Chapter 5
Analysis and Findings

Chapter 5
Analysis and Findings

5.1. Questionnaire Reliability and Validation (Pilot Study)

Under the study "Role of Individual Perception in selection of Commercial Advertisements on National Level Television Channels with special reference to Consumers of Selected Products in and around Kolkata", a structured questionnaire was designed. The questionnaire was administered to the sample selected for the survey. The data collected from the survey was tabulated and analyzed using different statistical and analytical tools and techniques. By applying relevant statistical techniques, the hypothesis designed in the beginning of the work was tested. The results from the data analysis is interpreted for making generalizations.

However, before going for the data collection, there was a need to test reliability and validity of the designed questionnaire. To conduct the reliability and validity of the questionnaire, a pilot study was conducted on 50 samples. Under the pilot study, a survey was conducted and 50 samples were surveyed. Among the 50 samples, the questionnaire was administered. Data collected was tabulated and chronbach's alpha test was conducted. According to institute for digital research and education, "Cronbach's alpha is a measure of internal consistency that is how closely related a set of items are as a group. It is considered to be a measure of scale reliability. A high value for alpha does not imply that the measure is unidimensional. If, in addition to measuring internal consistency, you wish to provide evidence that the scale in question is unidimensional, additional analysis can be performed.

Exploratory factor analysis is one method of checking dimensionality. Technically speaking Cronbach's alpha is not a statistical test – it is a coefficient of reliability or consistency. Cronbach's alpha can be written as a function of the number of test items and the average inter-correlation among the items. Below, for conceptual purposes, we show the formula for the standardized Cronbach's alpha:

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N-1) \cdot \bar{c}}$$

Here, N is equal to the number of items, c bar is the average inter item covariance among the items and v bar equals the average variance.

One can see from this formula that if you increase the number of items, you increase Cronbach's alpha. Additionally, if the average inter item correlation is low, alpha will be low. As the average inter item correlation increases, Cronbach's alpha increases as well (holding

the number of items constant)."

According to a website, https://statistics.laerd.com, "Cronbach's alpha is the most common measure of internal consistency ("reliability"). It is most commonly used when you have multiple Likert questions in a survey/questionnaire that form a scale and you wish to determine if the scale is reliable.

Case Processing Summary			N	%
Cases		Valid	48	98.0
		Excluded[a]	1	2.0
		Total	49	100.0
a. Listwise deletion based on all variables in the procedure.				

Table 5.1.1: Case Processing Summary

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.719	.720	19

Table 5.1.2: Reliability Statistics

Cronbach's alpha based on standardized items is basically used when the items are of different units and where the central tendency measurement is too different. As in this case the items are free from different units of measurements and only interval scale (Likert scale) is used, therefore Cronbach's alpha is considered.

The alpha coefficient for 19 items is .719, suggesting that the items have relatively high internal consistency. (Note that a reliability coefficient of .70 or higher is considered "accepted" in most social science researches). The item statistics as a part of the analysis is;

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Because music of the advertisement was loud	63.500	86.000	.073	.677	.730
Because music of the advertisement was attractive	63.042	84.722	.161	.621	.720
Because music and message generated thought, images and feelings	63.042	83.317	.235	.542	.713
Because speed of the advertisement was high	63.563	79.443	.434	.616	.695
Because duration of the advertisement was comfortable	63.125	75.516	.511	.477	.684
Because the product/service in the advertisement was with future perspective	62.938	83.634	.267	.622	.710
Because advertisement was mood elevator (it relieved stress, relaxing and e	62.854	80.851	.357	.594	.702
Because it was humours	63.167	77.929	.406	.681	.696
Because it was emotional	63.125	79.899	.369	.428	.700
Because it highlights current issues	62.938	82.017	.282	.511	.708
Because I admire the celebrity endorsing the brand	63.167	81.333	.297	.662	.707
Because it highlights controversy	63.000	80.128	.476	.626	.694
Because it is informative	62.833	80.950	.378	.611	.700
Because it is entertaining	62.771	85.500	.159	.672	.718
Because it is sensual	62.979	86.744	.103	.369	.723
Because others are watching it and I am in a group	63.375	81.771	.270	.634	.710
Because the frequency of appearance of the advertisement is high on televis	63.125	80.197	.349	.649	.702
Because I was exposed to the specific advertisement for the first time	63.271	81.776	.298	.695	.707
Because it adds value in terms of enriching my existing knowledge	63.438	85.230	.135	.487	.722

Table 5.1.3: Item Total Statistics

The above table (table 5.1.3) presents the value that Cronbach's alpha would be if that particular item was deleted from the scale. We can see that removal of any item, except item 1 i.e. 'because music of the advertisement was loud' would result in a lower Cronbach's alpha. Therefore, we would not want to remove these items. Removal of item 1 would lead to a small improvement in Cronbach's alpha, and we can also see that the "Corrected item – total correlation' value was low (.730) for this item. This might lead us to consider whether we should remove this item.

Another approach to test the reliability of the questionnaire was applied. The test which was applied after dividing the test into two halves and comparing the results. The method of testing reliability, using the said process, is commonly known as split half test.

According to IBM Knowledge Center, "Ideally in order to obtain a good estimate of the reliability of a survey, we would like to administer the survey twice to the same group of people and then correlate the two sets of results. However, this is often impractical because bias may be introduced in the second set of answers or because respondents may be unwilling or unable to take the survey a second time. One solution is to compute Cronbach's alpha. Another is to split the items into two groups and then to compare these groups as if they were two separate administration of the same survey".

To conduct the split half test, the items for 50 respondents were split in two groups based on odd and even sums for the items. Scores of odd items in the sample of 50 were calculated and

the scores of even items were calculated. These odd sums and even sums were considered as two splits and the split half reliability was conducted to test internal consistency reliability. The Guttman Split half coefficient is computed using the formula for Cronbach's alpha for two items, inserting the covariance between the items sums of two groups and the average of the variance of the group sums. The result of the same was;

Split half co-efficient	0.789534
Guttman co-efficient	0.88239

Table 5.1.4: Split half coefficient

The alpha coefficient for the items in split half test is .789 and Guttman coefficient for the items is .882, suggesting that the items have relatively high internal consistency. (Note that a reliability coefficient of .70 or higher is considered "accepted" in most social science researches).

In the questionnaire, both nominal and ordinal scales were used to measure the responses. The questions which were dichotomous in nature in the questionnaire were tested for their reliability and validity. In doing so, KR 20 or Kuder – Richardson 20 test was applied.

According to a website, www.statisticshowto.com, Kuder – Richardson Formula 20, or KR 20, measure reliability for a test with dichotomous variables. Reliability refers to how consistent the results from the test are, or how well the test is actually measuring what you want it to measure. The scores for KR 20 range from 0 to 1, where 0 is no reliability and 1 is perfect reliability. The closer the score is to 1, the more reliable the test. Just what constitutes as acceptable KR 20 score depends on the type of test. In general, a score of above .5 is usually considered reasonable.

K	2
SUM OF PQ	0.4548
VARIANCE	0.336734694
KR 20	0.701236364

Table 5.1.5: KR 20 Result

The items in the questionnaire;

Do you switch television channels during advertisements? And while watching TV, do you get

engaged in another work? Which have answers in either yes or no applying dichotomous scale with 1 or 0 responses were tested for their reliability using KR 20 test. In the test results, which is .70, which means it is close to perfect reliability. Hence, the reliability of the questionnaire is accepted and the questionnaire was considered to administer further for the sample.

5.2. Analysis and Findings for the primary data

Based on the survey, which was done by administering the questionnaire among the respondents who were selected on the basis of convenience sampling technique, the primary data from was collected. This data was tabulated in an excel sheet. Post tabulation, the data was analyzed using SPSS and the findings were interpreted to find out the information on the objectives defined in the beginning of the study. Hypothesis which were designed in the beginning of the study were also tested by using relevant statistics technique on the primary data collected and tabulated.

5.2.1. Factor Analysis

According to www.statisticshowto.com, "Kaiser-Meyer-Olkin (KMO) test is needed to measure of how suited your data is for factor analysis. The test measures sampling adequacy for each variable in the model and for the complete model. The statistic is a measure of the proportion of variance among variables that might be common variance. The lower the proportion, the more suited your data is to Factor Analysis. KMO results values between 0 and 1. A rule of thumb for interpreting the statistic, KMO values between 0.8 and 1 indicates the sampling is adequate. KMO values less than 0.6 indicates the sampling is not adequate and that remedial action should be taken. Some authors put this value at 0.5, so use your own judgement for values between 0.5 and 0.6".

As to test the first hypothesis of this study, i.e. all the perceptual factors are not statistically significant, which in turn satisfy the first objective of the study i.e. to study and understand the concept of individual perception and the stimuli which develop individual perception, factor analysis was found suitable. To conduct factor analysis, in the beginning, KMO test was conducted on the tabulated data. The results of KMO test was;

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.875
Bartlett's Test of Sphericity	Approx. Chi-Square	6005.184
	df	595
	Sig.	0.000

Table 5.2.1.1: KMO and Bartlett's Test

In addition to the factor analysis conducted for the tabulated data the KMO and Bartlett's test of sphericity was also conducted. The above table (Table 5.2.1.1) shows two tests that indicate the suitability of the data for structure detection. According to IBM Knowledge Center, "The Kaiser-Mayer-Olkin measure of sampling adequacy is a statistic that indicates the proportion of variance in the variables that might be caused by underlying factors. High value close to 1 generally indicate that a factor analysis may be useful with the data. If the value is less than 0.5 the results to the factor analysis probably won't be very useful". In the above case, the KMO measure of sampling adequacy is 0.875, which is close to 1 and above 0.5. Hence, it can be interpreted that the data can be used to run factor analysis.

Again according to IBM Knowledge Center, "Bartlett's test of sphericity tests the hypothesis that the correlation matrix is an identity matrix, which would indicate that your variables are unrelated and therefore unsuitable for structure detection. Small values less than 0.05 of the significance level indicate that a factor analysis may be useful with the data". In the above case, the significance level is 0.000 i.e. less than 0.05, hence the data can be considered for further factor analysis.

Bartlett's Test of Sphericity, has the following hypothesis;

Null hypothesis: the correlation matrix is identical

Here the significance value, is 0.000 which is less than .05, hence null hypothesis cannot be accepted. Which proves that the correlation matrix is not identical in nature. It means that certain amount of correlation exists among the variable which allows to run factor analysis.

Factor analysis is a process in which the values of observed data are expressed as functions of a number of possible causes in order to find which are the most important. According to https://stats.idre.ucla.edu (Factor Analysis), "it is a method of data reduction. It does this by seeking underlying unobservable (latent) variables that are reflected in the observed variables (manifest variables). There are many different methods that can be used to conduct a factor analysis such as principal axis factor, maximum likelihood, generalized least squares, and

unweighted least squares. There are also many different types of rotations that can be done after the initial extraction of factors, including orthogonal rotations, such as varimax and equamax, which impose the restriction that the factors cannot be correlated and oblique rotations, such as promax, which allow the factors to be correlated with one another. It also need to determine the number of factors that is needed to extract. Given the number of factor analysis techniques and options. It is not surprising that different analysists could reach very different results analyzing the same data set".

Communalities	Initial	Extraction
When I have prior product/service knowledge	1.000	.605
When I have prior plans to purchase that product/service	1.000	.611
When I want to know about an unknown product/service to build my knowledge	1.000	.579
When I have some knowledge about the product/service and I want to increase that knowledge (price, benefits, country of origin, company etc.)	1.000	.602
Because product/service is popular/well-known in my network	1.000	.595
Because you have already purchased the product	1.000	.567
To know the changes/modifications in the product/service benefits	1.000	.627
To know about the offers/ discounts and/or price reductions of the product/service	1.000	.483
Because it is number One product/service in its category	1.000	.561
Because the product/service is from a well-known company (Brand Image is good)	1.000	.560
Because someone whom I know asked me to watch the advertisement	1.000	.600
Because I have seen the advertisement earlier on television	1.000	.309
Because I have seen the advertisement earlier on internet	1.000	.563
Because of the message in the advertisement	1.000	.363
Because advertisement was shown in a time when I have no other alternative but to watch it	1.000	.394
Because visuals of the advertisement was attractive	1.000	.637
Because music of the advertisement was loud	1.000	.562
Because music of the advertisement was attractive	1.000	.651
Because music and message generated thought, images and feelings	1.000	.563
Because speed of the advertisement was high	1.000	.466
Because duration of the advertisement was comfortable	1.000	.507
Because the product/service in the advertisement was with future perspective	1.000	.517
Because advertisement was mood elevator (it relieved stress, relaxing and escape from worries and cares)	1.000	.310
Because it was humours	1.000	.689
Because it was emotional	1.000	.494
Because it highlights current issues	1.000	.539
Because I admire the celebrity endorsing the brand	1.000	.637
Because it highlights controversy	1.000	.451
Because it is informative	1.000	.650
Because it is entertaining	1.000	.437
Because it is sensual	1.000	.388
Because others are watching it and I am in a group	1.000	.538
Because the frequency of appearance of the advertisement is high on television channels	1.000	.343
Because I was exposed to the specific advertisement for the first time	1.000	.636
Because it adds value in terms of enriching my existing knowledge	1.000	.315

Extraction Method: Principal Component Analysis.

Table 5.2.1.2: Communalities

In case of principal component analysis, at first the number of factors should be equal to the number of variables. After iteration, the variance reduces, which is shown in the extraction column. In the above case 5 iterations have been used.

Total Variance Explained									
	Initial Eigenvalues			Loadings			Loadings		
Compone nt	Total	% of Variance	Cumulativ e %	Total	% of Variance	Cumulativ e %	Total	% of Variance	Cumulativ e %
1	7.744	22.127	22.127	7.744	22.127	22.127	5.462	15.605	15.605
2	4.265	12.187	34.314	4.265	12.187	34.314	4.864	13.897	29.502
3	3.037	8.678	42.992	3.037	8.678	42.992	4.082	11.662	41.165
4	1.796	5.131	48.122	1.796	5.131	48.122	2.126	6.074	47.239
5	1.507	4.306	52.428	1.507	4.306	52.428	1.816	5.190	52.428
6	1.146	3.274	55.703						
7	1.050	2.999	58.701						
8	1.001	2.859	61.561						
9	.907	2.590	64.151						
10	.862	2.462	66.613						
11	.791	2.261	68.873						
12	.733	2.094	70.967						
13	.729	2.083	73.051						
14	.679	1.939	74.989						
15	.651	1.861	76.850						
16	.633	1.810	78.660						
17	.593	1.696	80.355						
18	.550	1.572	81.927						
19	.547	1.562	83.490						
20	.523	1.495	84.984						
21	.495	1.416	86.400						
22	.486	1.390	87.790						
23	.453	1.295	89.085						
24	.427	1.221	90.306						
25	.417	1.191	91.497						
26	.390	1.113	92.610						
27	.360	1.029	93.639						
28	.342	.977	94.616						
29	.330	.944	95.560						
30	.315	.901	96.460						
31	.298	.852	97.312						
32	.271	.775	98.087						
33	.243	.695	98.782						
34	.220	.629	99.411						
35	.206	.589	100.000						

Extraction Method: Principal Component Analysis.

**Table 5.2.1.3: Extraction method for number of factors**

The above table 5.2.1.3; it is to find out the number of factors. There are three popular ways to measure the number of factors. First one is, Eigen value. Generally, the factors which are having Eigen value greater than 1 are the final factors that needs to be kept. From the above

analysis 8 factors were found.

The second is expert judgement. Here the flexibility has been given, so no such stringent rule is there to extract factors.

Third one is amount of variance explained. Generally, variance explained greater than 60% is sufficient. Here, I have preferred to keep 5 factors as in factor number 6, 7 and 8 only one variable per factor was derived. Moreover, this factors have certain amount of noticeable correlation with other factors. Hence, 5 factors have been kept. This can be further verified drawing scree plot. In the scree plot, first knee have occurred at factor number 5.

In this research PCA (principal component analysis) is conducted instead of factor analysis as the main aim of this research is to reduce dimensions and not to find latent variables.

Scree Plot
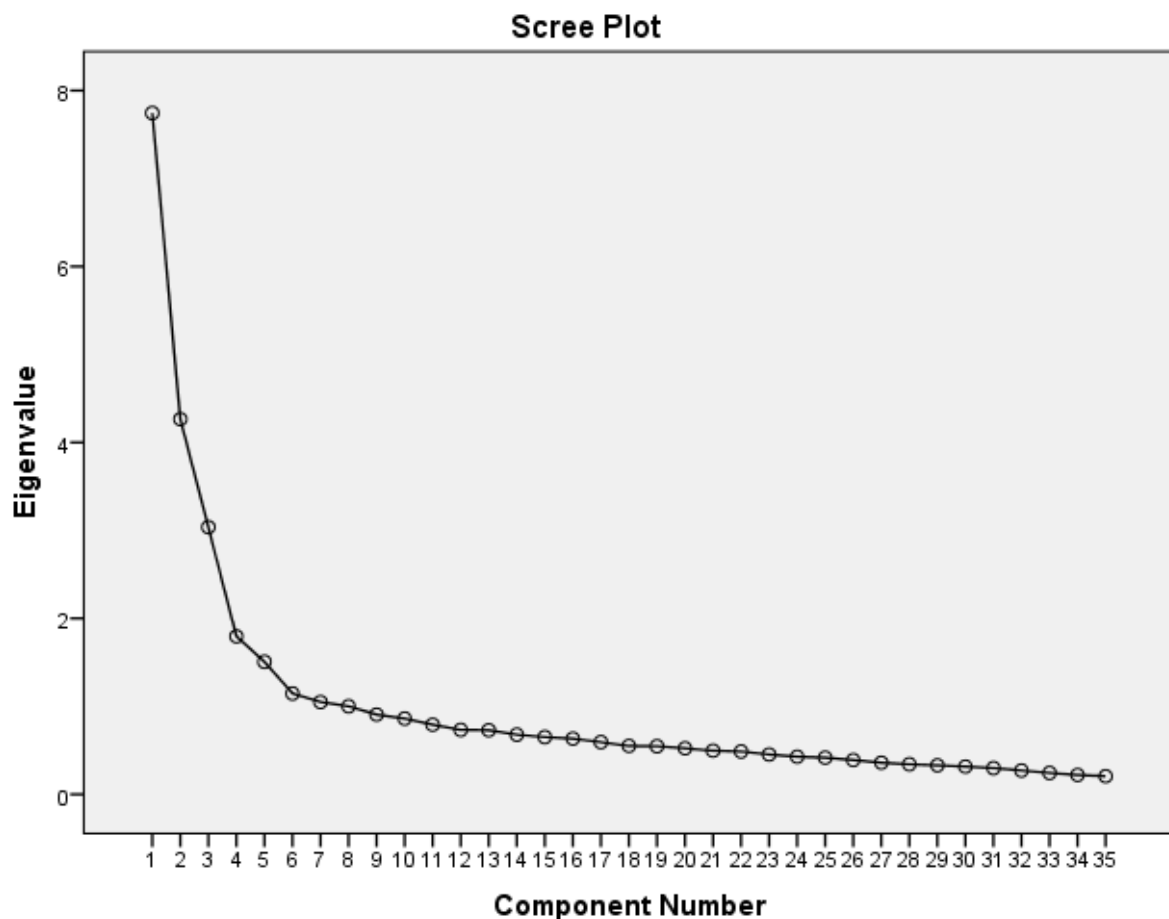
Before rotation, the initial factor loading (correlation between a variable and a factor) is given by the following table.

Component Matrix[a]	Component				
	1	2	3	4	5
When I have prior product/service knowledge	.626	-.134	-.417	.076	.123
When I have prior plans to purchase that product/service	.566	-.281	-.295	.149	-.320
When I want to know about an unknown product/service to build my knowledge	.724	-.149	-.162	-.048	.065
When I have some knowledge about the product/service and I want to increase that knowledge (price, benefits, country of origin, company etc.)	.592	-.182	-.370	.108	-.264
Because product/service is popular/well-known in my network	.670	-.271	-.217	.090	-.134
Because you have already purchased the product	.555	-.166	-.146	.105	-.446
To know the changes/modifications in the product/service benefits	.663	-.139	-.382	.035	.142
To know about the offers/ discounts and/or price reductions of the product/service	.556	-.005	-.413	.029	.043
Because it is number One product/service in its category	.569	-.113	-.454	.033	.133
Because the product/service is from a well-known company (Brand Image is good)	.613	-.007	-.378	.191	.071
Because someone whom I know asked me to watch the advertisement	.496	.573	.041	-.127	.085
Because I have seen the advertisement earlier on television	.356	.355	.085	-.194	.107
Because I have seen the advertisement earlier on internet	.402	.575	-.120	-.097	.217
Because of the message in the advertisement	.319	.246	-.133	-.169	.394
Because advertisement was shown in a time when I have no other alternative but to watch it	.389	.416	.182	.037	-.186
Because visuals of the advertisement was attractive	.512	.570	.100	-.195	-.052
Because music of the advertisement was loud	.456	.486	.225	-.185	-.181
Because music of the advertisement was attractive	.485	.535	.253	-.210	-.147
Because music and message generated thought, images and feelings	.474	.501	.275	-.092	.059
Because speed of the advertisement was high	.524	.346	.138	-.182	-.141
Because duration of the advertisement was comfortable	.216	-.226	.396	-.075	-.496
Because the product/service in the advertisement was with future perspective	.545	-.401	.195	-.139	.047
Because advertisement was mood elevator (it relieved stress, relaxing and escape from worries and cares)	.292	.081	.459	.008	.089
Because it was humours	.370	-.523	.493	-.104	.160
Because it was emotional	.368	-.391	.436	-.036	-.121
Because it highlights current issues	.275	-.455	.359	-.034	.355
Because I admire the celebrity endorsing the brand	.497	-.440	.311	-.172	-.266
Because it highlights controversy	.454	-.272	.373	.000	.176
Because it is informative	.471	-.492	.314	.025	.294
Because it is entertaining	.564	-.199	.056	-.044	.273
Because it is sensual	.219	.188	.154	.529	.036
Because others are watching it and I am in a group	.049	.288	.197	.641	.048
Because the frequency of appearance of the advertisement is high on television channels	.074	-.104	.347	.454	-.024
Because I was exposed to the specific advertisement for the first time	.317	.438	.261	.523	-.048
Because it adds value in terms of enriching my existing knowledge	.180	.150	.175	.451	.162

Extraction Method: Principal Component Analysis.

a. 5 components extracted.

Table 5.2.1.4: Component Matrix (Before rotation)

After rotation (Varimax), the following rotated component matrix have been derived.

Rotated Component Matrix[a]					
	Component				
	1	2	3	4	5
When I have prior product/service knowledge	.748	.090	.127	.008	-.143
When I have prior plans to purchase that product/service	.700	-.012	.089	.036	.333
When I want to know about an unknown product/service to build my knowledge	.642	.242	.328	-.027	-.010
When I have some knowledge about the product/service and I want to increase that knowledge (price, benefits, country of origin, company etc.)	.735	.064	.026	.006	.239
Because product/service is popular/well-known in my network	.701	.077	.250	.034	.187
Because you have already purchased the product	.573	.127	.073	.054	.463
To know the changes/modifications in the product/service benefits	.746	.128	.179	-.014	-.148
To know about the offers/ discounts and/or price reductions of the product/service	.665	.171	.006	-.019	-.104
Because it is number One product/service in its category	.719	.080	.078	-.043	-.174
Because the product/service is from a well-known company (Brand Image is good)	.708	.152	.040	.148	-.111
Because someone whom I know asked me to watch the advertisement	.176	.096	-.030	.730	-.160
Because I have seen the advertisement earlier on television	.084	.528	.074	-.018	-.132
Because I have seen the advertisement earlier on internet	.208	.621	-.126	.075	-.335
Because of the message in the advertisement	.206	.345	-.436	-.067	.085
Because advertisement was shown in a time when I have no other alternative but to watch it	.088	.558	-.023	.217	.163
Because visuals of the advertisement was attractive	.148	.783	-.024	.042	-.016
Because music of the advertisement was loud	.057	.730	.026	.051	.153
Because music of the advertisement was attractive	.042	.794	.044	.054	.120
Because music and message generated thought, images and feelings	.034	.716	.127	.175	-.055
Because speed of the advertisement was high	.190	.636	.095	.009	.129
Because duration of the advertisement was comfortable	-.029	.107	.293	-.015	.639
Because the product/service in the advertisement was with future perspective	.327	.086	.612	-.088	.145
Because advertisement was mood elevator (it relieved stress, relaxing and escape from worries and cares)	-.107	.323	.388	.203	.052
Because it was humours	.036	-.039	.817	-.011	.137
Because it was emotional	.072	.038	.600	.043	.353
Because it highlights current issues	.038	-.109	.717	.032	-.104
Because I admire the celebrity endorsing the brand	.242	.094	.577	-.124	.471
Because it highlights controversy	.134	.124	.634	.118	.042
Because it is informative	.228	-.061	.766	.085	-.032
Because it is entertaining	.386	.162	.490	.024	-.146
Because it is sensual	.100	.114	.604	.034	.002
Because others are watching it and I am in a group	-.054	.072	-.094	.721	-.030
Because the frequency of appearance of the advertisement is high on television channels	-.071	-.097	.226	.164	.501
Because I was exposed to the specific advertisement for the first time	.052	.385	-.040	.121	.693
Because it adds value in terms of enriching my existing knowledge	.646	.090	.093	.534	-.105

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. [a]

a. Rotation converged in 6 iterations.

Table 5.2.1.5: Rotated Component Matrix

Here, after 6 iteration and using varimax rotation, the above information has been derived,

where the

- Chocolate color denote factor 1,

- Green color denote factor 2,

- Olive color denote factor 3,

- Pink color denote factor 4 and

- Violet color denote factor 5.

The factor 1 is labeled as Knowledge

Factor 2 is labeled as Nature

Factor 3 is labeled as Content

Factor 4 is labeled as Peer influence

Factor 5 is labeled as duration

Component Transformation Matrix					
nt	1	2	3	4	5
1	.715	.527	.433	.129	.087
2	-.220	.735	-.554	.228	-.228
3	-.640	.258	.601	.291	.278
4	.162	-.333	-.143	.917	.033
5	-.065	-.066	.352	.075	-.928

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table 5.2.1.6: Component transformation Matrix.

This factor transformation matrix, has been multiplied with the component matrix to find out rotated component matrix. Rotation is required because, in some cases it is difficult to decide on which factor a variable can be associated as loadings and can be very close in the case of more than one factor.

5.2.2. Logistic Regression

Logistic Regression is modeled to honor the second objective of the study, i.e. "to study the role of individual perception in selecting commercial advertisement on television".

Here the dependent variable is question number 16, i.e. checking liking and disliking of advertisement. The rationale behind considering the point of liking and disliking of

advertisement as dependent variable in the model is the observation made by Rodgers and Thorson, (2000), wherein they researched and found out that if an individual recall an advertisement it indicate attention and perception for the advertisement, which can be considered as resulting into liking or disliking of the advertisement.

The question asking the respondent of its liking or disliking of advertisement was scaled as dichotomous in the questionnaire. The independent variables which were considered to analyze further were the derived five factors which are almost uncorrelated among each other and continuous in nature. Based on the nature of dependent variable which is dichotomous and independent variables which are continuous in nature, 'binary logistics regression' was considered.

5.2.2.1. Assumption testing:

To apply logistic regression, there are certain assumptions which is needed to be tested. If the test results support applying logistics regression, then only the method is applied. As for the study, it was planned to apply logistics regression on the collected data, certain assumptions were tested.

First, binary logistic regression requires the dependent variable to be binary and ordinal.

Second, logistic regression requires the observations to be independent of each other. In other words, the observations should not come from repeated measurements or matched data. (No one respondent has been repeated while collecting data)

Third, logistic regression requires there to be little or no multicollinearity among the independent variables. This means that the independent variables should not be too highly correlated with each other. (While doing factor analysis, the resultant correlation matrix has shown low correlation among each other, therefore, it can be said that observations are independent of each other)

Fourth, logistic regression assumes linearity of independent variables and log odds. Although this analysis does not require the dependent and independent variables to be related linearly, it requires that the independent variables are linearly related to the log odds.

Finally, logistic regression typically requires a large sample size. A general guideline is that you need at minimum of 10 cases with the least frequent outcome for each independent variable in your model. For example, if you have 5 independent variables and the expected probability of your least frequent outcome is .10, then you would need a minimum sample size of 500 (10*5 / .10).

Classification Table[a]					
			Predicted		
					Percentage Correct
Observed			Liked	Disliked	
Step 1	The television advertisement you watched lastly (with reference to the questions above), did you (please tick)	Liked	0	128	0.0
		Disliked	0	371	100.0
	Overall Percentage				74.3
a. The cut value is .500					

Table 5.2.2.1: Classification Table in block 0

The table 5.2.2.1 is a classification table for block 0. It has accuracy of 74.3%. It shows that originally 74% audience dislike the advertisement and the model have predicted the same.

Variables in the Equation		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	3.409	.254	180.043	1	.000	30.250

Table 5.2.2.2: Variable in the equation in Block 0

In the table 5.2.2.2 as it is block 0, only the constant have been added, and no variables have been added.

Variables not in the Equation			Score	df	Sig.
Step 0	Variables	V2	.001	1	.982
		V3	1.159	1	.282
		V4	.067	1	.796
		V5	3.685	1	.055
		V6	1.729	1	.188
	Overall Statistics		6.902	5	.228

Table 5.2.2.3: Variables not in the equation in Block 0

The table 5.2.2.3. shows, that these variables are not added in the equation. The V2 to V6 are the factors derived and named earlier.

Here V1 is the intercept or the constant in the model.

Factor 1 is labeled as Knowledge (V2)

Factor 2 is labeled as Nature (V3)

Factor 3 is labeled as Content (V4)

Factor 4 is labeled as Peer influence (V5)

Factor 5 is labeled as duration (V6)

Step 1 – Method = Enter

There are three methods, forward, backward and enter. Enter method have been applied in this case.

Classification Table[a]			Predicted		
			dep		Percentage Correct
Observed			0	1	
Step 1	dep	0	0	16	0.0
		1	0	484	100.0
	Overall Percentage				96.8
a. The cut value is .500					

Table 5.2.2.4: Classification table in Block 1

After adding all the variables, the model accuracy has been improved to 96.8%. This is shown in table 5.2.2.4. Therefore, 97% audience view the advertisement on television disliked and the model also predict the same.

Here the cut off value is .50. The sensitivity is the percentage of occurrences correctly predicted. Here in this case it is 96.8%. The specificity which is the percentage of non-occurrences being correctly predicted is 100%. False positive rate is 0% and the false negative rate is which is percentage of predicted non-occurrences which are incorrect is 3.2%.

Variables in the Equation								
							70% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1ᵃ	V2	-.032	.033	.930	1	.335	.968	.928	1.011
	V3	.030	.000	1.918	1	.166	1.000	1.000	1.001
	V4	-.001	.023	.001	1	.972	.999	.970	1.029
	V5	.040	.000	3.245	1	.072	1.000	1.000	1.000
	V6	.033	.028	1.380	1	.240	1.033	.997	1.071
	Constant	1.487	1.308	1.292	1	.256	4.425		
a. Variable(s) entered on step 1: V2, V3, V4, V5, V6.									

Table 5.2.2.5: Variables in the equation in Block 1

The table 5.2.2.5 shows the individual significance of the variables of this study. Here, the confidence interval has been kept at 70%. From the table, Wald is good if it is more. It is to be judged by the significance level. As here 70% has been kept as CI (Confidence Interval) so level of significance is 30%. The table shows, that variable V2, V3, V5 and V6 are significant. Whereas V4, is not significant as its significance value is .972 which is greater than .30 (.30 or less is considered as significant)

Hence the model equation is

$$\ln (P/1\text{-}P) = 1.487 - .032V2 + .030V3 - .001V4 + .040V5 + .033V6$$

In the above model;

V2 = Knowledge

V3 = Nature

V4= Content

V5 = Peer influence

V6 = duration

P/1-P is known as odds.

Here from the model we can interpret that nature, peer influence and duration has a positive impact on liking and disliking of an advertisement, whereas knowledge and content having negative impact. Although content is not statistically significant so we can omit this.

As for the study in consideration, sample size is limited to 500 only, the confidence interval has been kept at 70%. As there is more scope of committing type 1 error.

5.2.2.2. Goodness of fit

Omnibus Tests of Model Coefficients		Chi-square	df	Sig.
Step 1	Step	9.321	5	.097
	Block	9.321	5	.097
	Model	9.321	5	.097

Table 5.2.2.6: Omnibus tests of Model Coefficients

Table 5.2.2.6, omnibus tests of model coefficients, gives the result of the likelihood ratio test which indicates whether the inclusion of content as a variables contributes significantly to model fit. A p-value (sig) of less than 0.05 for block means that the block 1 model is a significant improvement to the block 0 model. However, in this case the p value is .097. It is insignificant. Hence it can be interpreted that for an audience, content does not influence much in comparison to other variables.

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	132.306[a]	.018	.075
a. Estimation terminated at iteration number 7			

Table 5.2.2.7: Model Summary

In the case of standard regression model, co-efficient of determination (R^2) value gives indication regarding variation in y which is explained by the model. This calculation is not relevant for logistic regression, however, the 'Model Summary' table i.e. table 5.2.2.7, gives values for two pseudo R^2 values which measure something similar. From the table above, we can interpret that Cox and Snell R square, is .018 whereas Nagelkerke R square is .075.

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	5.058	8	.751

Table 5.2.2.8: Hosmer and Lameshow Test

Hosmer and Lemenshow test, has the null hypothesis that the model is not fit. Whereas, it has the alternative hypothesis that the model helps to predict correctly. It has the significance value of .751 which is greater than .30. Hence we can accept alternative hypothesis which ensure our model fitness.

Correlations			The television advertisement you watched lastly, did you liked or disliked
Spearman 's rho	The television advertisement you watched lastly, did you liked or disliked	Correlation Coefficient	1
		Sig. (2-tailed)	
		N	500
	NATURE	Correlation Coefficient	0.678
		Sig. (2-tailed)	0
		N	500
	CONTENT	Correlation Coefficient	0.045
		Sig. (2-tailed)	0.83
		N	500
	PEER INFLUENCE	Correlation Coefficient	0.996
		Sig. (2-tailed)	0.007
		N	500
	Duration	Correlation Coefficient	0.845
		Sig. (2-tailed)	0.005
		N	500
	KNOWLEDGE	Correlation Coefficient	0.69
		Sig. (2-tailed)	0
		N	500
*. Correlation is significant at the 0.05 level (2-tailed).			

Table 5.2.2.9: Correlation between individual perception and commercial advertisement

Here, one variable is dichotomous in nature whereas others are continuous. Hence to find out correlation between them, spearman rank correlations was applied. From the output in the table 5.2.2.9, it is clearly visible that content is not statistically significant and having very low correlation whereas others are having strong correlation. With respect to the variables that a person can like advertisement or not. Peer influence has the highest correlation followed by duration and knowledge.

Based on the judgement from experts in advertising, it was revealed that, content is an important component of advertisement. However, from the above analysis it can be interpreted that content is not significant. It may so happen due to different types of product categories were considered. However, there are broadly two categories of products, like high involvement products and low involvement products. High involvement products are those products, where the customers conduct a thorough research before purchasing a particular product/brand. The customers get involved in the purchase process of high involvement products. On the contrary, low involvement products does not require much involvement of the customers in their purchase decision. As the involvement differs for high involvement and low involvement products, the need of data or information for high involvement products are more in compare to low involvement products. Therefore, to get information about the high involvement products, customers choose to watch the advertisements of the products and they focus on the content of the advertisement. Whereas for low involvement products, the entertainment or engagement with the product advertisements seems logical. Therefore, to check the significance of content in liking and disliking of television advertisement, the data was divided into two groups, i.e. advertisement for low involvement products and advertisements for high involvement products. After the data was divided into two group, the same analysis which was conducted for the entire data was conducted for two different data sets. Among both data sets, logistic regression was applied and the results were interpreted.

5.2.3. Logistic regression for low and high involvement product

As the products are differently perceived due to high and low involvement of the people, the analysis to understand the perception of the audience towards the television advertisement of high involvement and low involvement products should also be different. To test this the data from the respondents towards their perception on the advertisement was divided into two categories. One category was for high involvement products and the second category was for low involvement product. With the same independent variables such as Knowledge (V2), Nature (V3), Content (V4), Peer influence (V5) and duration (V6) which were derived after conducting the factor analysis were regressed and analyzed to find out the importance of the variables towards defining the dependent variable i.e. question number 16, checking 'liking and disliking' of advertisement.

The analysis on two group of data sets were based on high involvement product and low involvement product will give an extension to the study and serve the second objective of the

study, i.e. "to study the role of individual perception in selecting commercial advertisement on television" with more precision.

5.2.3.1. Analysis for low involvement products

Classification Table[a,b]

Observed			Predicted		
			dep		Percentage
			0	1	Correct
Step 0	dep	0	0	16	.0
		1	0	484	100.0
	Overall Percentage				96.8

a. Constant is included in the model.

b. The cut value is .500

Table 5.2.3.1.1: Classification Table in block 0

The above table 5.2.3.1.1 is a classification table for block 0. It has accuracy of 96.8%. It shows that originally 97% audience dislike the advertisement and the model have predicted the same.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	3.409	.254	180.043	1	.000	30.250

Table 5.2.3.1.2: Variable in the equation in Block 0

In the table 5.2.3.1.2 as it is block 0, only the constant have been added, and no variables have been added.

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	V2	.001	1	.982
		V3	1.159	1	.282
		V4	.067	1	.796
		V5	3.685	1	.055
		V6	1.729	1	.188
	Overall Statistics		6.902	5	.228

Table 5.2.3.1.3: Variables not in the equation in Block 0

The table 5.2.3.1.3 shows, that these variables are not added in the equation. The V2 to V6 are the factors derived and named as earlier (mentioned below), keeping V1 is the intercept or the constant in the model.

V2 or Factor 1 was labeled as Knowledge

V3 or Factor 2 was labeled as Nature

V4 or Factor 3 was labeled as Content

V5 or Factor 4 was labeled as Peer influence

V6 or Factor 5 was labeled as duration

Step 1 – Method = Enter

Classification Table[a]

Observed			Predicted		
			dep		Percentage
			0	1	Correct
Step 1	dep	0	0	16	.0
		1	60	484	100.0
	Overall Percentage				93.8

a. The cut value is .500

Table 5.2.3.1.4: Classification table in Block 1

There are three methods, forward, backward and enter. For the study, enter method was applied. From the table 5.2.3.4 it can be interpreted that, after adding all the variables, the model accuracy has been improved to 93.8%. Therefore, 94% audience view the advertisement on television disliked and the model also predict the same.

Here the cut off value is .50. The sensitivity is the percentage of occurrences correctly predicted. Here in this case it is 93.8%. The specificity which is the percentage of non-occurrences being correctly predicted is 100%. False positive rate is 0% and the false negative rate, which is percentage of predicted non-occurrences, which is incorrect by 6.2%.

Variables in the Equation for low value products

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	V2	-.032	.033	.930	1	.211	.968
	V3	.000	.000	1.918	1	.016	1.000
	V4	-.001	.023	.001	1	.272	.999
	V5	.000	.000	3.245	1	.172	1.000
	V6	.033	.028	1.380	1	.121	1.033
	Constant	1.487	1.308	1.292	1	.056	4.425

a. Variable(s) entered on step 1: V2, V3, V4, V5, V6

Table 5.2.3.1.5: Variables in the equation in Block 1

The above table 5.2.3.5 shows the individual significance of the variables of this study for low value products. Here, the confidence interval has been kept at 70%. From the above table, Wald is good if it is more. It is to be judged by the significance level. As here 70% has been kept as CI (Confidence Interval) so level of significance is 30%. The table shows, that all the variable V2, V3, V4, V5 and V6 are significant as their significance value are .211, .016, .272, .172, .121 which is less than .30 (.30 or less is considered as significant)

Hence the model equation is

ln (P/1-P) = 1.487 - .032V2 + .000V3 - .001V4 + .000V5 + .033V6

P/1-P is known as odds, here from the model we can interpret that nature, peer influence and duration has a positive impact on liking and disliking of an advertisement, whereas knowledge and content having negative impact.

As here, sample size is only 500, hence, the confidence interval has been kept at 70%. As there is more scope of committing type 1 error.

5.2.3.2 Analysis for high involvement products

In addition to low involvement product, different analysis was conducted for high involvement products. The objective to conduct analysis for high value product, was to understand the significance of different variables which were derived from the factor analysis for high involvement product advertisements.

Variables in the Equation for high involvement products

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	V2	-.032	.033	.930	1	.035	.968
	V3	.000	.000	1.918	1	.066	1.000
	V4	-.001	.023	.001	1	.072	.999
	V5	.000	.000	3.245	1	.172	1.000
	V6	.033	.028	1.380	1	.240	1.033
	Constant	1.487	1.308	1.292	1	.256	4.425

a. Variable(s) entered on step 1: V2, V3, V4, V5, V6.

Table 5.2.3.2.1: Variables in the equation in Block 1

The above table 5.2.3.2.1 shows the individual significance of the variables of this study for high involvement products. Here, the confidence interval has been kept at 70%. From the above table, Wald is good if it is more. It is to be judged by the significance level. As here 70% has been kept as CI (Confidence Interval) so level of significance is 30%. The table shows, that all the variable V2, V3, V4, V5 and V6 are significant as their significance value are .035, .066, .072, .172, .240 which is less than .30 (.30 or less is considered as significant)

Hence the model equation is

$$\underline{\ln (P/1\text{-}P) = 1.487 - .032V2 + .000V3 - .001V4 + .000V5 + .033V6}$$

P/1-P is known as odds, here from the model we can interpret that nature, peer influence and duration has a positive impact on liking and disliking of an advertisement, whereas knowledge

and content having negative impact.

As here, sample size is only 500, hence, the confidence interval has been kept at 70%. As there is more scope of committing type 1 error.

5.2.3.3. Goodness of fit

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	132.306[a]	.469	.567

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Table 5.2.3.3.1: Model Summary for low involvement products

In the case of standard regression model, co-efficient of determination (R2) value gives indication regarding variation in y which is explained by the model. This calculation is not relevant for logistic regression, however, the 'Model Summary' table i.e. table 5.2.3.3.1, gives values for two pseudo R^2 values which measure something similar. From the table above, we can interpret that Cox and Snell R square, is .469 whereas Nagelkerke R square is .567. Which is not as good as independent variables are explaining only 46% variance

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	132.306[a]	.618	.875

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Table 5.2.3.3.2: Model Summary for high involvement products

'Model Summary' table i.e. table 5.2.3.3.2 for high involvement product, gives values for two pseudo R^2 values which shows that Cox and Snell R square, is .618 whereas Nagelkerke R

square is .875, this can be interpreted that the independent variables explain more than 60% of the variance, hence the model can be considered as good.

5.3. Projection and interpretation of data for demographic profile of respondents

The title of the research, "Role of Individual Perception in selection of Commercial Advertisements on National Level Television Channels with special reference to Consumers of Selected Products in and around Kolkata" was done using a structured questionnaire. The questionnaire was administered to the respondents in and around Kolkata. In the first part of the questionnaire, demographic information of the respondent was collected. As for the need of collecting demographic information, according to Baines et. al. (2013), "they indicate the profile of a consumer, and are particularly useful in assisting marketing communications and media planning, not least because media selection criteria are developed around these variables".

The demographic data of the respondents who answered all the questions in the questionnaire are projected pictorially and interpreted below.
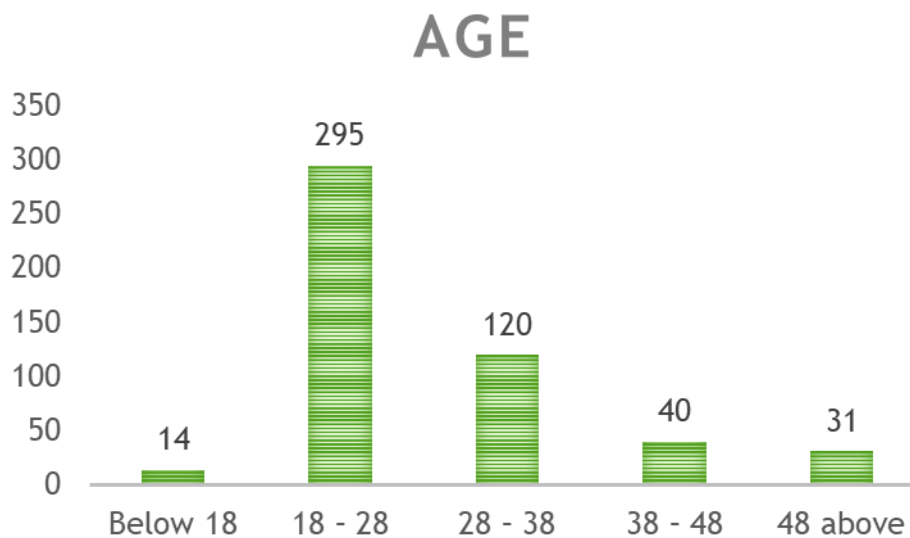
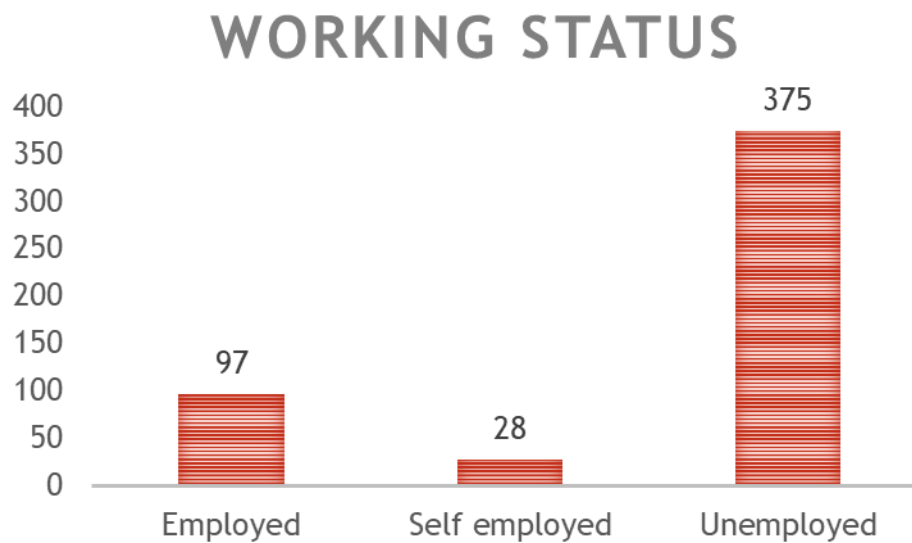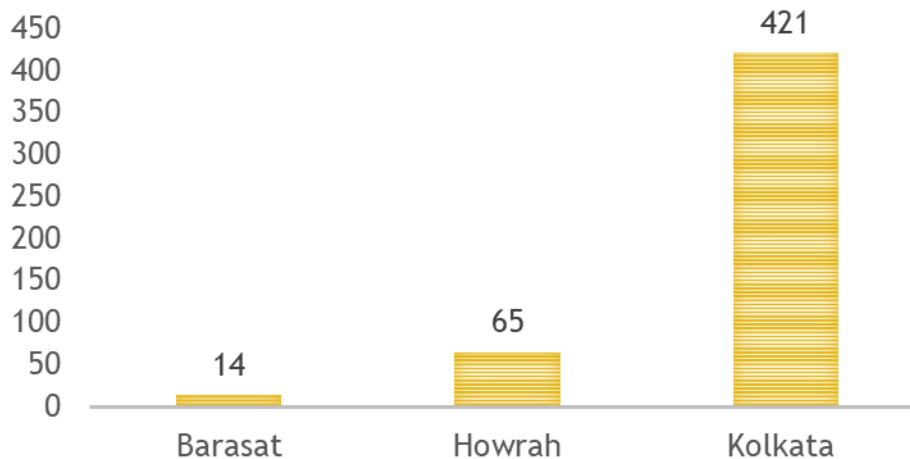**Fig. 5.3.1. Age of the respondents**

Interpretation: The survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television were maximum in the age group of 18 to 28. Out of 500 respondents 295 respondents were in the age group of 18-28, i.e. 59%.

From another perspective it may be interpreted that people in the age group of 18-28 are more interested in giving answers to all the questions administered. Next group which responded to all the questions in the questionnaire was in the age group of 28 to 38. Out of 500 respondents 120 respondents in the age group of 28 to 38 who responded to all the questions in the questionnaire, i.e. 24% of the total responses.

It can also be observed from the above information that, audience in the age group 18 to 38 are more responsive towards the questions of either television viewing or watching advertisements on television.
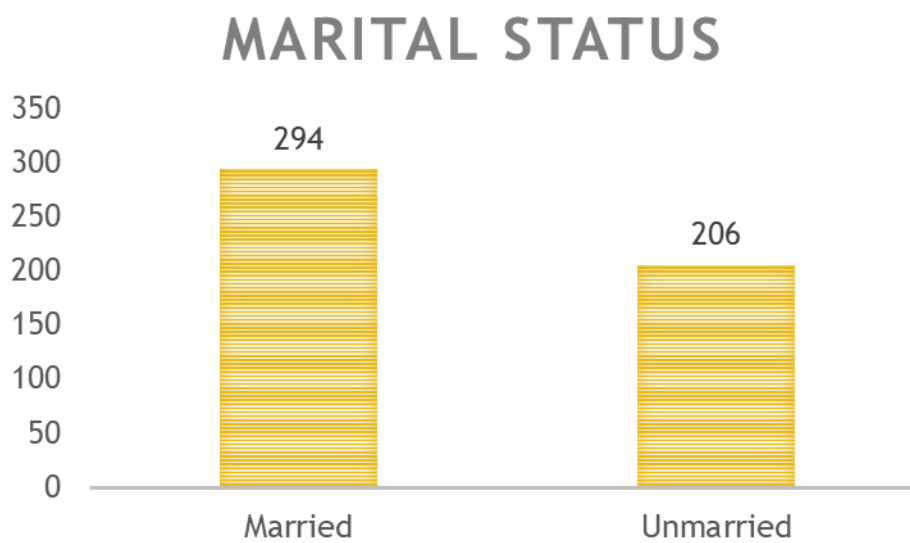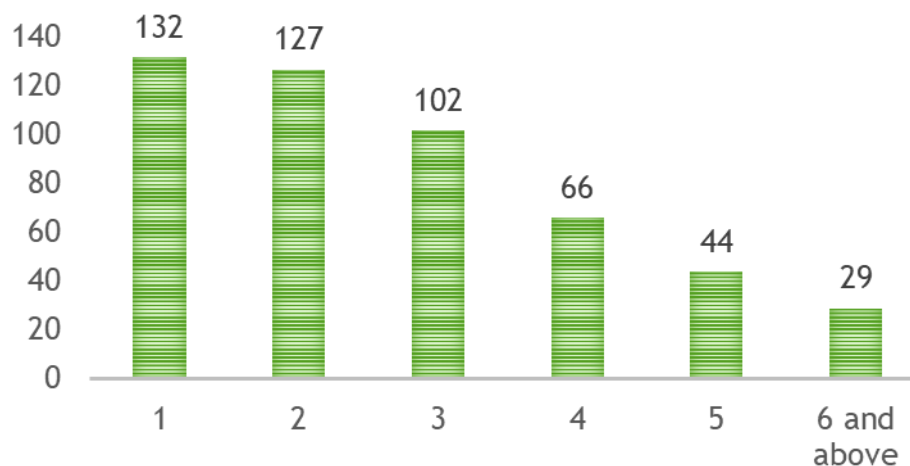

Fig. 5.3.2. Marital Status of the respondents

Interpretation: The survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television were married i.e. 294 people out of 500 responded were married i.e. 59%. Rest 206 out of 500 i.e. 41% respondents were unmarried.
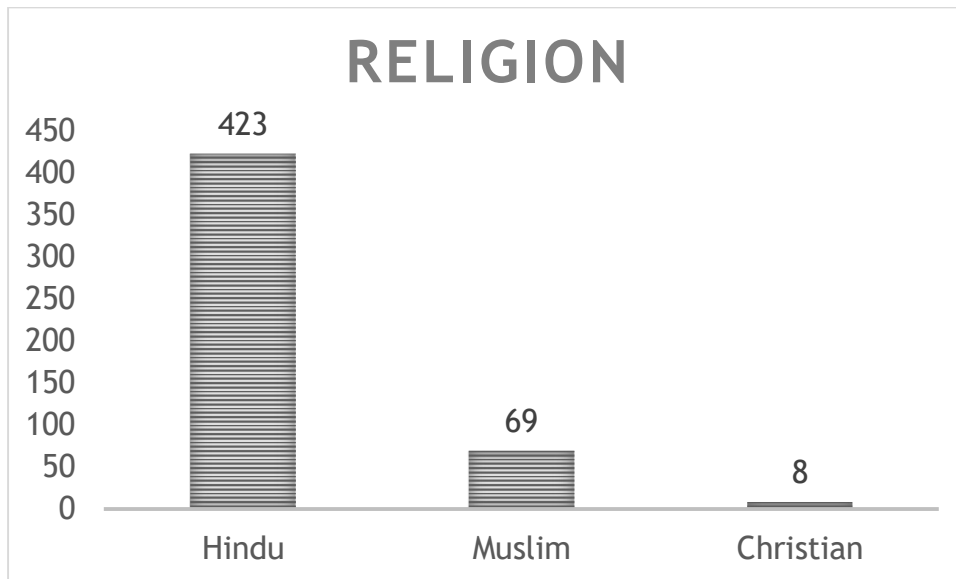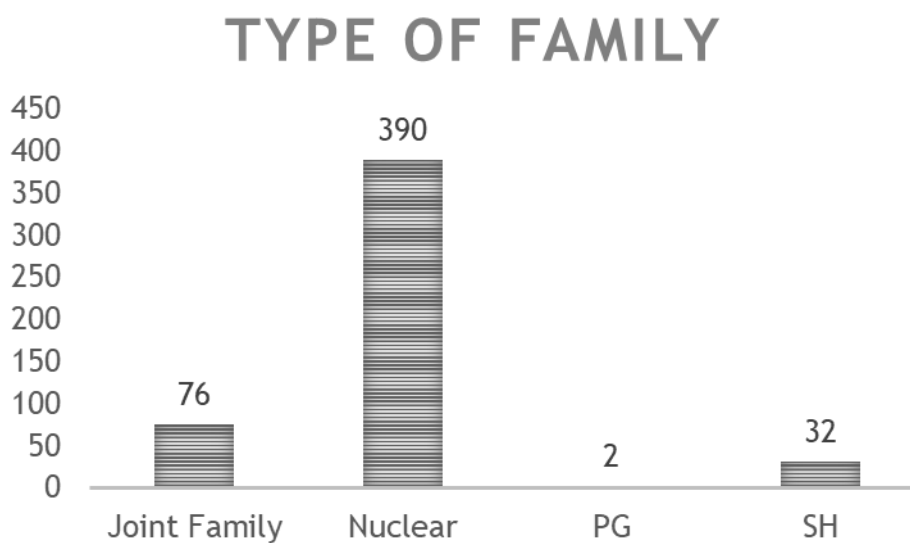
Fig. 5.3.3. Religion of the respondents

Interpretation: The survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television were majorly Hindu by religion. The information on religion was collected to understand weather there is any impact of religion on watching advertisement on television. Though the information was skewed as majority of the respondents were Hindus followed by Muslims and Christian. Out of 500 respondents, 423 i.e. 85% were Hindus and the second religion of the audience responded to the questionnaire was Muslims with 69 out of 500 i.e. 14% respondents.
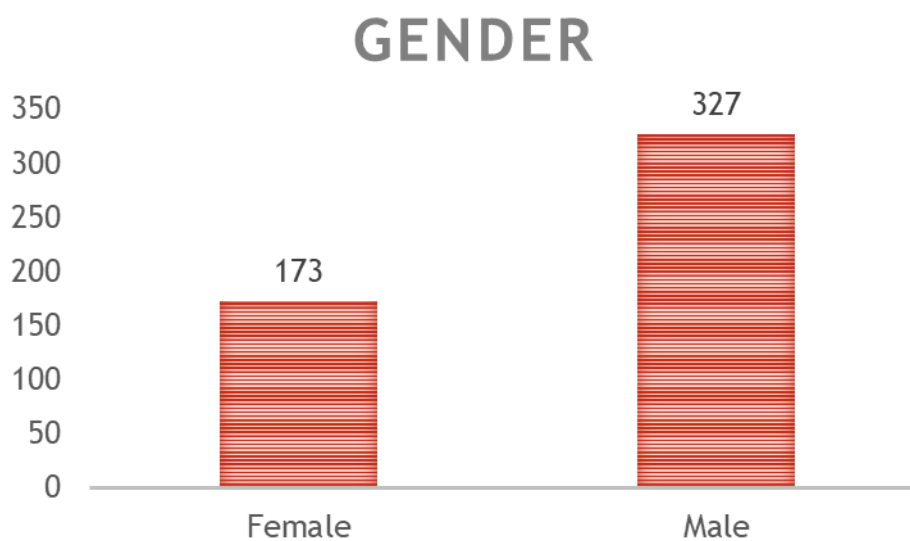
Fig. 5.3.4. Gender of the respondents

Interpretation: The survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television were divided into both male and female genders. The males who responded to the questionnaire were 327 out of 500 i.e. 65% and rest 35% were female i.e. 173 out of 500 respondents.
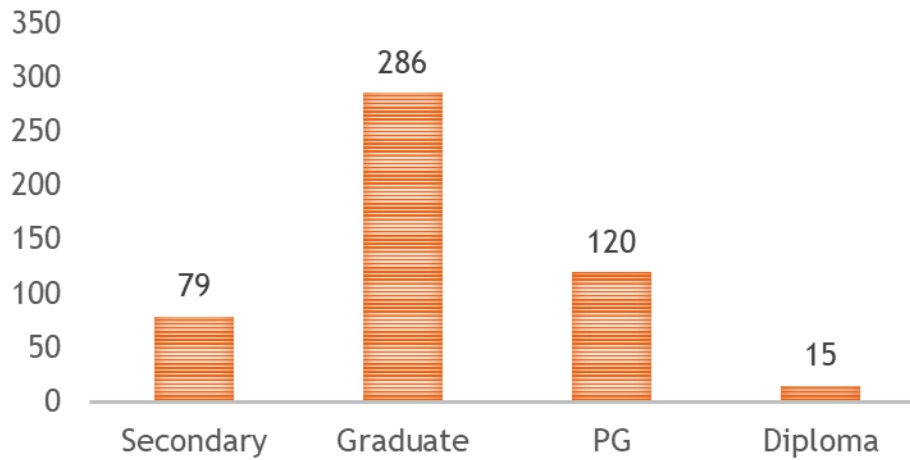
WORKING STATUS

Fig. 5.3.5. Working Status of the respondents

Interpretation: The survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television were also observed from the perspective of their working status. Three categories of working status was identified after the survey. These three categories of working status of the respondents were, employed, self-employed and unemployed. The data shows that, majority of the respondents were unemployed with the figure 375 out of 500 i.e. 75% and rest 25% was divided among employed and self-employed i.e. 97 and 28 respondents out of 500 respectively.
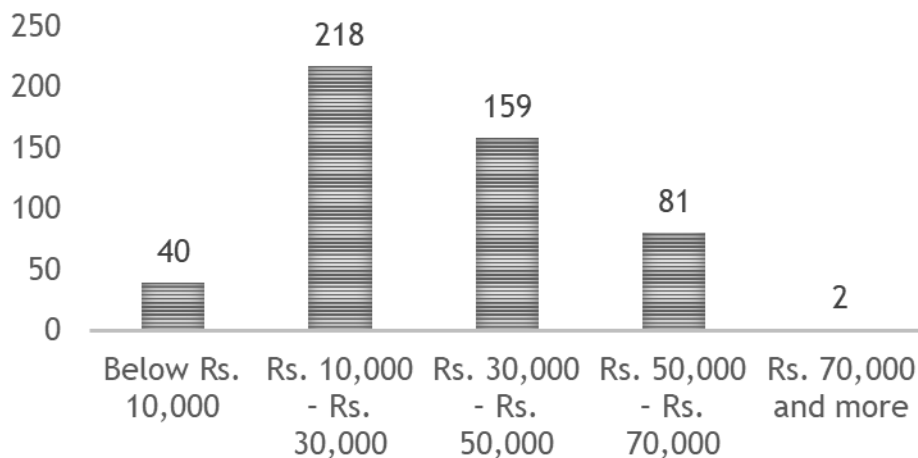
PLACE OF STAY

Fig. 5.3.6. Place of Stay of the respondents

Interpretation: The survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television were studied among respondents majorly residing in Kolkata. 421 respondents from 500 belongs to Kolkata, whereas 65 out of 500 resides at Howrah and 14 out of 500 were from Barasat. Therefore, 84% respondents were from Kolkata.

MEMBERS IN FAMILY

Fig. 5.3.7. Members in family of the respondents

Interpretation: The survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on

television have also included the information on members in the family. This information was collected with an idea in mind that, number of members in the family also influence existence of number of television sets at home and time of watching television. However, the data shows that majority of the respondents who responded completely over the questions administered through the questionnaire, are living single, for which 132 respondents out of 500 were living alone i.e. 26% followed by 127 out of 500 respondents have two members in their family which comes to 25% of the respondents. It followed by 3 member family, i.e. 102 out of 500 respondents or 20%.

TYPE OF FAMILY

Fig. 5.3.8. Type of family of the respondents

Interpretation: The survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television also collected information on type of family of the respondent. It was evident from the data collected that 390 out of 500 respondents belongs to nuclear family structure or 78% of the audience reside in nuclear family. By nuclear family, it was assumed that the family with either 1 or maximum 3 members in a family. Again there were 76 respondents out of 500 i.e. 15% who are members of joint family.

EDUCATION

Fig. 5.3.9. Education of the respondents

Interpretation: The survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television shows graduation as the highest qualification of the audience who responded to all the questions in the questionnaire. 286 out of 500 respondents i.e. 57% were graduate followed by 120 out of 500 respondents i.e. 24% were post graduates. Again there were few respondents i.e. 79 out of 500 i.e. 16% respondents who have secondary as their highest qualification and 15 out of 500 i.e. 3% were mere diploma holders.
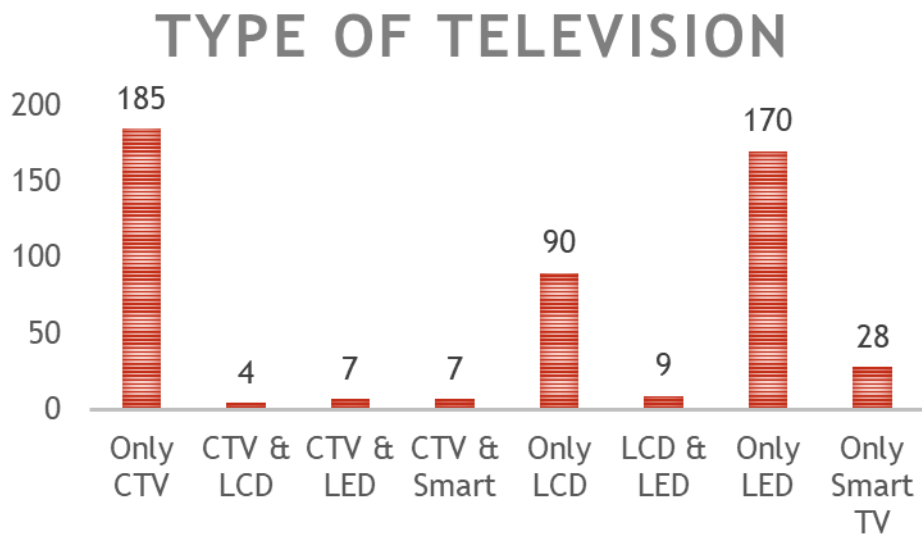
MONTHLY INCOME

Fig. 5.3.10. Monthly Income of the respondents

Interpretation: The survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television have also looked into the family's monthly income of the respondents. The data collected on the monthly income of the respondents shows that, respondents who earns from rupees 10,000 to rupees 30,000 are in majority. Out of 500 respondents, 218 respondents were earning in the range of Rs. 10,000 to Rs. 30,000 on a monthly basis that accounts for 44% followed by 159 respondents out of 500 respondents who earns in the range of Rs. 30,000 to Rs. 50,000 on a monthly basis i.e. 32% of the total respondents. Again there were few respondents like 81 out of 500, i.e. 16% who earns in the range of Rs. 50,000 to Rs. 70,000 on a monthly basis along with 40 out of 500 i.e. 8% who earns below Rs. 10,000 on a monthly basis.

5.4. Projection and interpretation of data for psychographic profile (lifestyle with respect to television at household) of respondents

According to Khan, (2006), psychographic and/or lifestyle is defined "how one lives, and spends money. It is determined by our past experiences, innate characteristics and current situations. The products we consume are related to our lifestyle. Lifestyle marketing established a relationship between the products offered in the market and targeted lifestyle groups. Lifestyles segmentation is based on activities and interest and opinions of groups. These are psychographic segmentations, and lifestyles are derived from psychographics. Lifestyle is a unified pattern of behavior that determines consumption and, is also in turn determined by it".

MONTHLY SPENDING ON TELEVISION
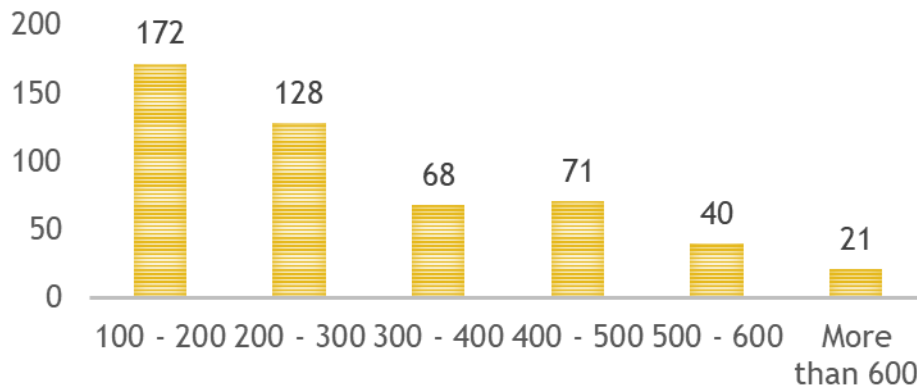
Fig. 5.4.1. Monthly Spending on Television of the respondents

Interpretation: Spending on television indicates that the audience is a serious audience and watch television. If an individual have a tendency to watch television, it can be interpreted that the said individual is exposed to television advertisements and hence chances of getting the advertisement watched usually increased. The survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television collects information on spending of respondents on television channels. By spending on television means the amount an individual spends on subscribing the channels using different methods of subscription. The subscription can be paid either to local cable television operator or the television channel provided by corporate Direct-to-Home Digital Entertainment Service provider like, Dish, Tata Sky, Airtel etc. From the data collected on spending on television entertainment by the respondents, it can be observed that 172 people among 500 people surveyed i.e. 34% people spend in the range of rupees 100 to rupees 200 followed by 128 people out of 500 people i.e. 26% people spend in the range of rupees 200 to rupees 300. Again there are respondents who spend more than rupees 600 per month on television entertainment i.e. 21 respondents out of 500 respondents i.e. 4% respondents spend more than rupees 600 on a monthly basis. At the same time, it can be observed from the collected data that all the 500 respondents whose responses were considered for the study, were spending on watching television. This in turn shows that the responses collected and analyzed for the study are the responses from serious television viewers who spend to watch television and it can be assume that as they watch television, there is a chance that they must be watching television advertisement.
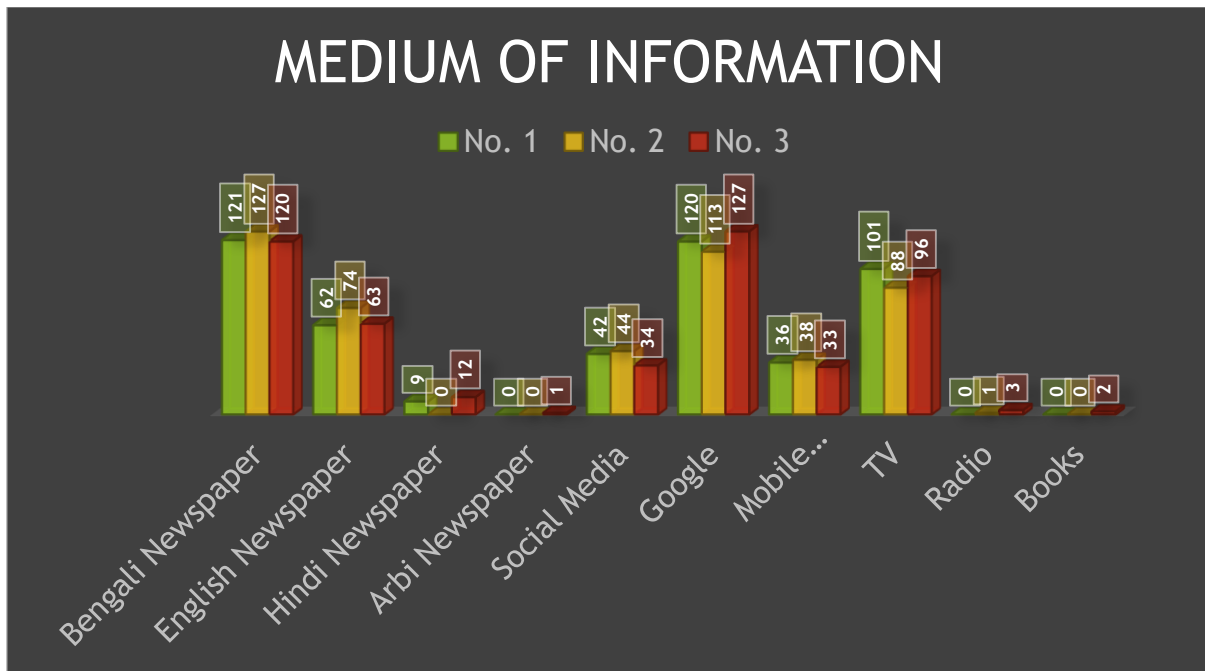
Fig. 5.4.2. Type of Television of the respondents

Interpretation: The survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television shows that the respondents either have exclusively only CTV or LED television. However, considerable respondents also have LCD in their home. As for percentage of respondents having CTV or LED or LCD is concerned, 185 respondents out of 500 respondents i.e. 37% of the respondents have only CTV. At the same time 170 respondents out of 500 respondents i.e. 34% of the respondents have LED. In addition to CTV and LCD, there are 90 respondents out of 500 respondents i.e. 18% of the respondents have LCD.

Research shows that day by day people are shifting from tradition black and white and CTV to interactive and smart TV (Lee and Lee. 1995, Keller. 2013, Saxena, 2010) which is an influencing factor towards changing or creating perception of the audience towards television advertisements. The data shows that only 28 respondents out of 500 respondents i.e. 6% respondents have smart TV. The question was also looking at how many individual respondents have more than one television in different combination like CTV with LCD, LED etc. The responses on the combination of television sets at home is just 27 respondents out of 500 respondents i.e. 5% only. Therefore, the respondents majorly have only one television at their home.

Fig. 5.4.3. Medium of Information for the respondents

Interpretation: The survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television have important aspect, i.e. comparing other mediums. The idea behind collecting this information from the respondents was that it can give the rational towards attraction towards television. Again all the mediums of advertisement have direct influence over the perception of the individuals. According to Kumar and Raju (2013), "Advertising through all mediums influence audiences". From the data collected, it is observed that, according to preference to the mediums in and around Kolkata, majority of the respondents have chosen Bengali newspaper over other mediums. For Bengali newspaper, 121 respondents out of 500 respondents i.e. 24% respondents shown their first preference. It is followed by Google where 120 respondents out of 500 respondents i.e. 24% respondents showed their first preference. As for television 101 respondents out of 500 respondents i.e. 20% respondents showed their first preference. Therefore, it can be observed that, there is a very close competition among Bengali newspaper and Google and both are almost equal i.e. 24% as first choice of the respondents as a medium or source of getting information. However, television, being considered as a traditional medium in comparison to Google, there is a very close competition among both. Therefore, in spite of researches which are propagating that audience is shifting their time to newer mediums resulting into lack of interest over traditional mediums (Keller, 2013. Senthil et. al. 2013, Willke and Burrus, 2013), television have not lost its relevance as a first choice for

getting information. Again English newspaper and mobile phones are also holding first place in the minds of some of the respondents which is 62 and 36 respondents out or 500 respondents or 12% and 7% respondents.
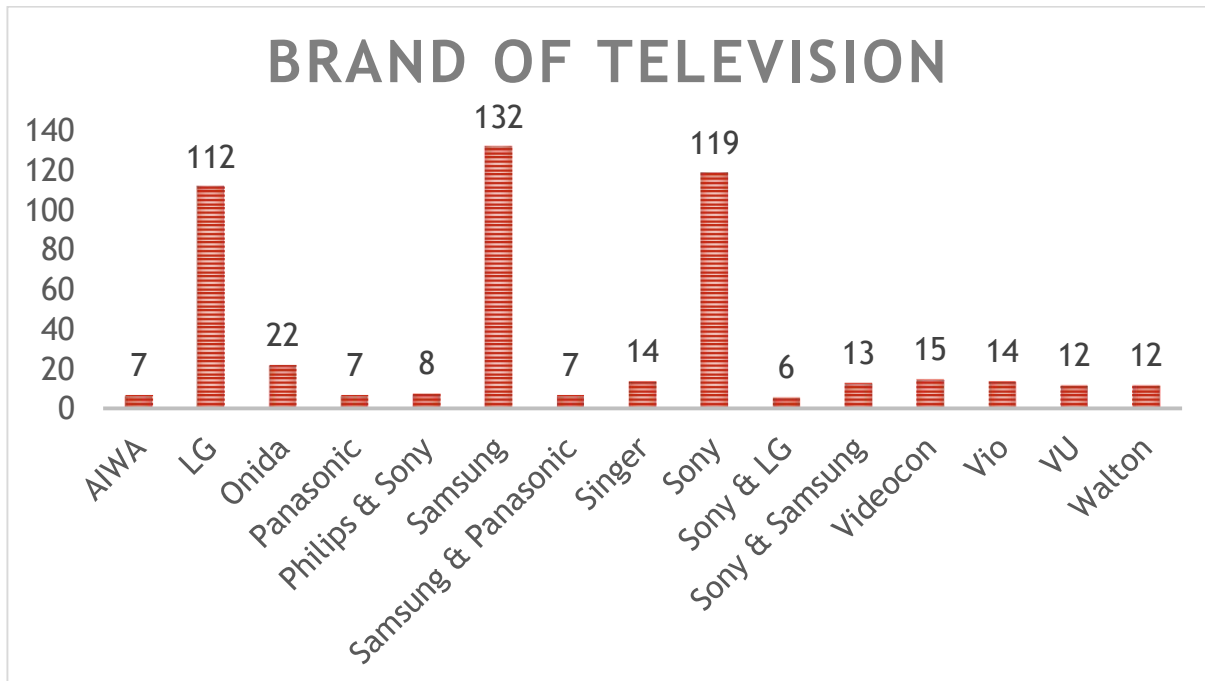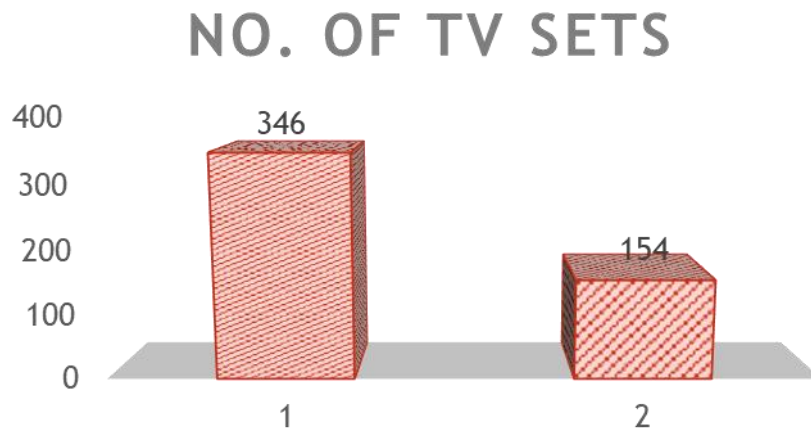

Fig. 5.4.4. Brand of television for the respondents

Interpretation: In the survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television, the brand of television which the respondents have was also asked as a question. Under this question most of the respondents were found having Samsung television, i.e. 132 respondents out of 500 respondents or 26% respondents of the total sample size were having Samsung television. After Samsung television the second brand which the audience have is Sony which is responded by 119 respondents out of 500 respondents i.e. 24% respondents. There is a very close competition between Sony television and LG television as for LG television 112 respondents out of 500 respondents i.e. 22% respondents mentioned that they have it. Rest of the brands like AIWA, Onida, Panasonic, Singer, Videocon, Vio, VU etc. were covered rest of the respondents' choice. Some of the respondents also mentioned that they have more than one television, and when asked about the brand of televisions which they have for the second television. There were combination of Philips and Sony, Samsung and Panasonic, Sony and LG, Sony and Samsung. Among the combinations, Sony and Samsung was the combination which 13 respondents out of 500 respondents mentioned i.e. 3%

respondents said they have more than one television and the television sets they have is Sony and Samsung.

NO. OF TV SETS

Fig. 5.4.5. Number of TV sets of the respondents

Interpretation: In the survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television, the question of number of televisions the respondents have found that 346 respondents out of 500 respondents i.e. 69% respondents have one television, however 154 respondents out of 500 respondents i.e. 31% respondents have more than one television. This can be observed from a different perspective. It can be observed that as maximum numbers of individuals have single television, it increases the chances of getting distracted during watching television if the household have more than one individual. Though this was not considered as the scope of this study, however, this point can be further studied to understand a different perspective of distraction due to number of individuals and number of television in the household while watching television.
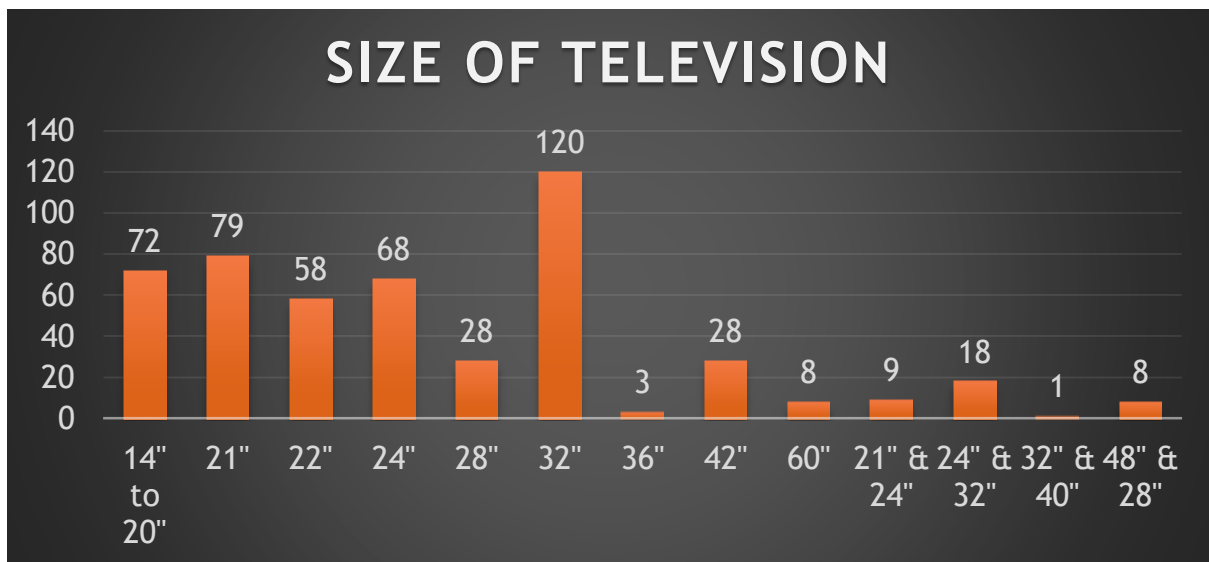
Fig. 5.4.6. Size of TV sets owned by the respondents

Interpretation: There was another question in the survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television, which asked the respondents about the size of the television. The size of the television which the respondents were having were ranged from 14 inches to 60 inches. The maximum number of respondents like 120 respondents out of 500 respondents i.e. 24% respondents said they have 32 inches sized television. After 32 inches, the number of respondents who mentioned that, they have 21 inches sized television is 79 respondents out of 500 respondents i.e. only 16% respondents which is too low in comparison to the number of audience who have 32 inches.
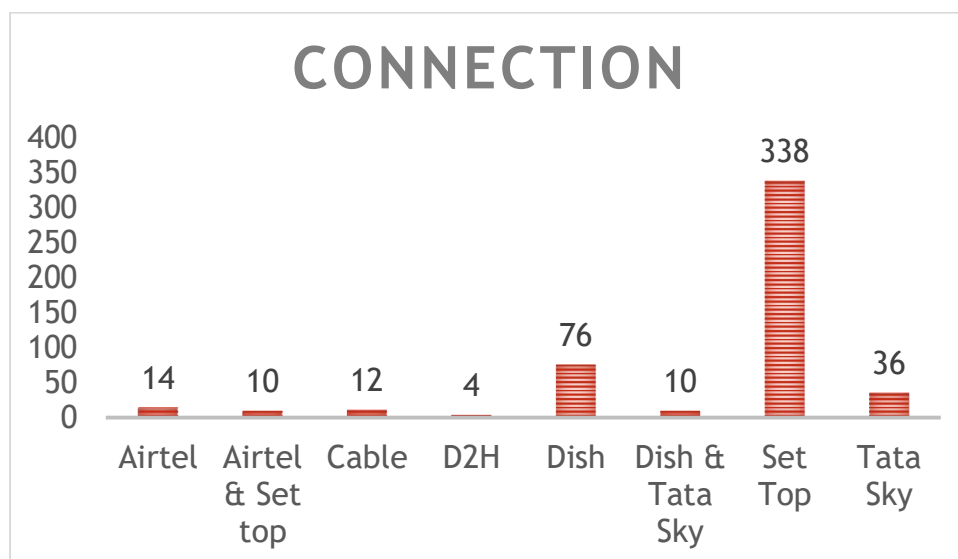
Fig. 5.4.7. Connection activated to watch TV of the respondents

Interpretation: Another question, which can be considered as one of the pertinent question with respect to the survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television was to understand the connection which the respondents have to watch television. With the government rules and regulation in India, in metropolitan cities of India, no individual is allowed to watch television channels without having set top box. The set top box is the box which have subscription based model to watch different channels. There are many companies which are providing the service of direct to home service allowing the individuals to watch different television channels. One can choose any one of the company's service. From the data it was observed that highest market share among the respondents surveyed, was with the set top box which is being provided by the local cable television service provider. 338 respondents out of 500 respondents i.e. 68% respondents said they have set top box which is provided by the local cable television operator. After set top box 76 respondents out of 500 respondents i.e. 15% respondents said they have Dish connection followed by 36 respondents out of 500 respondents' i.e. only 7% respondents. Rest Airtel, Videocon D2H and Tata Sky too have few respondents, however in comparison to Set Top box these companies have very few respondents among the surveyed individuals.
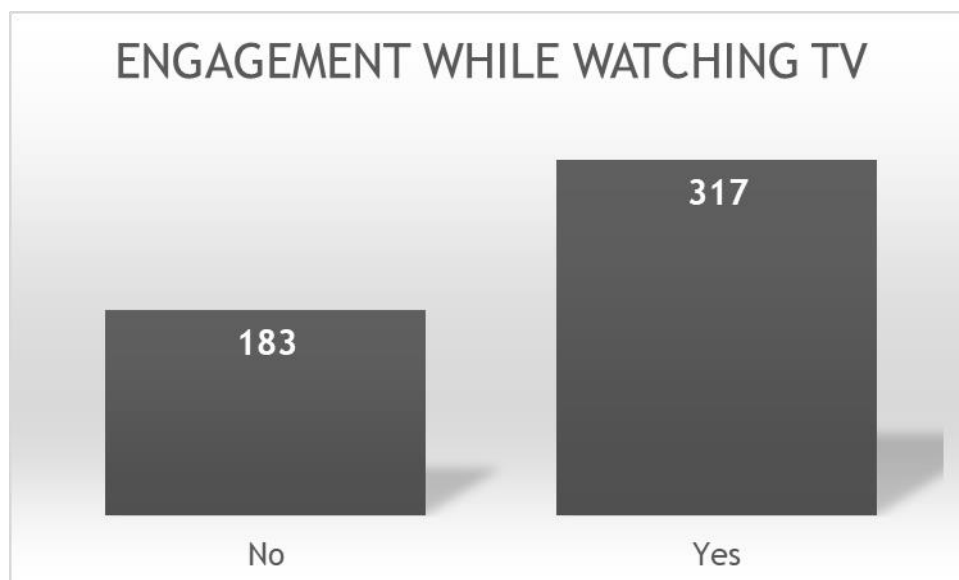

Fig. 5.4.8. Engagement of respondent while watching TV

Interpretation: In the survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch

advertisement on television, looks into the engagement level of the audience while watching television. Out of 500 respondents 317 respondents i.e. 63% respondents said they get engaged into something other while watching television. Rest 183 respondents out of 500 respondents i.e. 37% respondents said they do not get occupied with anything else or they do not get engaged while watching television. It is not important to ask the respondents whether they get engaged into something else while watching television or not if it is not clear where they are engaged. The next question which was asked in the questionnaire was to understand where these respondents who have responded that they get engaged into something else while watching television get engaged.
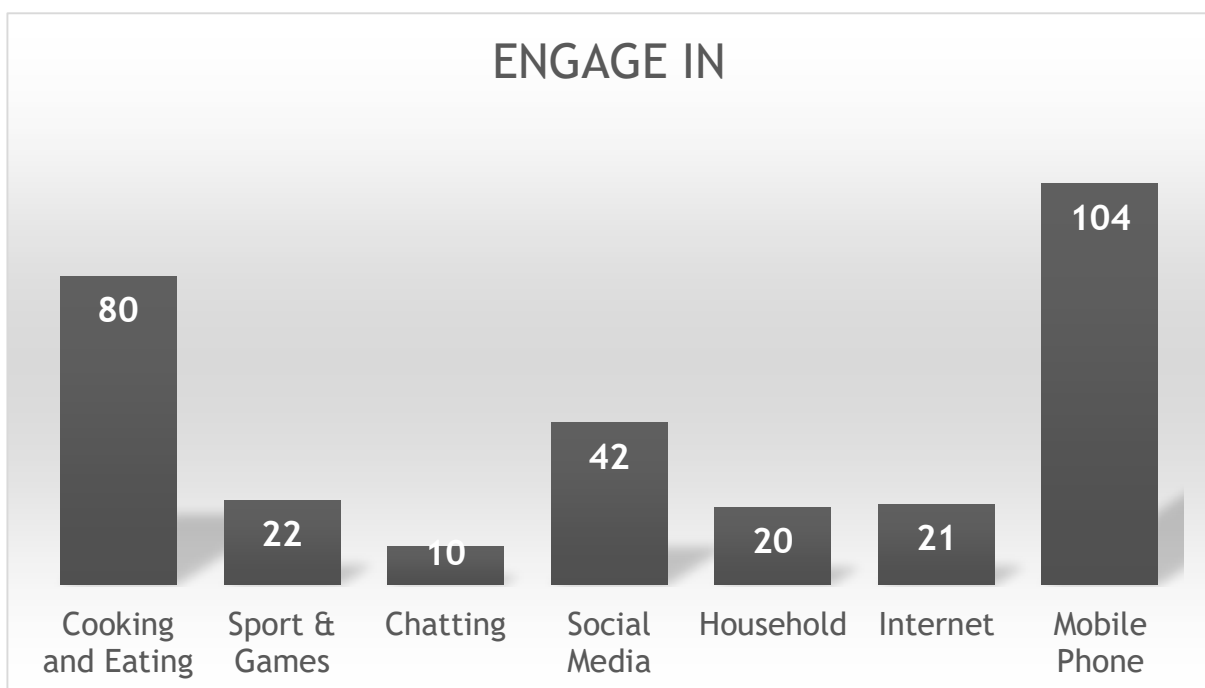
Fig. 5.4.9. Engagement type of respondent while watching TV

Interpretation: The next question in the questionnaire towards the survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television was to understand the engagement of the respondents who responded in the previous question that they get engaged while watching television. Only 299 respondents responded to the question of the engagement out of 317 respondents who responded that they get engaged into something else while watching television. Out of 299 respondents 104 respondents i.e. 35% respondents said they get engaged in using their mobile phones while watching television. However, in addition to 104 an additional 42 respondents said that they use social media and another 21 respondents said they

get busy using internet while watching television. If all the three categories get clubbed that 167 respondents out of 299 respondents i.e. 56% respondents get engage into internet either by phone or anything else while watching television. There is another perspective which can be observed from this question, i.e. we cannot calculate the time share for different mediums available at the disposal to the audience exclusively, as the respondents use more than one medium at a time. There must be another way to calculate the time share when an individual use more than one medium at a time. The second largest number after internet was for cooking and eating which 80 respondents out of 299 respondents mentioned which means 16% respondents said they get engaged into cooking and eating while watching television. Apart from using internet or cooking and eating, there were respondents who also said that they get engaged into chatting, sports and games and other household work while watching television.
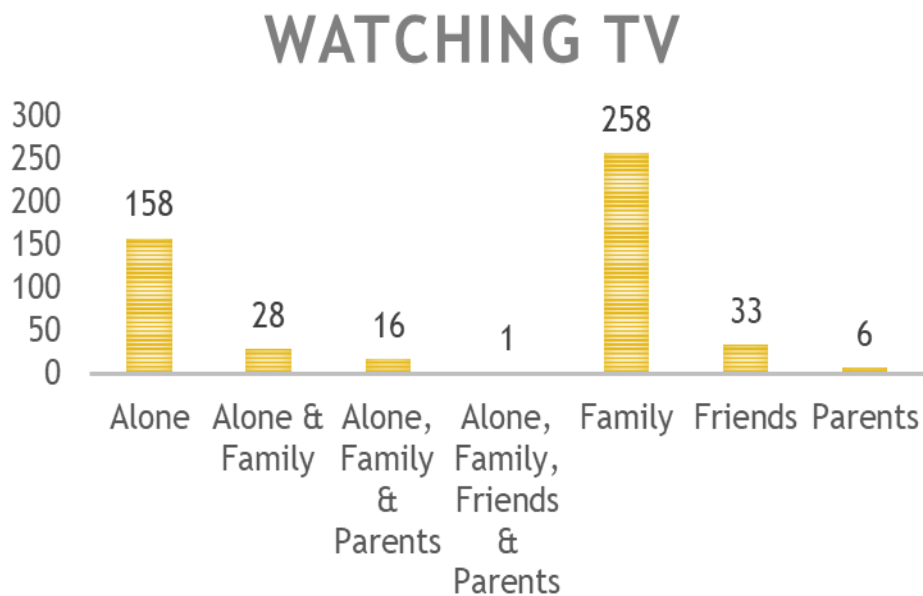

Fig. 5.4.10. Status of individual with family members and others while watching TV

Interpretation: The next question in the questionnaire in the survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television was to understand, how the audience watch television with respect to family and friends. From 500 respondents who were asked this question and responses received, it was found that 258 respondents said that they watch television with their family, i.e. 52% respondents watch television with their family. However, 158 respondents out of 500 respondents i.e. 32% respondents watch television alone. Rest 16% respondents gave mixed views that they either watch television with friends or parents or they

change with the time, i.e. sometimes they watch alone, sometime with family or parents or others. However, the observation from the responses received over the question shows that maximum number of respondents watch television with their family followed by watching alone.
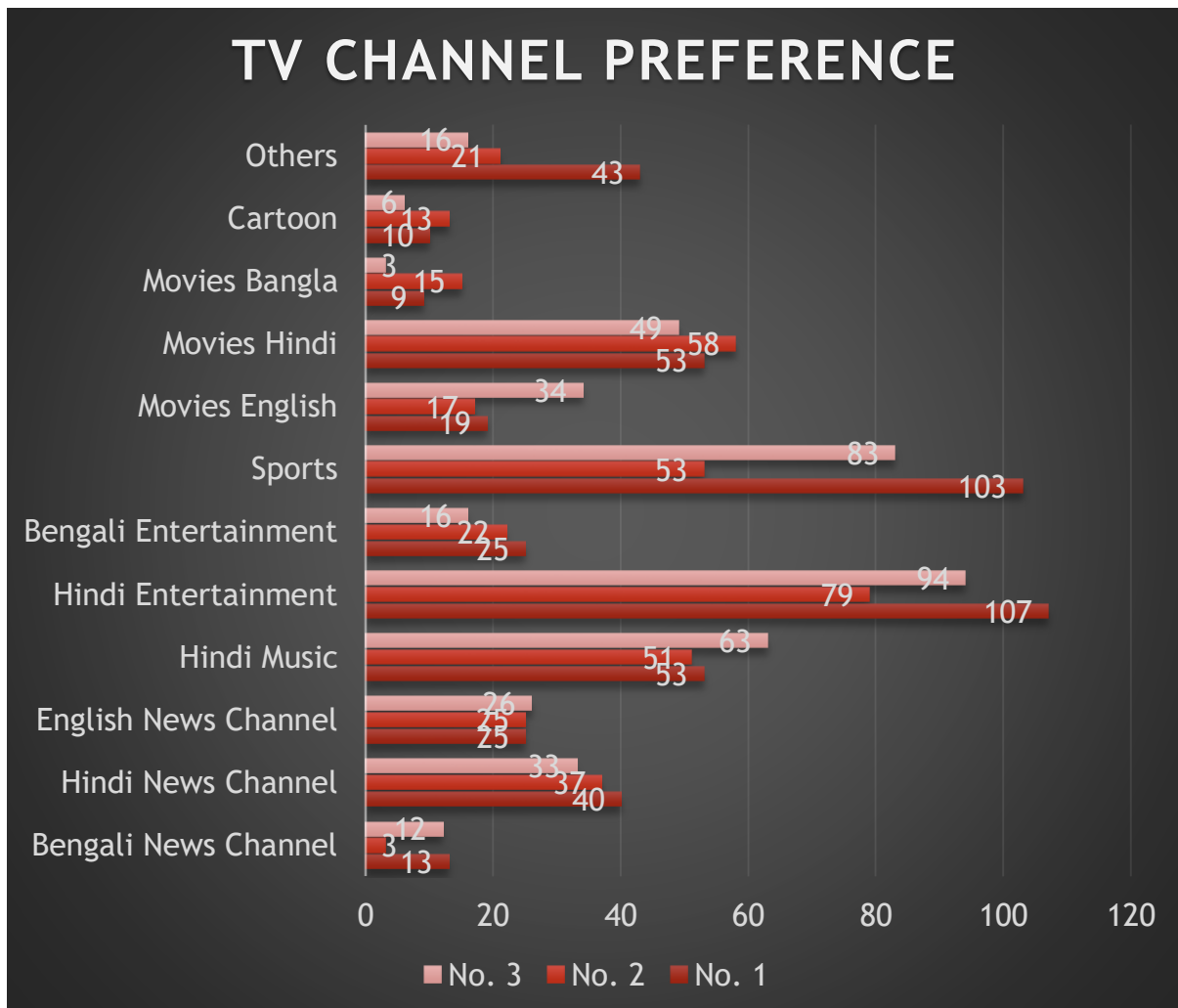

Fig. 5.4.11. Type of TV channel preferred by the respondents

Interpretation: According to Thiyagarajan et. al. (2012), "TV (television) has emerged as an indispensable medium of entertainment and the growth of TV channels have been immense in the past decades. This has not only widened the opportunities for the advertisers to stay connected with the target audience, but also intensified the noise in the cluttered media environment" The next question in the questionnaire towards the survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement on television was to understand the preference of the audience over watching channels it was found from the responses of 500 respondents that

107 respondents i.e. 21% respondents prefer Hindi entertainment channels, followed by 103 respondents i.e. 21% respondents prefer sports channel in and around Kolkata. Basically the respondents were asked three channel choices, where the first choice was either for Hindi entertainment channel or Sports channel. The second preference of the audience was also Hindi entertainment channel and Sports channel which is 94 respondents and 83 respondents respectively. Therefore, overall it can be observed from the data collected that majority of the respondents have their choice towards Hindi entertainment channel and Sports channel as their preference over other channels like movies in Hindi, Bengali, and English language, cartoon channel, Bengali entertainment, Hindi music, news channel in Hindi, Bengali and English language.
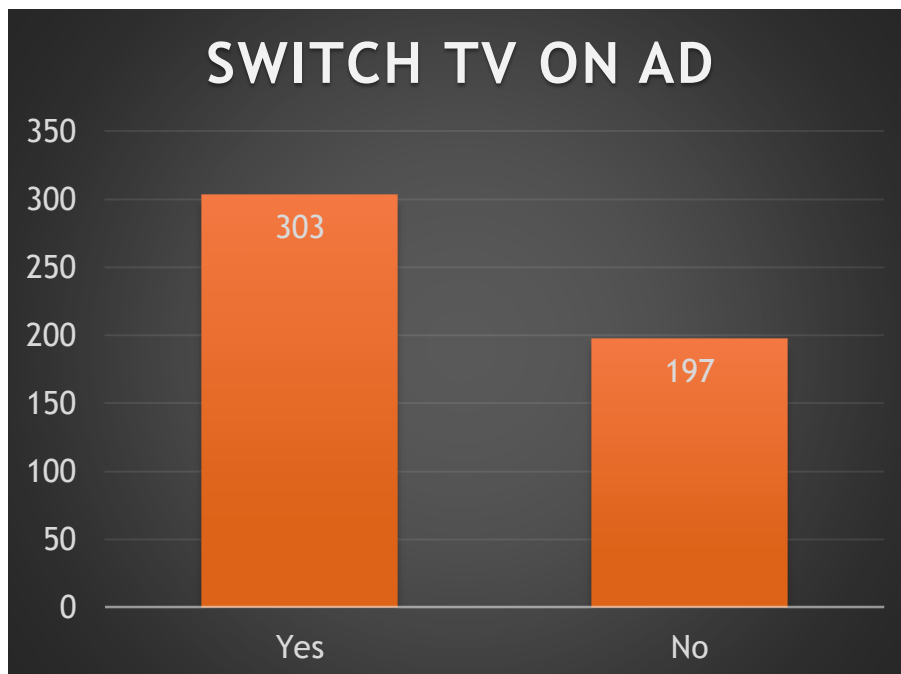

Fig. 5.4.12. Status of switching TV on Advertisement by respondents

Interpretation: The next question in the questionnaire towards the survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement was to understand the switching behavior of audience while advertisement telecast on the channels being watched by the respective audience. There are researches available which talks about this channel switching behavior which result into watching advertisements for fewer seconds, probably only for the time audience take to switch the channel. According to Batra et. al. (2004), "channel switching and ad avoidance means consumers are viewing fewer seconds of ever smaller commercials with

ever reducing attention, even ads that do get watched communicate less of the intended information." From the data collected, it can be interpreted that majority of the respondents, i.e. out of 500 respondents 303 respondents or 61% of the respondents agreed that they switch channels during advertisement and only 197 respondents out of 500 respondents or 39% respondents said that they do not switch channels during advertisements.

Food & Beverages (example; Chips, Chocolates, Cold Drinks etc.)	Personal Care/Personal Hygiene (example; Soaps, washing powder, beauty creams, deodorants etc.)	Services (example; Salon, spa, restaurants etc.)	Telecom/Internet Service Provider (example; Airtel, Jio, Vodafone, Idea etc.)	Hair Care (example; Hair oils, Shampoos etc.)	Automobile (example; Cars, two wheelers etc.)	Banking/Finance/Investment (example; Banks, financial products like credit cards, insurance etc.)	Personal Accessories (example; watches, jewellery, handbags etc.)	Personal Health care (example; razors, pads, shaving creams etc.)	Household Product (example; furniture, kitchen ware, room décor etc.)	Durable products (example; TV, Refrigerator, Washing Machine etc.)
4	4	6	5	6	6	7	6	7	7	7

Table. 5.4.1. Rank of preference for the industry for their advertisements on TV

Interpretation: Using median, which was considered for calculation of the average, it shows that all the ranks lying between 4 and 7 which is approximately middle value (1 to 10). It can be interpreted that irrespective of industry, audience watch advertisement for other reasons which has been analyzed using factor and logistic regression for the perceptual inputs derived from literature review.

The respondents were asked to give rank 1 to the product advertisements of industries which they like to see and 10 to the product advertisements of the industries which they do not like to see. None of the industry in question got extreme ranks from the analysis. From this it can be interpreted that the audience who were surveyed are not having extreme liking or disliking over watching television advertisements for products from different industries. However, there are industries who got rank 4 in the analysis which is the closest rank from rank 1. It can be interpreted that there are few industries which have liking of the audience in watching the advertisements of their products. Industries like Food & Beverage and Personal Care are the

industries, whose products advertisements are watched by the audience with interest in comparison to other industry's product advertisements under study. Telecom product advertisements have rank 5, which can be interpreted that the audience are neutral over watching them. Other industries like services, hair and care, automobiles and personal accessories have got rank 6 which is slightly more than neutral and moving towards disliking of product advertisements of the specific industries.

Industries like banking, personal healthcare, household products and durable products advertisements were ranked 7 by the audience. This can be interpreted that the audience watch the advertisements of the products of the mentioned industries, however their interest is tending towards disliking.

Again, there is another perspective over customers' involvement when it comes to certain products and they do some sort of research or collect information about these products and companies producing them before purchasing. These difference in the involvement of the customers before buying the products is considered as low and high involvement and the products for which the customers are involved are considered as low involvement products and high involvement products. The research or data collection over high involvement products are more (Fassnacht et. al 2015). Mostly the customers consider applications, image support or psychological euphoria for the high involvement products compare to low involvement products which need less influence of peers (Lotfizadeh, 2015). Therefore, based on the philosophy of low involvement and high involvement products, the data was divided into two groups' i.e. low involvement products and high involvement products and attempt was made to find out the difference in the level of factors in building the perception over the advertisements watched by the audience on television. The basis of division of data into two groups was the question into consideration.

In the above data the industry categories like Automobiles, Banking/Financial services, Personal accessories, household products and Durable products were the categories which were considered as high involvement product categories and the factors were re tested for these categories of products separately along with the test for factors for all the products. On the other hand, industry categories like Food & Beverage, Personal care/personal hygiene, Services, Telecom/Internet service provider, Hair care, Personal healthcare are the categories considered as low involvement product categories and the factors were re tested for these categories of products separately along with the test for factors for all the products and test for the products considered under high involvement product categories.

5.5. Projection and interpretation of data for Behavioral profile (frequency with respect to watching television at household for advertisement) of respondents

In addition to demographic and psychographic profile of the audience, behavioral profile of the audience was also studied to understand the behavior i.e. how much time they spent on watching television and their top of the mind awareness regarding advertisement watched on television. According to Baines et. al. (2013), "data about customer purchase and transaction provide scope for analysing who buys what, when, how often, how much they spend, and through what transactional channel they purchase".
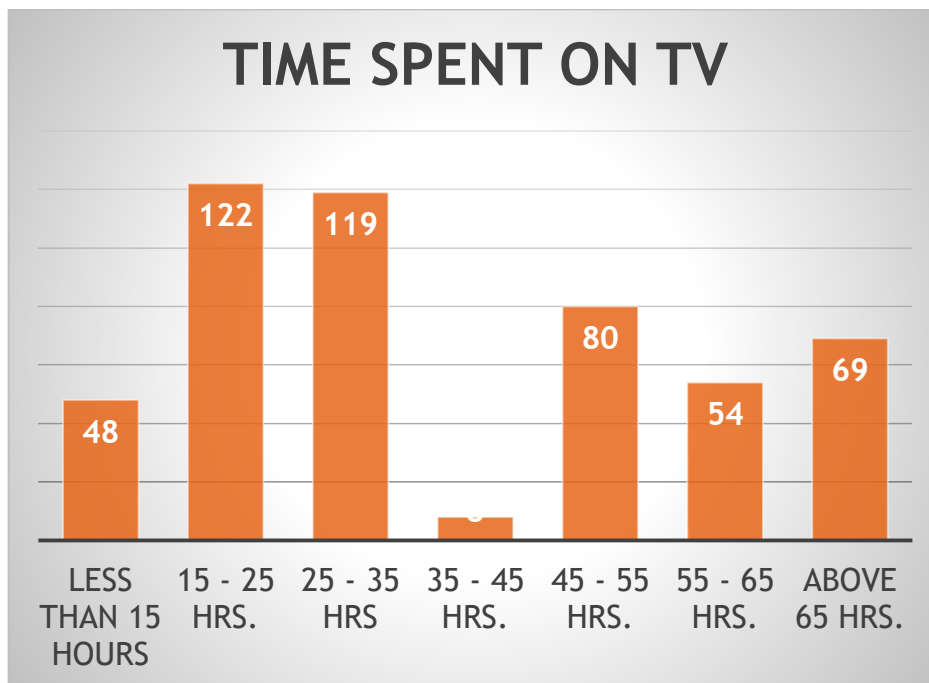

Fig. 5.5.1. Time spent on watching TV by respondents

Interpretation: The first question towards understanding the behavioral profile of the audience in the questionnaire towards the survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement was to get information on the time spent by the audience in watching television. From the data collected from 500 respondents, it is observed that 122 respondents i.e. 24% respondents spent from 15 hours to 25 hours in a month watching television. This is followed by 119 respondents from 500 respondents 24% respondents spent 25 hours to 35 hours watching television. It can be clubbed and can be interpreted as 48% respondents watch

television and spent time from 15 hours to 35 hours in a month. Hence, in spite of many researchers pointed that television or other traditional mediums are losing their relevance (Keller, 2013. Senthil et. al. 2013, Willke and Burrus, 2013), audience do watch television in the studied location and hence television have not lost their time share. However, it is important for the advertisers to study which particular time the audience watch television and it is important for the advertisers to show their advertisement at the time when the audience watch the television as they can only be watched at that point in time. There are researchers like Simon and Arndt (1980), who have studied time of advertisement shown by television as one of the factors to study effectiveness of advertisement on television.
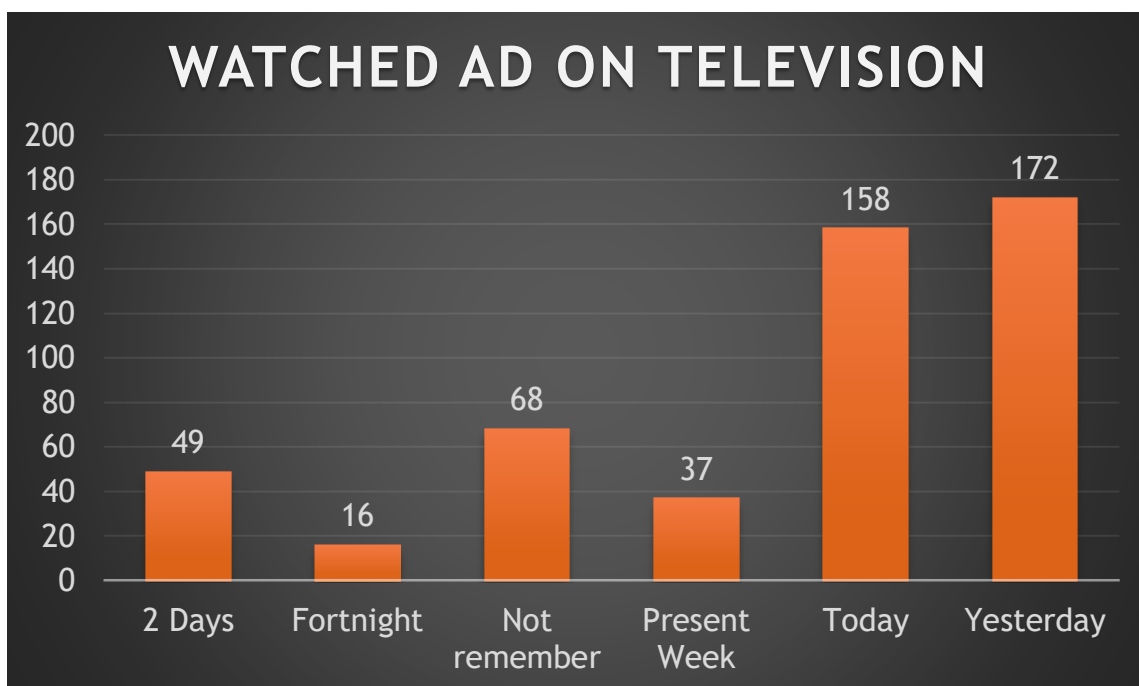

Fig. 5.5.2. Time spent on watching advertisement on TV by respondents

Interpretation: The next question towards understanding the behavioral profile of the audience in the questionnaire towards the survey which was done in and around Kolkata to understand the perceptual factors which are responsible and influences television audience to watch advertisement was to understand their top of the mind awareness of advertisement they watched on television. The data collected from 500 respondents, it is observed that 172 respondents i.e. 34% respondents mentioned that they remember advertisement watched on television just a day before followed by 158 respondents out of 500 respondents i.e. 32% mentioned that they remember advertisement watched on television on the day or they remember advertisement watched on television for just one day. However, it is clear from the data that majority of the

people remember advertisement watched on television. There were only 68 respondents out of 500 respondents i.e. 14% respondents said they do not remember advertisement they watched on television. From the data collected it can be interpreted that 86% of the respondents remember the advertisement they watched on television. In other words, it can be considered that television advertisement is still effective and the audience not only watch advertisement on television but also remember the same.