

Research Article

A Study on Awareness about Sources and Types of Cement

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Abstract: Yesteryears luxuries have become today's essentials. Three to four decades back having own house was a dream to middle class people in India. Because of the availability of the home loan people would like to construct own house to live. Cement is one of the important raw materials in the construction Industry. There are ample numbers of brands of cements available in India. Especially in the knowledge era people are very much aware of various brands and types of cements. People like engineer, mason, skilled, semi skilled and unskilled laborers are involved in construction industry. This study covers the awareness about various types of cements, sources to acquire information, type of information and role of demographic variables. Two hundred people who were constructing houses in Trichirappali/Taminadu area were included for this study. This study will be useful for the people in the construction Industry to know about awareness about various varieties and brands of cements, construction estimate, top of mind, sources to know about cement and type of information gained from the sources.

Keywords: Brands, cement industry, construction, demographic variables, real estate, sources, varieties

INTRODUCTION

Housing construction involves so much of intricate activities. Several raw materials are involved in the construction of houses. Cement is one of the vital raw materials in the construction Industry. Cement Industry had a total capacity of over 360 m Tonnes (MT) as of financial year ended 2013-14 (www.equitymaster.com, 2014). In India, the housing sector is the biggest demand driver of cement, accounting for about 67% of the total consumption (www.ibef.org, Feb, 2015). Based on Indian Standards various types of cements available in India. Enormous varieties of cement conform to Bureau of Indian Standards (BIS) are being produced by the flourishing cement industry in India. Cement is no longer a commodity available in poor plastic bags. Various brands of cements like ACC limited, Ambuja cements limited, UltraTech cement limited, India cement limited, Shree cements limited, Dalmia cements, Dharani cements... available in India. 2014 marks India's cement sector centenary year (Indian Cement Review Conference 2014). The cement market in India is expected to grow at a Compound Annual Growth Rate (CAGR) of 8.96% during the period 2014-2019 (www.ibef.org, 2015). Portland Blast Furnace Slag Cement (PBFSC), Sulphate Resisting Portland Cement, Rapid Hardening Portland Cement, Ordinary Portland Cement (OPC), Portland Pozzolona Cement (PPC), Oil Well Cement, Clinker Cement and White cement are the varieties of cement available in India (<http://business.mapsofindia.com/cement/types/>).

Depends upon the characteristics of various varieties of cements, demand always exist in Indian cement market Industry. In general construction estimates with regard to financial budget may vary from one individual to another depends upon the nature and type of construction of houses. In general people aware about various varieties and brands of cements from various sources. They know about these from engineers, masons, relatives/friends, advertisements, company representatives and dealers. People gather information about brands, quality, price and mode of delivery from the above mentioned sources. People constructing houses in Trichirappalli/Tamilnadu were included for this study.

LITERATURE REVIEW

Cement is a powdery-type substance, which is manufactured using mixture of elements that are found in natural materials such as limestone, clay and or shale (www.dalmiacement.com). Indian cement industry is contributing very significantly to the development of Indian economy by means of providing jobs directly or indirectly to millions of people. Cement industry in India is the second largest in the world which was deregulated in 1982 and attracted massive investments from both Domestic and foreign investors (www.ibef.org, 2015). Materials such as sand, jelly, water, bricks and steel are used in construction and cement binds these elements together to provide strength and durability to these constructions (www.dalmiacement.com). India, world's second

largest cement producer after China, is the home to a number of top cement companies (<http://business.mapsofindia.com/cement/types/>). According to Siamak and Hossien (2011) significant constituent of general life contentment is satisfaction from house. People even from low income group favor buying of houses than to go for rented house and mostly favored small house than huge apartments (Opoku and Abdul-Muhmin, 2010). Need for information is important to solve most of the problems while buying houses, especially in Western countries, Savolainen (2009). According to Siddharth and Mainkar (2007), marketing facility of the Indian companies was about ten times less than that of the Multinational companies. Cement being a construction material, occupied a strategic place in the Indian economy, Nair (1991). According to Amutha and Vinayak (2015), Cement industries should create awareness about the Brand Grades among the Customers and it will support to the customers to select the particular Grades of Branded Cements. According to Edmond and SheelaRani (2012), Cement constituted 15% of the total construction cost and its price fluctuations depends upon the factors like increase of excise duties, increase of input costs, transportation cost from the factory to the consumers and factory maintenance during the monsoon also affects the dispatches which reduce the cement output.

Objectives of the study:

- To ascertain the financial estimate of the respondents for the construction of houses
- To find out the top of mind of the respondents regarding various brands of cements
- To find out the awareness about various types of cement
- To ascertain the sources to know about various brands of cements
- To study the relationship between the demographic variables of the respondent and type of brands of cement
- To study the relationship between the demographic variables of the respondent and awareness about various brands of cement

METHODOLOGY

Sample and data collection: Primary data and secondary data were used for this study. Two hundred people constructing houses from various areas of Trichy/Tamilnadu were included for this study. In order

to find out the construction estimate, top of mind of various brands of cement, awareness about type of cement, sources to know about cement and type of information gained from the sources, structured questionnaire was used. Twenty respondents were used for pilot study to test the structured questionnaire.

Software package SPSS was used for Data analysis. Statistical techniques like Chi-Square test, ANOVA and percentage analysis were used to analyze the collected data.

Hypotheses of the study:

Null hypothesis:

- There is no significant relationship between the educational qualifications of the respondents and types of brands of cement.
- There is no significant relationship between the age of the respondents and awareness about various brands of cement.
- There is no significant relationship between the gender of the respondents and awareness about various brands of cement.
- There is no significant relationship between the qualification of the respondents and awareness about various brands of cement.
- There is no significant relationship between the occupation of the respondents and awareness about various brands of cement.
- There is no significant relationship between the age of the respondents and sources to know about the cement.
- There is no significant relationship between the gender of the respondents and sources to know about the cement.
- There is no significant relationship between the qualification of the respondents and sources to know about the cement.
- There is no significant relationship between the occupation of the respondents and sources to know about the cement.

RESULTS AND DISCUSSION

According to Table 1, 97.7% of male and 2.3 of female were included for this study. Sixty nine percent of the respondents from the age group ranging between 31-50 years and 17.4% of the respondents in the group ranging between 21-30 years were included for this study. According to Table 1, 70.7% of the respondents'

Table 1: Demographic profile of the respondents

Age (years)	(%)	Educational qualification	(%)	Monthly income (Rs.)	(%)	Gender	(%)	Sources of income	(%)
21-30	17.4	SSLC/HSC	27.3	Below Rs. 10000	1.1	Male	97.7	Both husband and wife employed	46.6
31-40	34.5	UG	34.8	Rs. 10001-30000	24.2	Female	2.3	Husband employed and wife business	3.0
41-50	34.5	PG	17.9	Rs. 31000-50000	70.7			Single earning	50.4
51-60	13.6	Diploma	20.0	Above Rs. 50000	4.0				

Table 2: Housing construction estimate of the respondents

Amount (Rs.)	(%)
Below Rs. 7 lakhs	1.1
Rs. 18 to 28 lakhs	35.2
Rs. 29 lakhs and above	63.6
Total	100.0

Table 3: Top of mind about various brands of cement

Ranks	Brand of cement	(%)
Rank 1	Sankar	49.2
Rank 2	Ultratech	43.2
Rank 3	Dalmia	21.2

Table 4: Awareness about type of cement

Type of brands	Not aware (%)	Aware (%)
Grade OPC 53	0	100
Grade OPC 43	0	100
PPC	0	100
PSC	44.7	55.3
White cement	45.5	54.5
SRC	65.9	34.1

Table 5: Sources to know about cement

Sources	(%)
Engineers/masons	28.4
Friends/relatives	13.8
Advertisements	2.2
Company representatives	1.1
Dealers	54.5

Table 6: Type of information gained from the sources

Type of information	(%)
Brand	48.8
Quality	43.2
Price	6.9
Mode of delivery	1.1

monthly income were between Rs. 31,000 to 50,000 and 24.2% of the respondents' monthly income were between Rs. 10,001 to 30,000. According to Table 1, 34.0% of the respondents were qualified with UG qualification and 27.3% of the respondents were qualified with SSLC/HSC qualification. According to Table 1, in 50.4% of the respondents' family, single person was earning and in 46.6% of the respondents' family, both husband and wife employed and earning their income.

According to Table 2, 63.6% of the respondents' construction estimate was Rs. 29 lakhs and above and 13.2% of the respondents' construction estimate was between Rs. 18 to 28 lakhs. According to Table 3, 49.2% of the respondents gave rank 1 to Sankar cement, 43.2% of the respondents gave rank 2 to UltraTech and 21.2% of the respondents gave rank 3 to Dalmia Cement with regard to which brand of cement come to respondents' mind immediately (Top of mind). According to Table 4, all the respondents were aware about the grades of cements, 'Grade OPC 53, Grade OPC43 and PPC, 55.3% of the respondents were aware about the grade 'PSC' and 54.5% of the respondents were aware about white cement.

According to Table 5, 54.5% of the respondents opined 'through dealers', 28.4% of the respondents opined 'through Engineers/Masons' and 13.8% of the respondents opined 'through Friends/Relatives' with regard to sources to know about cements.

According to Table 6, 48.8% of the respondents gathered information about brand from the sources, 43.2% of the respondents gathered information about quality from the sources and 6.9% of the respondents gathered information about price of cements from the sources.

Hypothesis testing: Table 7 shows the relationship between the demographic variables of the respondents and type of brand of cement. As per the Table 7 it is clear that significant values are below the commonly accepted value 0.05. Therefore null hypotheses are rejected. That means there is a significant relationship between qualification of the respondent and awareness about the various grades of cements like PSC, SRC and White cement.

Table 8 shows the relationship between the demographic variables of the respondents and awareness about various brands of cement. As per the Table 8 it is clear that except for gender significant values are below the commonly accepted value 0.05 for age, qualification and occupation. Therefore null hypotheses are rejected. That means there is a significant relationship between age, qualification and occupation of the respondents and awareness about the various brands of cements. There is no significant relationship between gender of the respondents and awareness about the various brands of cements.

Table 9 shows the relationship between the demographic variables of the respondents and sources to know about the cement. As per the Table 9 it is clear that significant values are below the commonly accepted value 0.05 for age and qualification of the respondents. Therefore null hypotheses are rejected. That means there is a significant relationship between age and qualification of the respondents and sources to know about the cement. But as per the Table 9, significant values are above the commonly accepted value 0.05 for gender and occupation. Hence there is no significant relationship between gender and occupation of the respondents and sources to know about the cement.

Results and implications: It is found that, 63.6% of the respondents' construction estimate was Rs. 29 lakhs and above. This is because of the soaring price of essential raw materials for housing construction like cement, bricks, steel bars, sand and labours. It is found that respondents are familiar with Sankar cement, UltraTech and Dalmia cement. It is found that all the respondents are aware of 'Grade OPC 53, Grade OPC43 and PPC cements. Cement companies need to create awareness about grade 'PSC' and white cement. It is found that 54.5% of the respondents came to know about cement through dealers. It is suggested to follow pull strategy to encourage cement dealers by means of giving proper incentives. It is found that qualified respondents are aware about various grades of cement. It is suggested to create awareness about various grades of cement among users.

Table 7: Demographic variables vs. type of brands of cement

Demographic variables vs. type of brands of cement	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square			
Qualification * PSC	22.097 (a)	2	0.000
Qualification * white cement	23.007 (a)	2	0.000
Qualification * SRC	6.898 (a)	2	0.032
N of valid cases	528.000		

Table 8: Relationship between demographic variables and awareness about various brands of cement

ANOVA						
Demographic variables	Source of variance	S.S.	df	M.S.	F	Sig.
Age	Between groups	13.507	3	4.502	5.423	0.001
	Within groups	430.079	518	0.830		
	Total	443.586	521			
Gender	Between groups	0.008	3	0.003	0.112	0.953
	Within groups	11.717	518	0.023		
	Total	11.724	521			
Qualification	Between groups	14.534	3	4.845	7.875	0.000
	Within groups	318.677	518	0.615		
	Total	333.211	521			
Occupation	Between groups	44.899	3	14.966	6.053	0.000
	Within groups	1280.756	518	2.473		
	Total	1325.655	521			

S.S.: Sum of square; M.S.: Mean square

Table 9: Relationship between demographic variables and sources to know about the cement

ANOVA						
Demographic variables	Source of variance	S.S.	df	M.S.	F	Sig.
Age	Between groups	11.637	2	5.819	6.991	0.001
	Within groups	431.949	519	0.832		
	Total	443.586	521			
Gender	Between groups	0.087	2	0.043	1.931	0.146
	Within groups	11.638	519	0.022		
	Total	11.724	521			
Qualification	Between groups	11.367	2	5.683	9.165	0.000
	Within groups	321.844	519	0.620		
	Total	333.211	521			
Occupation	Between groups	10.291	2	5.145	2.030	0.132
	Within groups	1315.364	519	2.534		
	Total	1325.655	521			

S.S.: Sum of square; M.S.: Mean square

CONCLUSION

Apart from industrial and infrastructure sectors, housing sector perform as the major development driver for cement in India. In Indian cement industry many players both from national and regional are competing for their market share. Cement companies need to create awareness about various grades of cement. Because of the stringent competition cement companies have to enhance their brand equity.

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