



ISSN Print: 2394-7500  
ISSN Online: 2394-5869  
Impact Factor: 5.2  
IJAR 2015; 1(12): 1011-1016  
www.allresearchjournal.com  
Received: 05-09-2015  
Accepted: 09-10-2015

**Ashwin A Santoki**  
Assistant Professor,  
Naranlala School of Industrial  
Management and Computer  
Science - MBA, Bhagwati  
Sankul, Near Eru Char Rasta,  
Navsari.

## **Factor Analysis: A Study of Consumer Behavior towards FM Radio in Surat City**

**Ashwin A Santoki**

### **Abstract**

With the entries of private players in FM Radio segment, FM Radio has gained popularity in India. This article examines the attractive factors affecting consumer behavior of FM Radio Listeners in Surat City, for this software SPSS is use for Factor-Analysis and a sample of 400 respondents representing the listener of RM Radio in the Surat city have being analyzed. The researcher has used descriptive research design and structured questionnaire is used as a tool of data collection. The dependent variables were attractiveness factors represented by these variables, namely Entertainment with good frequency, Sharing songs and other information, RJ, Location to listen radio, Escape from boredom, Language spoke on radio and Value added Radio Programs. The independent variables were the demographic profiles of consumers namely, age, gender and occupation.

**Keywords:** Consumer Behavior, Consumer profiles, FM Radio & Surat City.

### **1. Introduction**

In India radio broadcasting had begun in 1935 by air and in 2001 the first private FM radio went on air. It is estimated that 25 % of mobile subscribers in India have radio enabled mobile phones; this simply means that more than 60 million people have access to radio-on-the-move. Industry revenues, too, are showing an upward spiral. The radio broadcasting has become one of the major sources of information in the world. In July 2005, the union cabinet approved and permitted the second phase of FM broadcasting in the private sector, in which more emphasis was given to the growth of services and its importance to our economy than generating revenue for the government. There are varieties of programs or activities that go with the waves from radio stations, including talk shows, music, drama, news, announcements and education among others that provide useful information to the listeners. Talking about Surat city, different FM radio stations are there i.e. 98.3 (Radio Mirchi), 92.7 (Big FM), 91.1 (Radio City), 94.3 (My FM) and 101.1 (Vividh Bharti). Advertising of goods and services is the route to capture more customers, increase firm's revenues and improve a company's image in society. In USA, 70 percent of all radio revenues come from local retailers, and only 30 percent comes from either national or international advertisers or from the network of advertisers, while in India, retail comprises only 8 percent of radio advertising. Radio is a cost effective medium for creating awareness and advertising a company's products and services. FM radio has today enabled advertisers to reach out to the audiences cost-effectively. International research indicates that radio has 60% of television's effectiveness at increasing campaign awareness amongst an audience of 16-44 year old radio listeners.

### **Review of Literature**

Alan Albarran (2007) <sup>[1]</sup> – the researcher has survey 430 undergraduate students regarding uses & gratification of Radio and new technologies, the sample studied is entirely focus on youth whose age is between 18-24. The findings shows that youth mostly preferred to listened radio with MP3 player with latest technology.

C. Rajalakshmi (2012) <sup>[3]</sup> – the researcher has studied the marketing strategies adopted by FM radio, and the findings show FM radio is the cheapest medium for advertising, the most listeners of FM radio are students and working men, 60-70% people listening radio while driving their car, the average daily listeners in households are 54% as compared to 85%.

### **Correspondence**

**Ashwin A Santoki**  
Assistant Professor,  
Naranlala School of Industrial  
Management and Computer  
Science - MBA, Bhagwati  
Sankul, Near Eru Char Rasta,  
Navsari.

television viewer, time spent in listening to radio is 105 minutes as compared to average TV viewers of 135 minutes. Everlyne Nafula (2007) – the researcher has identified the factors influencing the content preference towards FM radio in Nairobi, descriptive research has been done with the help of questionnaire with open ended and close ended questions. The researcher selected 200 youth from day secondary schools in Nairobi for the research study and finds that youth tune to FM stations mainly for entertainment, news and information on issues affecting them, the study also shows that peer influence is the leading factor influencing content preference among youth FM listeners.

Farm Radio International (2007) - it is an organization who works in direct partnership with 300 radio broadcasters approximately in 39 African countries to fight poverty and food insecurity. With an emphasis on increasing food supplies, this organization disseminates information about low cost, successful agricultural practices throughout Africa. Gavin Anderson and David Elliott (2007) [8] - researchers' findings show that the impact of commercial radio in Uganda on the livelihoods of the rural poor, an experiential research design & a case study approach was chosen primarily by the researchers due to reasons of cost and time for the research. There is a great impact of radio programs on farmers in rural areas of Uganda.

London Economics Association (2007) - the sampling approach used by the researchers was to apply stratified random sampling with a panel of over 315,000 UK adults of which online survey was answered by 5,099 respondents, the findings shows older consumers have a higher willingness to pay for the sound attribute of digital radio than younger consumers, men have a higher willingness to pay for each of the attributes of digital radio, rural people have a higher willingness to pay for sound attribute of digital radio.

Maria Elena Reyes, Louise Balaba and Kamille Kaye (2012) [12] – the researchers have studied the consumers' preferences of FM Radio Listeners in Cagayan De Oro City based on functional approaches on Broadcast Media. They have used descriptive research for their study and results shows that most of the respondents listening radio for entertainment and male prefer to listen radio while travelling as compared to female.

N. Ananthi (2007) [13] – the researcher has studied the current preference of respondents regarding FM radio in Chennai. The findings of the research shows that there is significant difference between the occupation and the number of days respondents listen to FM Radio i.e. it depends on the individuals' occupational status, the number of days he/she listens to radio FM, There is no significant difference between different age group with respect to the time when the respondents listen to FM Radio, information sharing on FM radio & programs on FM radio are the most important attributes affecting consumers' behavior, consumers don't like to listen advertisement on radio and Radio Mirchi is the most preferred FM radio.

Paul Adjei Kwakwa (2012) [16] – the researcher has studied in the semi-rural town Akropong-Akuapem, the district capital of the Akuapem North district, the researcher studied the factors affecting consumer behaviour towards FM radio i.e. overall image of the station, clear reception, station heritage, news coverage, kind of programs, presenters and the status of the individual influenced the choice of radio station, 75 sample has been used which is almost 68% of total

population, the study shows there is no influence of friends & family members in selection of FM radio channels. Rajagopal (2011) [17] – the researcher had analyze the effect of radio advertisements in urban areas towards buying behaviour specially on retail stores and also studied the role of radio advertising on information on the retail sales promotions. The researcher had done empirical investigation of urban people who acquire information on sales promotion by listening radio advertisements during travel time. The finding shows that the consumer's shopping behaviour in urban area at retail stores with response to radio advertisements is highly influenced by the physical, cognitive and economic variables. The study shows the attractive nature of consumer towards radio advertisement which is entertaining.

**Research Methodology**

**Research Objectives**

The objective of this research is to find out the variables or factors affecting consumer behavior towards FM Radio in Surat city.

**Research Design**

Descriptive Research Design has been used for this research.

**Method of Data Collection**

The researcher has collected primary data from respondent reside in Surat city who are FM Radio listeners; researcher has collected the data by personally interviewing the respondents with a structured questionnaire.

**Sampling Plan**

1	<b>Sample Size</b>	<b>400 samples</b>
2	Sampling Units	Respondents from different background i.e. students, businessman, professional, service employees, housewives etc.
3	Sampling Methods	Non Probability Convenience Method
4	Sampling Area	Different Areas Surat City (Athwalines, Rander, Majura, Varachha, Railway Station etc.

**Data Analysis**

**Table 1:** Shows Frequencies and Percentage of Demographic Variables

factor	categories	frequency	count	percentage
Age	Below 18	400	27	6.8
	18-24		96	24.0
	25-34		135	33.8
	35-44		55	13.8
	45-54		40	10.0
	55-64		29	7.2
	65-74		18	4.5
Gender	Male	400	211	52.8
	Female		189	47.2
Occupation	Students	400	78	19.5
	Professional		28	7.0
	Retired		25	6.2
	Self-Employed		31	7.8
	Business Man		72	18.0
	Housewives		80	20.0
	Salaried		86	21.5

**Table 2:** Consumer Perception towards FM Radio

SA=Strongly Agree, A = Agree, N = Neutral, DA = Disagree & SDA = Strongly Disagree							
	Statements	1 SA	2 A	3 N	4 DA	5 SDA	Mean Score
1	I like to listen radio when i am at office or work place	47	40	58	194	61	3.46
2	I like to listen Current affair programs like current & latest news	16	136	211	34	3	2.68
3	I like to listen Business related programs	71	139	128	51	11	2.48
4	I like to listen Health programs	81	133	124	55	7	2.44
5	I like Language of different programs	74	127	150	28	21	2.49
6	I like to listen radio for entertainment & fun	79	144	102	56	19	2.48
7	I listen radio because it provides information which is important	61	108	141	52	38	2.74
8	I like to listen station presentation	66	120	137	58	19	2.61
9	I listen radio to change my mood	75	115	149	35	26	2.56
10	I like to listen radio when I feel bored	72	108	169	38	13	2.53
11	I listen to radio to hear my favorite RJ programs	60	107	139	65	29	2.74
12	I like to hear jokes on radio	86	130	110	43	31	2.51
13	I like to listen to radio while travelling	146	96	97	45	16	2.22
14	I only like to listen radio when frequency is good	247	78	45	19	11	1.67
15	I like to share news/information to others via radio stations.	19	41	123	136	81	3.55
16	I like to call in radio station for "song on demand" or to dedicate song to others	13	29	111	124	123	3.79
17	I like to purchase products/ services after listening advertisement on radio.	25	39	106	95	135	3.69

**Factor Analysis**

**Purpose:** To determine the representative factors from various variables.

**Table 3:** KMO and Bartlett's Test

<b>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</b>		<b>0.605</b>
Bartlett's Test of Sphericity	Approx. Chi-Square	1.142E3
	df	136
	Sig.	0.000

**Kaiser-Meyer-Olkin Value**

Factor Analysis Test is used to determine reduced factors from various factors. Before applying factor analysis test first we have to determine the value of KMO. A measure of

whether the distribution of values is adequate for conducting factor analysis. Kaiser designates levels. A measure >0.9 is marvelous, >0.8 is meritorious, >0.7 is middling, >0.6 is mediocre, >0.5 is miserable, and <0.5 is unacceptable. In this case 0.605, this is mediocre.

Bartlett Test of Sphericity is a measure of the multivariate normality of set of distributions. It also tests whether the correlation matrix is an identity matrix or not. (Factor analysis is meaningless without Identity matrix). A significant value < 0.05 indicates that these data do not produce an identity matrix or differ significantly from Identity matrix and are thus approximately multivariate normal and acceptable for factor analysis. In this case the Bartlett Test value is 0.000<0.05, so my set of distribution is multivariate normal and acceptable for factor analysis.

**Table 4:** Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.715	15.970	15.970	2.715	15.970	15.970	1.966	11.564	11.564
2	2.102	12.366	28.336	2.102	12.366	28.336	1.877	11.040	22.604
3	1.663	9.785	38.121	1.663	9.785	38.121	1.683	9.898	32.502
4	1.317	7.745	45.866	1.317	7.745	45.866	1.553	9.135	41.638
5	1.116	6.563	52.429	1.116	6.563	52.429	1.447	8.512	50.149
6	1.031	6.067	58.496	1.031	6.067	58.496	1.308	7.693	57.842
7	1.022	6.009	64.505	1.022	6.009	64.505	1.133	6.663	64.505
8	.871	5.125	69.630						
9	.846	4.979	74.609						
10	.780	4.589	79.199						
11	.705	4.148	83.347						
12	.646	3.799	87.146						
13	.598	3.519	90.664						
14	.489	2.874	93.538						
15	.413	2.432	95.970						
16	.360	2.120	98.091						
17	.325	1.909	100.000						
Extraction Method: Principal Component Analysis.									

Here from the total variance table it is interpreted that the five factors extracted together account for 64.505% of the total variance (information contained in the thirteen original

variables.) Here while reducing these factors to three factors we lost (100-64.505) = 35.495 % of the information contained.

**Table 5: Component Matrix**

	Component						
	1	2	3	4	5	6	7
I like to listen radio when i am at office or work place	.160	.400	.196	-.573	.215	.065	-.055
I like to listen Current affair programs like current & latest news	.257	.139	.194	-.679	-.054	-.019	-.004
I like to listen Business related programs	-.521	-.010	-.086	.212	.133	.211	-.458
I like to listen Health programs	-.527	-.244	-.328	.074	-.419	.023	-.133
I like Language of different programs	.034	-.374	-.394	-.151	-.388	.180	.423
I like to listen radio for entertainment & fun	.456	-.468	-.179	-.068	-.038	.419	.056
I listen radio because it provides information which is important	.545	-.381	-.094	.011	.320	.218	.018
I like to listen station presentation	.609	-.316	.252	.184	-.066	.136	-.129
I listen radio to change my mood	.392	-.104	.553	.324	-.013	.286	-.051
I like to listen radio when I feel bored	-.005	.080	.685	.252	-.291	-.164	.260
I listen to radio to hear my favorite RJ programs	-.568	.108	.435	.076	.006	.229	.115
I like to hear jokes on radio	-.575	-.029	.174	-.076	.229	.479	.180
I like to listen to radio while travelling	-.444	-.097	.037	-.119	.195	.160	.496
I only like to listen radio when frequency is good	.034	-.231	-.168	.304	.584	-.395	.338
I like to share news/information to others via radio stations.	.073	.529	-.314	.195	.206	.328	-.109
I like to call in radio station for "song on demand" or to dedicate song to others	.308	.738	-.253	.186	-.045	.124	.173
I like to purchase products/ services after listening advertisement on radio.	.304	.585	-.163	.238	-.231	.110	.273
Extraction Method: Principal Component Analysis.							
a. 7 components extracted.							

**Table 6: Rotated Component Matrix**

	Component						
	1	2	3	4	5	6	7
I like to listen radio when i am at office or work place	-.049	.115	.069	.732	-.091	-.185	.080
I like to listen Current affair programs like current & latest news	.005	-.093	-.096	.728	.006	.098	.171
I like to listen Business related programs	-.146	-.124	.271	-.400	-.315	-.404	.252
I like to listen Health programs	-.349	-.233	.068	-.490	-.184	.267	.342
I like Language of different programs	.075	-.041	.039	-.124	-.109	.800	.062
I like to listen radio for entertainment & fun	.662	-.063	-.059	-.005	-.214	.384	.064
I listen radio because it provides information which is important	.677	-.052	-.120	.078	-.216	.091	-.256
I like to listen station presentation	.677	-.072	-.303	-.012	.220	-.018	.046
I listen radio to change my mood	.617	.050	.026	-.033	.458	-.232	.104
I like to listen radio when I feel bored	-.020	-.023	.070	-.013	.840	-.074	.033
I listen to radio to hear my favorite RJ programs	-.199	-.080	.623	-.085	.295	-.195	.169
I like to hear jokes on radio	-.048	-.080	.810	-.037	-.077	-.052	.084
I like to listen to radio while travelling	-.167	-.084	.621	.019	.015	.238	-.232
I only like to listen radio when frequency is good	.021	-.078	-.009	-.200	-.062	-.037	-.858
I like to share news/information to others via radio stations	.023	.637	.082	-.046	-.329	-.239	.050
I like to call in radio station for "song on demand" or to dedicate song to others	-.078	.866	-.132	.107	-.004	-.027	-.011
I like to purchase products/ services after listening advertisement on radio	-.038	.766	-.138	.018	.177	.129	.039
Extraction Method: Principal Component Analysis.							
Rotation Method: Varimax with Kaiser Normalization.							
Rotation converged in 12 iterations.							

**Inferences:** Here in the rotated component matrix, researchers can find variables and their correlations with extracted three factors. Here there are SEVEN reduced factors that we get by Factor Analysis Test. These factors can be:

**Table 7: Showing the Factor Analysis of 17 Components**

Factors	Components	Factors Name
Factor 1:	a. I like to listen radio for entertainment & fun b. I listen radio because it provides information which is important c. I like to listen station presentation d. I listen radio to change my mood e. I only like to listen radio when frequency is good	Entertainment with good frequency
Factor 2:	a. I like to share news/information to others via radio stations b. I like to call in radio station for "song on demand" or to dedicate song to others c. I like to purchase products/ services after listening advertisement on radio	Sharing songs and other information
Factor 3:	a. I like to listen Business related programs b. I listen to radio to hear my favorite RJ programs c. I like to hear jokes on radio d. I like to listen to radio while travelling	RJ (Radio Jockey)
Factor 4:	a. I like to listen radio when i am at office or work place b. I like to listen Current affair programs like current & latest news	Location to listen radio
Factor 5:	a. I like to listen radio when I feel bored	Escape from boredom
Factor 6:	a. I like Language of different programs	Language spoke on radio
Factor 7:	a. I like to listen Health programs	Value added Radio Programs

Ho: There are no significance variances between the factors affecting consumer behavior towards FM Radio with demographic profiles of consumers.

Ha: There are significance variances between the factors affecting consumer behavior towards FM Radio with demographic profiles of consumers.

**Table 8:** One-way ANOVA test

Factors affecting consumer behavior towards FM Radio	Demographic profile of consumers		
	Age (Sig. value)	Gender (Sig. value)	Occupation (Sig. value)
Entertainment with good frequency	0.000	0.000	0.000
Sharing songs and other information	0.000	0.000	0.000
RJ (Radio Jockey)	0.000	0.000	0.000
Location to listen radio	0.000	0.000	0.000
Perception of anti-boring	0.000	0.000	0.000
Language spoke on radio	0.000	0.000	0.000
Value added Radio Programs	0.000	0.000	0.000

If the significance (p-value) is less than 0.05, then Ho is rejected.

If the significance (p-value) is greater than 0.05, then Ho is accepted.

### Findings

The 17 components are reduced to seven factors which showing the behavior of the consumer towards FM Radio are Entertainment with good frequency, Sharing songs and other information, RJ, Location to listen radio, Escape from boredom, Language spoke on radio and Value added Radio Programs. A Table 8 showing one way ANOVAs test for studying the significant variance in consumer behavior towards the FM Radio with demographic profiles of consumers, i.e. age, gender and occupation. Many of the respondents dislike listening advertisement on the radio, and like to listen radio while travelling.

### Conclusion

Despite of technology advancement, people are still love to listen radio and the marketers need to do better job of convincing consumer that radio is still one of the best ways to reach them. This study has been able to establish very important aspects about radio listening in Surat City of Gujarat State. The finding shows majority of the respondents listened to the radio very much and they would listen to the radio for a number of reasons among which different entertainment programs, favorite songs etc. As the competition is growing more FM Radio stations it is becoming more important for the existing FM stations to have product differentiation and create a brand image to sustain listenership, and attract more advertisements which are their main source of revenue, though respondents dislike listening advertisement on radio, FM radio stations need to make creative advertisement. Hence it is only through the various Value Added programs, RJ talks, events, contests, Good frequency, etc. that the FM stations can get familiarity and preference.

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