15.80439	1.50009	-0.246	379	0.751
	male	270	69.5370	18.06814	1.09959			
Performance	female	111	71.6667	16.31136	1.54821	1.541	379	0.124
	male	270	68.4074	19.66874	1.19700			
Intellectual imagery	female	111	68.5135	16.74127	1.58901	0.820	379	0.413
	male	270	66.7593	19.82164	1.20631			
Judgments	female	111	68.3398	16.44752	1.56113	1.114	379	0.266
	male	270	66.0185	19.25299	1.17170			
Feelings	female	111	69.2342	17.81468	1.69089	0.327	379	0.744
	male	270	68.4815	21.35967	1.29991			
Resonance	female	111	68.8867	16.10485	1.52860	0.005	379	0.996
	male	270	68.8757	20.36091	1.23913			
Quality perception	female	111	70.2140	16.74837	1.58968	-0.472	379	0.637
	male	270	71.2037	19.30478	1.17485			
Risk perception	female	111	68.9752	16.53440	1.56938	-0.805	379	0.421
	male	270	70.7407	20.53043	1.24944			
Innovation	female	111	70.3829	15.82736	1.50227	-1.519	379	0.130
	male	270	73.3796	18.13926	1.10392			
Anxiety	female	111	68.4122	17.65431	1.67567	-0.519	379	0.604
	male	270	69.6065	21.45501	1.30571			
Association	female	111	69.1723	16.48479	1.56467	0.827	379	0.409
	male	270	67.3611	20.50056	1.24762			
Functional imagery	female	111	74.1742	16.62703	1.57817	1.786	379	0.075
	male	270	70.2778	20.36050	1.23910			

Determining brand knowledge based on predictor variables
Based on tables 10 to 14, it is observed that factors including judgment, salience, brand performance and feelings, innovation and resonance are put among the predictor variables. Multiple correlation coefficient, coefficient determination, and pure coefficient determination are respectively are obtained as 0.864 (R=0.864), 0.747 (R^2=0.0747) and 0.747 (0.747) which show that with %74.2, the amount of brand knowledge can be predicted correctly based on the remaining elements of the formula. According to ANOVA in which F=184.416 and P=0.000, it is concluded that the type of regression is linear. Beta coefficient of judgments, brand salience, brand performance, feelings, innovation and resonance respectively equal to 0.276, 0.292, 0.218, 0.106, -0.102, 0.123.
Brand knowledge=5.988+0.276(judgments) +0.2921(brand salience) +0.218(brand performance) +0.106(feelings)-0.120(innovation) +0.123(resonance)

Table 11. Residue variables in model (Variables Entered/Removed[a])

Model	Variables Entered	Variables Removed	Method
1	Judgments		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	Salience		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
3	Performance		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
4	Feelings		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
5	Innovation		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
6	Resonance		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a. Dependent Variable: knowledge

Table 12. Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.805[a]	.647	.646	10.72144
2	.844[b]	.712	.711	9.69933
3	.856[c]	.733	.730	9.36256
4	.860[d]	.739	.736	9.26277
5	.862[e]	.742	.739	9.21306
6	.864[f]	.746	.742	9.16182

a. Predictors: (Constant), Judgments

b. Predictors: (Constant), Judgments, Salience

c. Predictors: (Constant), Judgments, Salience, Performance

d. Predictors: (Constant), Judgments, Salience, Performance, Feelings

e. Predictors: (Constant), Judgments, Salience, Performance, Feelings, Innovation

f. Predictors: (Constant), Judgments, Salience, Performance, Feelings, Innovation, Resonance

Table 13. ANOVA for determining the linearity of model (ANOVA[g])

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	80612.217	1	80612.217	701.285	.000[a]
	Residual	43910.654	382	114.949		
	Total	124522.871	383			
2	Regression	88679.544	2	44339.772	471.314	.000[b]
	Residual	35843.327	381	94.077		
	Total	124522.871	383			
3	Regression	91213.037	3	30404.346	346.854	.000[c]
	Residual	33309.834	380	87.657		
	Total	124522.871	383			
4	Regression	92005.096	4	23001.274	268.084	.000[d]
	Residual	32517.775	379	85.799		
	Total	124522.871	383			
5	Regression	92438.075	5	18487.615	217.808	.000[e]
	Residual	32084.796	378	84.880		
	Total	124522.871	383			
6	Regression	92877.922	6	15479.654	184.416	.000[f]
	Residual	31644.949	377	83.939		
	Total	124522.871	383			

a. Predictors: (Constant), Judgments

b. Predictors: (Constant), Judgments, Salience

c. Predictors: (Constant), Judgments, Salience, Performance

d. Predictors: (Constant), Judgments, Salience, Performance, Feelings

e. Predictors: (Constant), Judgments, Salience, Performance, Feelings, Innovation

f. Predictors: (Constant), Judgments, Salience, Performance, Feelings, Innovation, Resonance

Table 14. Regression Coefficients (Coefficients[a])

Model		Unstandardized Coefficients		Standardized Coefficients	t	sig
		B	Std. Error	Beta		
1	(Constant)	14.357	2.058		6.975	.000
	Judgments	.788	.030	.805	26.482	.000
2	(Constant)	5.626	2.087		2.696	.007
	Judgments	.494	.042	.504	11.859	.000
	Salience	.409	.044	.394	9.260	.000
3	(Constant)	4.186	2.032		2.060	.040
	Judgments	.376	.046	.384	8.226	.000
	Salience	.290	.048	.279	6.043	.000
	Performance	.252	.047	.262	5.376	.000
4	(Constant)	3.884	2.013		1.929	.054
	Judgments	.281	.055	.287	5.113	.000
	Salience	.270	.048	.260	5.629	.000
	Performance	.237	.047	.246	5.079	.000
	Feelings	.132	.044	.149	3.038	.003
5	(Constant)	5.724	2.162		2.648	.008
	Judgments	.301	.055	.308	5.436	.000
	Salience	.299	.049	.288	6.053	.000
	Performance	.236	.046	.245	5.078	.000
	Feelings	.149	.044	.168	3.394	.001
	Innovation	-.087	.038	-.085	-2.259	.024
6	(Constant)	5.988	2.153		2.781	.006
	Judgments	.276	.056	.282	4.911	.000
	Salience	.292	.049	.282	5.940	.000
	Performance	.218	.047	.227	4.665	.000
	Feelings	.106	.048	.119	2.222	.027
	Innovation	-.120	.041	-.118	-2.940	.003
	Resonance	.123	.054	.131	2.289	.023

a. Dependent Variable: Brand Knowledge

CONCLUSION

The results of the present study include:

1. There is no meaningful difference between customers' gender and brand knowledge and its dimensions.
2. There is no meaningful difference between the customers' jobs and brand knowledge and its dimensions.
3. There is no meaningful difference between the customers' incomes and (brand knowledge, brand salience, brand performance, brand feelings, resonance, quality perception, risk perception, innovation, anxiety, customer's association and functional imagery).
4. There is a meaningful difference between customers' incomes and the intellectual imagery of brand and judgments.
5. There is no meaningful difference between marital status and brand knowledge and its dimensions.
6. There is no meaningful difference between education level and brand knowledge and its dimensions.
7. There is a meaningful correlation between brand knowledge and (brand salience, brand performance, judgments, feelings, resonance and innovation).
8. There is no meaningful correlation between brand knowledge and (intellectual imagery of brand, quality perception, risk perception, anxiety, customer's associations and functional imagery).
9. Factors affecting the brand knowledge consist of brand salience, brand performance, judgments, feelings, resonance and innovation.

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