

## Perceptions and Preferences of Consumers regarding Cement Brands in South Rajasthan

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### Abstract

In this near saturation phase of Indian cement industry, it is worth evaluating how well have the companies established their brand as per the perceptions and preferences of consumers. Three hundred consumers were interviewed to find out their perceptions and preferences using exploratory research design. The brand of cement preferred by consumers was Birla Plus, Binani and JK Nimbahera. The results showed that the preference of consumers also differ significantly from brand to brand. The most preferred brand based on attribute scores was Ambuja. The results further concludes that brand preference exists among consumers due to attributes even though cement is a homogeneous product. This implies that companies can introduce product differentiation using various attribute.

**Keywords:** Perception, Preferences , Cement , Brands

### Introduction

A brand conveys different aspects of a product or service offering to different persons. In other words, perceptions and preferences of individuals concerning a brand or any object, article, entity or anything else is different. Today, there are a number of established brands of cement in the market. However, rising noise levels in the media and extensive advertising by different companies may lead to a clutter in the consumers mind for a brand. If brand awareness, knowledge and recognition is good, the brand will fall in the consideration set of the consumers. The brand positioning is central to consumer's perception and preference decision. There are various attributes attached to a product or service offering. These attributes are perceived to make up the image or identity of the product in consumer's mind and help the consumer to choose or reject the product. Eventually, the attributes which forms the product image in the consumer's mind also percolate in the consumer's mind to form the brand image and hence help the consumer to establish the preference for a brand. As the product in consideration is cement which is a homogeneous commodity, therefore the hypotheses formulated was that there is no preference among consumers for different brands of cement. Also the objectives of the study were:-

- (a) To ascertain the brand preference of cement from consumers.
- (b) To critically evaluate the perception of consumers about various attributes of cement for different brands.

The design of the study was exploratory in nature. The study was conducted in Udaipur division of the state of Rajasthan, India. Out of the six districts, three viz; Udaipur, Banswara and Rajsamand were purposively selected. A total of 300 consumers, 100 from each of the three districts who had constructed their house within past two years were purposively selected. Interview Schedule was administered personally to collect data from consumers. A five point Likert Scale was used to rate the attributes. The data was analyzed using SPSS Software version 16. The statistical tests were carried out to test the significance (Malhotra, 2007).

The cement brands studied and number of consumers who had preferred and used the brands for construction of their house are given in Table 1. The brands of grey cement more preferred by consumers were Birla Plus (41.33 %) followed by other leading brands were Binani and J.K.Nimbahera. These results show that brand preference exists among the respondents even though cement is a homogeneous and ISI marked product. Majority (60 %) of the consumers had used brand other than the one they had preferred. Marketing managers of the firms need to find out reasons as to why consumers prefer a particular brand but use another (Table 1).

**Table 1: Cement Brands preferred and used by the Consumers in South Rajasthan**

S.No.	Name of Brand	Total (n=300)		
		Preferred	Used	Variation
1	<i>JK Nimbahera</i>	48	37	21
2	<i>Birla plus</i>	124	89	43
3	<i>Ultratech</i>	12	18	18
4	<i>JK Shakti</i>	8	17	21
5	<i>Shree Cement</i>	2	10	8
6	<i>Binani</i>	65	45	24
7	<i>Laxmi</i>	0	7	7
8	<i>Ambuja</i>	41	77	38

Perception is the process by which organisms interpret and organize sensation to produce a meaningful experience of the object (Lindsay and Norman, 1977) whereas preference is selecting of someone or something over another or others (www.answers.com). Perception and preference are related, inseparable and affect each other. In other words, perception changes the preferences of an individual. There are number of attributes perceived to make up the image or identity of the product which percolates in the mind of an individual to form brand image and helps to establish the preference for a brand. The preferences of consumers were based on their perceptions of cement attributes. The results are given in Table 2.

**Table 2: Attributes for Evaluation of Consumer preference and corresponding selections on Likert Scale as well as their Mean scores for South Rajasthan**

S. No.	Attributes	Total (n=300)					Mean Scores
		Strongly Liked	Liked	Neither Liked nor disliked	Disliked	Strongly disliked	
1	Brand Names	169 (56.33)	119 (39.67)	11 (3.67)	1 (0.33)	0 (0.00)	4.52 ± 0.34
2	Price Factor	94 (31.33)	181 (60.33)	23 (7.67)	2 (0.67)	0 (0.00)	4.22 ± 0.35
3	Color	108 (36.00)	127 (42.33)	44 (14.67)	21 (7.00)	0 (0.00)	4.07 ± 0.051
4	Fineness	101 (33.67)	151 (50.33)	48 (16.00)	0 (0.00)	0 (0.00)	4.18 ± 0.039
5	Strength	144 (48.00)	129 (43.00)	27 (9.00)	0 (0.00)	0 (0.00)	4.39 ± 0.037
6	Credit availability	43 (14.33)	108 (36.00)	70 (23.33)	68 (22.67)	11 (3.67)	3.35 ± 0.063
7	Transportation facility	112 (37.34)	105 (35.00)	63 (21.00)	19 (6.33)	1 (0.33)	4.08 ± 0.054
8	Advertising	127 (42.33)	104 (34.67)	39 (13.00)	29 (9.67)	1 (0.33)	4.09 ± 0.057
9.	Advice of Architect	105 (35.00)	149 (49.67)	32 (10.67)	12 (4.00)	2 (0.66)	4.14 ± 0.047
10.	Advice of Contractor	115 (38.34)	135 (45.00)	22 (7.33)	24 (8.00)	4 (1.33)	4.11 ± 0.054
11.	Advice of known person	112 (37.34)	153 (51.00)	22 (7.33)	12 (4.00)	1 (0.33)	4.21 ± 0.045
12.	Setting time	18 (6.00)	206 (68.67)	73 (24.33)	1 (0.33)	2 (0.67)	3.79 ± 0.033
13.	On site presentation	52 (17.33)	106 (35.34)	51 (17.00)	88 (29.33)	3 (1.00)	3.39 ± 0.064
Overall Mean							4.04 ± 0.014

Level of Significance : F= 50.751\*\*\* P < 0.001

From the above table, it can be analyzed that brand name, strength of cement, transportation facility and advertisement of the brand were the attributes strongly liked by majority of the consumers whereas price, colour, fineness, credit availability, advice of architect, contractor and known person, setting time, on-site presentation by salesperson were liked by majority of the consumers. On the other hand, attributes like setting time, on site presentation

and credit availability were not considered by a good number of consumers for preference of a brand ( Table 2). Further, the mean scores calculated for the attributes revealed that brand name was the only attribute which scored more than 4.5. Here also, the attributes liked (scored 4 or more)by the consumers were somewhat similar as given in this paragraph above. This can be seen from the mean values of the attributes. The availability of cement on credit purchase (mean; 3.35), setting time (mean ; 3.79) and on-site presentation (mean; 3.99) were the attributes which scored between liked to neither liked nor disliked, which means these attributes may be contributing comparatively lesser towards the preference of cement brand/s. The F value calculated (Table 2) revealed that the attributes studied were significantly contributing towards consumers preference for brands (P<0.001). These results suggest that degree of liking of consumers varies from attribute to attribute. However, consumers do consider various attributes together, at different degrees of liking, to establish their preference for a brand. Also, the attributes around which advertising of cement should revolve is evident.

Further the Post- Hoc Test was applied to find out the difference between the attributes for preferring a brand revealed that brand name and strength attributes scored significantly higher scores (P<0.05) than almost all the other attributes (Table 3) .Credit availability, setting time and onsite presentation scored significantly lower scores than almost all the attributes (P<0.05). These results suggest that brand name and strength are relatively most important attributes for preferring a brand.

Shahida et. al, (2008) reported that among the consumers of Bangalore city most important attributes in purchasing branded cement were strength of cement, followed by price, availability and color. The setting time and sand-cement-water ratio were least important attributes.

**Table 3: Post-hoc Analysis between the Attributes Studied:-**

Attribute No.	1	2	3	4	5	6	7	8	9	10	11	12	13
1.	-	*	*	*	NS	*	*	*	*	*	*	*	*
2.	*	-	*	NS	*	*	*	NS	NS	NS	NS	*	*
3.	*	*	-	NS	*	*	NS	NS	NS	NS	*	*	*
4.	*	NS	NS	-	*	*	*	NS	NS	NS	NS	*	*
5.	NS	*	*	*	-	*	*	*	*	*	*	*	*
6.	*	*	*	*	*	-	*	*	*	*	*	*	NS
7.	*	*	NS	*	*	*	-	NS	NS	NS	*	*	*
8.	*	NS	NS	NS	*	*	NS	-	NS	NS	NS	*	*
9.	*	NS	NS	NS	*	*	NS	NS	-	NS	NS	*	*
10.	*	NS	NS	NS	*	*	NS	NS	NS	-	NS	*	*
11.	*	NS	*	NS	*	*	*	NS	NS	NS	-	*	*
12.	*	*	*	*	*	*	*	*	*	*	*	-	*
13.	*	*	*	*	*	NS	*	*	*	*	*	*	-

Similarly in the present study also, brand name and strength of the cement were the attributes preferred by the consumers for preferring a brand. This finding

indicates that cement brands need to focus their marketing communication predominantly on strength of the cement, as strength is the most important attribute of cement.

Key for Attribute No :

- |                             |                          |
|-----------------------------|--------------------------|
| 1. Brand Name               | 2. Price                 |
| 3. Color                    | 4. Fineness              |
| 5. Strength                 | 6. Credit Availability   |
| 7. Transportation facility  | 8. Advertising           |
| 9. Advice of Architect      | 10. Advice of Contractor |
| 11. Advice of Known persons | 12. Setting time         |
| 13. Onsite presentation     |                          |

Level of Significance : NS= Non Significant , \* P < 0.05

Again the mean  $\pm$ SE scores for each attribute were calculated with respect to brands preferred to find out the relative importance of different brands based on different attributes (Table 4). The mean scores ranged from 4.31 (Brand name) to 3.00 (on site presentation) for J.K. Nimbahera; 4.44 (Brand name) to 3.68 (on site presentation) for Birla plus; 4.40 (Brand name) to 3.00 (on site presentation) for Ultratech; 4.60 (brand name) to 2.72 (credit availability) for Binani and 4.93 (Brand name) to 3.4 (credit availability) for Ambuja. The attribute brand name scored highest in all the brand types. The overall mean scores for each brand considering all the attributes ranged from 4.33 for Ambuja to 3.77 for J.K. Nimbahera. Ambuja brand scored mean  $e''$  4.00 for all the attributes except for credit availability & setting time and between first to third ranking for most of the attributes in comparison to other brands. J. K. Nimbahera scored mean between 3 to 4 for most of the attributes which indicates that consumers were comparatively having lesser liking for this brand. F ratio calculated revealed that the attributes studied were significantly ( $P < 0.05$ ) affecting the preference of consumers for each brand (F value 9.537 for J.K. Nimbahera, 11.719 for Birla plus, 3.295 for Ultratech, 34.992 for Binani and 14.817 for Ambuja). These results suggest that consumer's preference towards a brand is affected by several factors. The F value was also calculated to find out the difference in brand preferences of consumers which revealed that the preference of consumers differ significantly from brand to brand ( $F = 8.154$ ).

Further the CD values were also calculated to find out the attributes which were contributing significantly towards a brand preference. The critical difference value revealed that preference of consumers for J.K. Nimbahera brand was affected by brand name, price, strength and advice of known persons whereas Birla plus was preferred mainly due to its brand name and strength, Ambuja brand of cement (scored more than four for most of the attributes) was preferred by consumers due to brand name, price, color and strength. Ultratech and Binani brands were preferred due to their brand name, strength, advice of contractor, advice of known person; in addition Ultratech was also preferred due to its

price, fineness and advertising and Binani due to transportation facility (Table 4). These results suggest that firms producing different brands of cement may consider preference of consumers while advertising their brands.

The effect of each attribute for the preference of a brand out of the eight brands studied was tested by calculating F value (Table 4). The results revealed that liking of a brand is being affected by majority of the attributes except advice of a contractor, advice of known person and setting time ( $P < 0.05$ ). Further the Post hoc test was carried out to find out the effect of liking of an attributes between two brands (Table 5). It was found that Ambuja brand of cement was liked by the consumers because of its brand name, price, color, strength and on site presentation by sales person. J.K. Nimbahera was preferred due to its color, fineness, strength, and advertisement. The remaining brands were preferred due to significant contribution of one or two attributes. These results reveal that attributes due to which a brand is preferred vary from brand to brand.

The post hoc analysis results on overall mean scores for different brands considering all the attributes revealed that Ambuja brand was preferred over most of the other brands and J.K. Nimbahera was the least preferred brand (Table 5) by the consumers studied.

Burange and Yamini (2008) also found that Ambuja cement Ltd. scored highest amongst the seventeen firms of cement industry studied on the competitiveness of the firm index. They constructed a composite competitive index to evaluate the competitiveness of the firms indicating their areas of superiority and the domains of weaknesses. Seventeen firms having at least 90 percent of the overall market share of the industry and firms having greater than 1 percent of share of the industry were included in the study. Ten main indicators i.e. productive performance, financial performance, cost effectiveness, sales and marketing strategy, stock market performance, consumer satisfaction, technology and environmental indicators, human resource development and social indicators, foreign trade measures and lastly growth variables and potential; consisting of a number of sub indicators of each of the main indicators were included to build an index. The results reflected the relative competitive position of the sample firms and also the overall picture of the industry. Performance of eight firms was above the industry scores of overall competitive index. Ambuja cement Ltd. scored highest in the group mainly because of its consistent performance in both financial and non financial indices. This was followed by Grasim Industries which scored second rank due to better non financial performance in terms of sales and marketing strategy etc. The ranking differed a lot as some firms perform better in one than the other indicator. In the regional rankings, Northern, Western and Eastern markets were dominated by Ambuja Cement Ltd. whereas south and central regions by Grasim Industries Ltd.

**Table 4 : Brand wise mean  $\pm$ SE values of scores for different attributes to determine Brand preference of Consumers**

Attributes	Brand										Level of Significance
	J.K. Nimbahera (n=48)	Birla Plus (n=124)	Ultratech (n=15)	J.K. Shakti (n=5)	Shree Cement (n=2)	Binani (n= 65)	Ambuja (n=41)	Overall (n=300)	F Value		
1. Brand Name	4.31 $\pm$ 0.090	4.44 $\pm$ 0.055	4.40 $\pm$ 0.131	4.60 $\pm$ 0.245	4.00 $\pm$ 0.00	4.60 $\pm$ 0.069	4.93 $\pm$ 0.041	4.52 $\pm$ 0.034	5.717	***	
2. Price	4.02 $\pm$ 0.081	4.14 $\pm$ .054	4.00 $\pm$ 0.169	4.60 $\pm$ 0.245	4.00 $\pm$ 0.00	4.15 $\pm$ 0.063	4.88 $\pm$ 0.052	4.07 $\pm$ 0.051	10.979	***	
3. Color	3.56 $\pm$ 0.122	4.09 $\pm$ 0.079	3.73 $\pm$ 0.267	4.00 $\pm$ 0.632	4.00 $\pm$ 0.00	3.98 $\pm$ 0.092	4.90 $\pm$ 0.058	4.07 $\pm$ 0.051	10.979	***	
4. Fineness	3.92 $\pm$ 0.078	4.19 $\pm$ .066	4.13 $\pm$ 0.165	4.60 $\pm$ 0.245	4.00 $\pm$ 0.00	4.11 $\pm$ 0.062	4.51 $\pm$ 0.127	4.18 $\pm$ 0.039	3.441	**	
5. Strength	4.02 $\pm$ 0.087	4.39 $\pm$ .053	4.07 $\pm$ 0.206	4.80 $\pm$ 0.200	4.00 $\pm$ 0.00	4.49 $\pm$ 0.079	4.76 $\pm$ 0.091	4.39 $\pm$ 0.037	6.854	***	
6. Credit Availability	3.25 $\pm$ 0.156	3.65 $\pm$ 0.090	3.40 $\pm$ 0.289	4.00 $\pm$ 0.00	4.00 $\pm$ 0.00	2.72 $\pm$ 0.153	3.4 $\pm$ 0.116	3.35 $\pm$ 0.063	6.181	***	
7. Transportation facility	3.71 $\pm$ 0.133	3.97 $\pm$ 0.078	3.80 $\pm$ 0.296	3.80 $\pm$ 0.374	4.00 $\pm$ 0.00	4.34 $\pm$ 0.115	4.20 $\pm$ 0.149	4.03 $\pm$ 0.054	2.741	*	
8. Advertising	3.56 $\pm$ 0.146	4.09 $\pm$ 0.081	4.13 $\pm$ 0.215	4.20 $\pm$ 0.583	4.00 $\pm$ 0.000	4.25 $\pm$ 0.135	4.44 $\pm$ 0.131	4.09 $\pm$ 0.057	3.645	**	
9. Advice of Architect	3.38 $\pm$ 0.110	4.13 $\pm$ 0.061	3.67 $\pm$ 0.232	4.40 $\pm$ 0.400	4.00 $\pm$ 0.000	4.31 $\pm$ 0.116	4.39 $\pm$ 0.139	4.14 $\pm$ 0.047	3.034	**	
10. Advice of Contractor	3.83 $\pm$ 0.131	4.04 $\pm$ 0.080	4.07 $\pm$ 0.153	4.40 $\pm$ 0.400	4.00 $\pm$ 0.000	4.42 $\pm$ 0.105	4.15 $\pm$ 0.199	4.11 $\pm$ 0.054	2.085	NS	
11. Advice of known Person	4.00 $\pm$ 0.084	4.20 $\pm$ 0.064	4.33 $\pm$ 0.126	4.00 $\pm$ 0.548	4.00 $\pm$ 0.000	4.45 $\pm$ 0.098	4.10 $\pm$ 0.163	4.21 $\pm$ 0.045	1.944	NS	
12. Setting time	3.90 $\pm$ 0.061	3.77 $\pm$ 0.063	3.73 $\pm$ 0.118	3.80 $\pm$ 0.200	4.00 $\pm$ 0.000	3.89 $\pm$ 0.054	3.59 $\pm$ 0.085	3.79 $\pm$ 0.033	1.588	NS	
13. On site Presentation	3.00 $\pm$ 0.146	3.68 $\pm$ 0.090	3.00 $\pm$ 0.276	3.40 $\pm$ 0.600	4.00 $\pm$ 0.000	2.78 $\pm$ 0.129	4.02 $\pm$ 0.166	3.39 $\pm$ 0.064	9.646	***	
Over all	3.77 $\pm$ 0.034	4.06 $\pm$ 0.021	3.88 $\pm$ 0.063	4.20 $\pm$ 0.112	4.00 $\pm$ 0.000	4.04 $\pm$ 0.034	4.33 $\pm$ 0.040	-	8.154	***	
F Value	9.537	11.719	3.295	1.022	-	34.992	14.817	-			
Level of significance	***	***	***	NS	-	***	***	-			
CD Values	0.315	0.198	0.589	-	-	0.283	0.348	-			

NS = Non significant, \* P<0.05, \*\* P<0.01, \*\*\*P<0.001

**Table 5: Post hoc analysis between the Brands for each attribute to ascertain the Brand Preference**

Attributes	Brands	Brands						
		1	2	3	4	5	6	7
1	1	-	NS	NS	NS	NS	*	*
	2	NS	-	NS	NS	NS	NS	*
	3	NS	NS	-	NS	NS	NS	*
	4	NS	NS	NS	-	NS	NS	NS
	5	NS	NS	NS	NS	-	NS	*
	6	*	NS	NS	NS	NS	-	*
	7	*	*	*	NS	*	*	-
2	1	-	NS	NS	*	NS	NS	*
	2	NS	-	NS	NS	NS	NS	*
	3	NS	NS	-	*	NS	NS	*
	4	*	NS	*	-	NS	NS	*
	5	NS	NS	NS	NS	-	NS	*
	6	NS	NS	NS	NS	NS	-	*
	7	*	*	*	NS	*	*	-
3	1	-	*	NS	NS	NS	*	*
	2	*	-	NS	NS	NS	NS	*
	3	NS	NS	-	NS	NS	NS	*
	4	NS	NS	NS	-	NS	NS	*
	5	NS	NS	NS	NS	-	NS	NS
	6	*	NS	NS	NS	NS	-	*
	7	*	*	*	*	NS	*	-
4	1	-	*	NS	*	NS	NS	*
	2	*	-	NS	NS	NS	NS	*
	3	NS	NS	-	NS	NS	NS	NS
	4	*	NS	NS	-	NS	NS	NS
	5	NS	NS	NS	NS	-	NS	NS
	6	NS	NS	NS	NS	NS	-	*
	7	*	*	NS	NS	NS	NS	-
5	1	-	*	NS	*	NS	*	*
	2	*	-	NS	NS	NS	NS	*
	3	NS	NS	-	*	NS	*	*
	4	*	NS	*	-	NS	NS	NS
	5	NS	NS	NS	NS	-	NS	NS
	6	*	NS	*	NS	NS	-	*
	7	*	*	*	NS	NS	*	-
6	1	-	*	NS	NS	NS	*	NS
	2	*	-	NS	NS	NS	*	NS
	3	NS	NS	-	NS	*	NS	NS
	4	NS	NS	NS	-	NS	*	NS
	5	NS	NS	NS	NS	-	NS	NS
	6	*	*	*	*	NS	-	*
	7	NS	NS	NS	NS	NS	*	-



7	1	-	NS	NS	NS	NS	*	NS	
	2	NS	-	NS	NS	NS	*	NS	
	3	NS	NS	-	NS	NS	*	NS	
	4	NS	NS	NS	-	NS	NS	NS	
	5	NS	NS	NS	NS	-	NS	NS	
	6	*	*	*	*	NS	NS	-	NS
	7	*	NS	NS	NS	NS	NS	NS	-
8	1	-	*	*	NS	NS	*	*	
	2	*	-	NS	NS	NS	NS	*	
	3	*	NS	-	NS	NS	NS	NS	
	4	NS	NS	NS	-	NS	NS	NS	
	5	NS	NS	NS	NS	-	NS	NS	
	6	*	NS	NS	NS	NS	-	NS	
	7	*	*	*	NS	NS	NS	NS	-
9	1	-	NS	NS	NS	NS	*	*	
	2	NS	-	*	NS	NS	NS	NS	
	3	NS	*	-	NS	NS	*	*	
	4	NS	NS	NS	-	NS	NS	NS	
	5	NS	NS	NS	NS	-	NS	NS	
	6	*	NS	*	NS	NS	-	NS	
	7	*	NS	*	NS	NS	NS	NS	-
10	1	-	*	NS	NS	NS	NS	*	
	2	*	-	*	NS	NS	*	NS	
	3	NS	*	-	NS	NS	NS	*	
	4	NS	NS	NS	-	NS	NS	NS	
	5	NS	NS	NS	NS	-	NS	NS	
	6	NS	*	NS	NS	NS	-	*	
	7	*	NS	*	NS	NS	*	-	
Over all	1	-	*	NS	*	NS	*	*	
	2	*	-	NS	NS	NS	NS	*	
	3	NS	NS	-	NS	NS	NS	*	
	4	*	NS	NS	-	NS	NS	NS	
	5	NS	NS	NS	NS	-	NS	NS	
	6	*	NS	NS	NS	NS	-	*	
	7	*	*	*	NS	NS	*	-	

Key for attribute No:

- |                        |                          |
|------------------------|--------------------------|
| 1. Brand Name          | 2. Price                 |
| 3. Color               | 4. Fineness              |
| 5. Strength            | 6. Credit availability   |
| 7. Transportation      | 8. Advertising           |
| 9. Advice of Architect | 10. On site presentation |

Key for Brand No.

- |   |                |
|---|----------------|
| 1. J.K. Nimbahera                                       | 2. Birla plus  |
| 3. Ultratech  | 4. J.K. Shakti |
| 5. Shree Cement   | 6. Binani      |
| 7. Ambuja (None of the consumers preferred Laxmi brand) |                |

Level of Significance : NS = Non Significant, \* <0.05

The result on preference and perception of consumers conclude that even though cement is a homogeneous product, companies can introduce product differentiation using brand name, strength, price, fineness, etc. in advertisements or elsewhere.

### Conclusion

All the attributes were significantly contributing towards the preference for a brand. Brand Name and strength attributes were found to be relatively most important attributes in preferring a brand. The overall mean scores for each brand considering all the attributes ranged from 4.33 for Ambuja to 3.77 to JK Nimahera. All the attributes studied were significantly affecting the preference of consumers for each brand. Likewise the preference of consumers also differ significantly from brand to brand. The most preferred brand based on attribute scores was Ambuja. The results conclude that brand preference exists among consumers due to attributes even though cement is a homogeneous product. This implies that companies can introduce product differentiation using various attribute.

### References

- Burange, L.G. and Yamini, S. (2008) Performance of Indian Cement Industry : The Competitive Landscape, Working paper UDE (CAS) 25/(9)/3/ 2008, Department of Economics University of Mumbai, India.
- Lindsay, p. and Noman, D.A. (1977) Human Information Processing : An Introduction to Psychology.
- Malhotra, N.K. (2007) Marketing Research - An Applied Orientation. Pearson Education Inc. and Darling Kindersley Publishing Inc., Patpar Ganj, Delhi.
- Shahida, P., Nargundkar, R. and Hiremath, G. (2008). Attribute based Perceptual Mapping of Cement Brands : An Empirical Study. Vilakshan, XIMB Journal of Management V (1) : 57.