

IMAGES CREATED THROUGH ADVERTISEMENT: MULTI DIMENSIONAL SCALING APPROACH

Dr. Sangeeta Mohanty*

Abstract:

The term “advertising” is defined as the prominent communication channel using mass media to influence the audience (Wells, Burnett & Moriarty, 2003, p.10). Admittedly, advertising has gained profound recognition and importance all over the globe as an indispensable tool of marketing. This recognition has led to its remarkable growth. Advertising has become a forceful tool in moulding attitudes and behaviour of the people towards products, ideas and services. Against such a backdrop, the present study is an attempt to examine the attitudes of those who are exposed to advertising through various mass-media activities. The basic purpose is to analyze the images built in the minds of those who are exposed to advertising by using **Multi Dimensional Scaling** approach with preference data.

Key Words: Advertisement, Image, MDS, Dimension, Spatial Map.

* Assistant Professor, Academy of Business Administration, Harida, Kuruda, Balasore, Orissa, India.

Introduction:

Advertising has emerged as a vital marketing tool as well as a powerful communication force. Today, advertising is the fastest growing industry that stays ahead, so long as the business organizations exist. Advertising is the activity of transmitting audio visual messages to the public. It aims at creating a desire for the products among the consumers. S.A Chunawalla and K.C Sethia (2006) argue advertising as multidimensional. It is a form of mass communication, a powerful marketing tool; an instrument of business management. Advertising is a non personal presentation and promotion of ideas, goods or services by an identified sponsor. It can be an effective way to disseminate messages to build the brand preference or to educate the people (Kotler, 2007). Of all the marketing activities, advertising is the most visible one and therefore, controversial too, for that reason, the role of advertising at large has been analyzed, defended and criticized. It is generally considered that advertising influence the modern society.

Thus, advertising has become an integral part of our society. People are continuously exposed to advertising through an array of mass media activities. It has become embedded in our daily lives. By using various channels of information, advertising helps to sell goods, services, images and ideas. The primary role of advertising is to elicit the brand awareness and beliefs; persuading consumers towards the product. Current advertising is expected to have a positive direct effect on current purchase (Aaker, Batra, and Myers 1992). Advertising remains the most powerful element of the promotion mix. Advertising is an invaluable aid in selling products and services. In general, information in advertisements are about the brand and its attributes; benefits of the advertised products to users; cognitive and emotional appeal to the product; eliciting contextual information (MacInnis, Moorman, and Jaworski 2001; Vakratsas and Ambler 1999). The most important factor of advertising is the persuasion factor. Advertising attempts to persuade prospective buyers to buy a products and services by creating preferences, liking and conviction (Kotler, 2007). Thus the main difficulty arises that consumers tend to counter argue, discount, in issue of the advertisement (Smith and Swinyard 1982, 1983, 1988). Traditionally, advertising models are perceived as cognitive, effective, and conative responses of the consumers. There are various arguments supporting this theory but it is accepted that the advertisements are more appealing to 'brand choice' and 'purchase intensive (Lavidge and Steiner 1961, Smith and Swinyard 1983, Smith et al. 2008, Wright 1973). Lars Bergkvist, 2000 studied that some immediate responses such as 'Appealing', 'Silly', 'Exciting', 'Meaningful' and 'Simple' as measured by adjective

checklists, have a direct influence on advertisement perceptions. The results thus indicated that 'silly' advertisements loses credibility and likeability, 'simple' advertisements can gain credibility and likeability, 'meaningful' advertisement increases credibility and 'appealing and exciting' advertisements are liked. We come across numerous advertisements in our daily life to catch our attention to product or service (Goddard, 2002:9). Manrai et.al. (1992), in a study of undergraduate business students suggested that, emotional commercial TV advertisements have more message-contents and positive commercials TV advertisements have more executional elements. By taking into account positive and negative aspects of advertising as well as review of available literature, the paper examines various aspects of advertising and tries to find out the images of advertising created in the minds of the people by using **Multi Dimensional Scaling technique** with preference data.

Multi Dimensional Scaling technique (MDS):

Multi dimensional scaling is a powerful statistical technique used for representing the preferences of respondents into the groups of '**Dimensions and map**'. MDS can be conducted by using similarity data or preference data. The particular research paper undertakes MDS with preference data (rank ordering method). MDS is useful in measuring the perception and distinctive images of the stimuli used in research. Perceived relationships among stimuli are then represented by means of a visual display using geometric relationships among points in a multidimensional space. The geometric representation is often called spatial maps. It attempts to plot these data in a map; indicating the similarities and dissimilarities as the distances between points (Inger Borg, Patrick J.F Groenen, 2005). The distance between plotted points in spatial map based on preference data indicate the differences in preferences (Michael J. Baker and Susan J. Hart and, 2008). The important aspect of MDS is the identification of the **dimensions** of favouring and not favouring the stimuli (Naresh K. Malhotra and Satyabhushan Das, 2011).

Frame work of Analysis:

The present study is a result of the above-mentioned researches conducted in different years. Most of the researches have been conducted on the usefulness of advertisement in the society. In addition to this, it is important to judge the images created through advertisement in general.

MDS provides more comprehensive examination of judging and perceiving the advertisements. The frame work of analysis proceeds with the selection of stimuli and data collection.

➤ Stimulus

The stimulus set consists of 13 responses (see table-1) towards advertisement. The stimuli have been collected by reviewing the literatures and by conducting a pilot survey. The selected stimuli reflect the various aspects of judging the advertisement (e.g., informative, educative, persuasive, commercial, value to society, aesthetic, humor value, misleading, creative negative impact, ethical). The analysis is undertaken with the help of multi dimensional scaling technique to arrive at specific conclusions.

➤ Data Collection

The data of the proposed study has been collected through primary sources with the help of a structured and pre-tested questionnaire to elicit necessary information pertaining to the various aspects of advertising from the sample respondents. The sample consists of 233 respondents randomly selected from the cities **Balasore** and **Bhadrak**, Odisha. The sample includes male and female of different age and education level. For the purpose of collecting the data, a 7 point likert scale, 1-denoting strongly agree and 7- denoting strongly disagree has been developed to capture and measure the attitudes of the sample towards different aspects of advertising. The sample respondents were asked to rate the stimuli on 7-point likert scale. Then distance matrix from the aggregated data collected was created by using SPSS -11 and the matrix was used as MDS input as shown in MDS output 1-6. The respondents should be asked to indicate the criteria they used in making their evaluations. The criteria would be the basis for finding and naming the dimensions.

Table-1: Stimuli

V ₁ = Advertising encourages gross materialism.
V ₂ =Advertising increase prices of the products.
V ₃ =Majority of advertisements to which people are exposed are of poor taste.
V ₄ =There is tendency of the people not to believe the advertisements.
V ₅ =Advertising creates negative impact on the minds of children.
V ₆ =Advertising enables people to choose the right quality and brand out of various alternatives.
V ₇ =Advertising should device its own code of conduct and ethical norms.
V ₈ =Advertisements for certain types of products should be banned in the mass-media.
V ₉ =Advertising persuades people to buy products and services that they should not buy.

V_{10} =Advertising provides a new way of life.
V_{11} =Majority of advertisements today give misleading information.
V_{12} =Advertisements create needs but do not fulfill them perfectly.
V_{13} =Indian Public would be better without advertising.

Interpretation of Multi Dimensional Scaling Output

Output-1: Raw (unscaled) Data for Subject 1

	1	2	3	4	5	6	7	8	9	10	11	12
1	0.000											
2	11.269	0.000										
3	11.314	9.110	0.000									
4	10.677	8.888	9.695	0.000								
5	12.767	5.099	10.149	9.110	0.000							
6	12.288	5.292	9.434	8.544	4.000	0.000						
7	12.923	4.899	9.644	9.327	4.000	4.472	0.000					
8	13.601	5.292	10.247	9.644	2.000	4.000	4.000	0.000				
9	12.083	11.96	13.784	11.045	12.610	13.153	12.610	12.923	0.000			
10	11.958	11.83	10.36	13.379	13.038	12.884	13.266	13.416	13.300	0.000		
11	11.136	8.775	9.165	9.165	7.937	8.307	8.544	8.307	10.95	12.042	0.000	
12	11.576	10.72	10.77	10.677	12.207	11.874	10.909	12.369	10.00	12.042	11.916	0.0.00
13	14.283	12.37	11.916	11.402	13.153	12.689	13.000	13.153	9.695	12.042	11.314	10.390

The **output-1** generated by SPSS-11 for a MDS solution provides the unscaled means of the similarity ratings of the stimuli furnished by respondents. The rows (1-13) on the left-hand side and columns (1-13) on the top of the matrix indicate the stimuli used for comparisons.

Output-2: Iteration history for the 4 dimensional solutions (in squared distances)

Iteration history for the 4 dimensional solutions (in squared distances)

Iteration	S-stress	Improvement
1	0.15944	
2	0.12296	0.03648

3	0.12192	0.00103
4	0.12181	0.00011

Iterations stopped because

S-stress improvement is less than 0.00100

Stress and squared correlation (RSQ) in distances

RSQ values are the proportion of variance of the scaled data (disparities) in the partition (row, matrix, or entire data) which is accounted for by their corresponding distances.

Stress values are Kruskal's stress formula 1.

For matrix

Stress = .08669 RSQ = .95515

The SPSS output-2 provides the step-by-step solution history. It can be seen that there is an improvement (decrease) in Young's S-Stress as the iterations proceed. The iterations will continue until the last improvement in S-Stress is obtained. The RSQ (squared correlation coefficient between the distances and the data) and Kruskal's stress index are used as the measures of goodness of fit of the solution. A lower stress value (0.15758) and higher RSQ (0.87708) are considered good for solution.

Output-3: Configuration derived in 4 dimensions

Stimulus Coordinates

Dimension

Stimulus No.	Stimulus Name	1	2	3	4
1	V1= Gross materialism	1.1106	-1.5626	1.7790	-0.2746
2	V2= Increase in price	-1.0906	-0.1312	-0.0350	0.1389
3	V3= Poor taste	0.0104	-1.3994	-0.7753	0.9290
4	V4= Not believable	-0.0642	0.3557	1.3728	0.7917
5	V5= Negative impact	-1.5284	0.2328	-0.0638	-0.2782
6	V6= Choosing the right brand	-1.4651	0.0417	-0.1028	0.0658
7	V7= Own code of conduct	-1.4395	0.3341	-0.1741	0.2961

8	V8= Restriction on adv.	-1.6398	0.3957	-0.3043	-0.1765
9	V9= Persuades people	1.7316	1.5296	0.7580	-0.8105
10	V10= New way of life	1.4630	-1.6745	-1.4075	-0.7504
11	V11= Adv. are misleading	-0.3373	0.0196	0.1877	-1.4401
12	V12= Creates need	1.4560	0.4473	0.0001	1.5958
13	V13= Better without adv.	1.7933	1.4111	-1.2347	-0.0870

The dimensions are the yardsticks to judge the similarity of the stimuli. The SPSS output-3 generates the dimensions.

Dimension-1

Looking at the extreme values, the variables 'Gross materialism', 'Persuades people', 'Better without adv.', 'Creates need', 'New way of life' are at one end and Negative impact 'Choosing the right brand', 'own code of conduct' and 'Restriction on adv.' are at another end. Therefore the dimension is named as **Educative and Informative**.

Dimension – 2

The second dimension appears to categorize the stimuli according to the persuasive characteristics of the advertisement. Thus the stimuli 'Persuades people' and 'Better without adv.' are at one extreme of the dimension and 'New way of life', 'Gross materialism' are at another end. The dimension is so named as **Persuasive**.

Dimension – 3

To name the third dimension, let us examine the highest and lowest score. Here we see 'Gross materialism' and 'Not believable' are scoring high and 'Better without adv' scoring low. Thus the dimension is named as **Commercial**.

Dimension – 4

The stimuli 'creates need' is getting high score 'advertising are misleading' low score in dimension-4. The dimension is therefore named as **Creation of need**.

Output-4: Optimally scaled data (disparities) for subject 1

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	0.000												
2	3.122	0.000											

3	3.137	2.395	0.000										
4	2.922	2.320	2.592	0.000									
5	3.626	1.044	2.744	2.395	0.000								
6	3.465	1.108	2.504	2.204	0.674	0.000							
7	3.679	0.976	2.574	2.468	0.674	0.833	0.000						
8	3.907	1.108	2.777	2.574	0.000	0.674	0.674	0.000					
9	3.369	3.354	3.969	3.046	3.573	3.756	3.573	3.679	0.000				
10	3.354	3.311	2.906	3.832	3.717	3.665	3.794	3.845	3.782	0.000			
11	3.077	2.2882	2.413	2.413	2.000	2.124	2.204	2.124	3.016	3.382	0.000		
12	3.225	2.928	2.954	2.922	3.437	3.325	3.000	3.492	1.694	3.382	3.340	0.0.00	
13	4.137	3.492	3.340	3.166	3.756	3.600	3.705	3.756	2.592	3.382	3.137	2.286	0

SPSS Output 4 reflects the original ratings of respondents considered as a group.

The two dimensional solution also have an acceptable stress score (.26590) and significant RSQ (.74633). The spatial map with the co-ordinates of two dimensional solutions is illustrated below.

Output-5: Iteration history for the 2 dimensional solutions (in squared distances)

Iteration history for the 4 dimensional solutions (in squared distances)

Iteration	S-stress	Improvement
1	0.34619	
2	0.30519	0.04100
3	0.30326	0.00192
4	0.30303	0.00024

Iterations stopped because

S-stress improvement is less than 0.00100

Stress and squared correlation (RSQ) in distances

RSQ values are the proportion of variance of the scaled data (disparities) in the partition (row, matrix, or entire data) which is accounted for by their corresponding distances.

Stress values are Kruskal's stress formula 1.

For matrix

Stress = 0.26590 RSQ = 0.74633

Output-6: Configuration derived in 2 dimensions

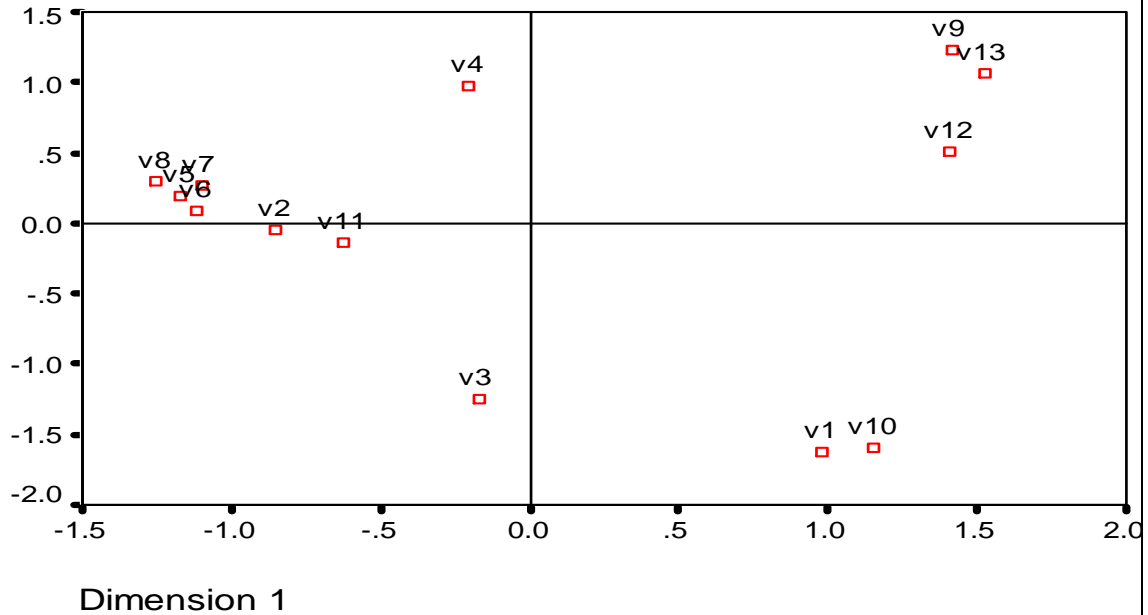
Stimulus No.	Stimulus Name	1	2
1	V1= Gross materialism	0.9837	-1.5626
2	V2= Increase in price	-0.8508	-0.0431
3	V3= Poor taste	-0.1720	-1.2493
4	V4= Not believable	-0.2033	0.3557
5	V5= Negative impact	-1.1682	0.1979
6	V6= Choosing the right brand	-1.1150	0.0843
7	V7= own code of conduct	-1.1019	0.2700
8	V8= Restriction on adv.	-1.2529	0.3048
9	V9= Persuades people	1.4141	1.5342
10	V10= New way of life	1.1567	-1.5909
11	V11= Adv. are misleading	-0.6248	-0.1309
12	V12= Creates need	1.4104	0.5091
13	V13= Better without adv.	1.5241	1.0649

The interpretation of 2-dimensional solution is somehow equal with 3-dimensional solution. The same stimuli (as in case of 3-dimensional solution) are getting high and low score in dimension-1 and 2. But the stimuli 'Persuades people' has occupied both the dimension positively with comparatively high score in dimension-2. Dimension 1 and 2 are thus named as 'Educative and Informative' and 'Persuasive'.

Output-6: Perceptual Map

Derived Stimulus Configuration

Euclidean distance model



The coordinates used in the map of each object are the coordinates displayed in output-6 for two dimensions. The horizontal axis represents the degree of “Information and education” that the people are getting from the advertisement. Thus the vertical axis depicts the nature of advertisement “persuading” people to buy or not to buy the products. The stimuli v_{13} and v_9 are placed in high positions along horizontal and vertical axes.

In spatial map, the stimuli closer to each other create the similar image. It can be observed from the map that ‘Gross materialism’ and ‘Advertising provides a new way of life have the same impact on Indian. The stimuli that the ‘Advertisements are of Poor taste’ and ‘The advertisements are not believable’ have unique images. The stimuli ‘Advertisement Persuades people’, ‘advertisements create need’ and ‘the people will be better without adv’ are perceived equally by Indian. Similarly the stimuli ‘Increase in price’, ‘Negative impact’ and ‘Choosing the right brand’ and ‘own code of conduct’, ‘Restriction on adv’ and ‘Adv. are misleading’ have the same image in the minds of Indian.

Results and Discussion

The four dimensional solutions resulted four prominent dimensions: '**Educative and Informative**', '**Persuasive**', '**Commercial**' and '**Creation of need**'. Two dimensional solutions supported the same dimensions: '**Educative and Informative**' and '**Persuasive**'. Thus the results are in support of the theory that advertisements are **informative** (MacInnis, Moorman, and Jaworski 2001; Vakratsas and Ambler 1999, Aaker, Batra, and Myers 1992) and **persuasive** (Kotler, 2007). The stimuli ' v_{13} = **Advertisement Persuades people**' and ' v_9 = **the people will be better without adv**' are found to be important amongst all the stimuli. They have good scores in both the dimensions and placed in high positions in spatial map. The stimuli ' v_3 = **advertisements are of Poor taste**' and ' v_4 = **the advertisements are not believable**' have unique images and should be taken care of by the advertising companies at prima facie.

Conclusion

Advertising is an all-encompassing facet of today's world. It is the major way of establishing communication between manufacturer and other organizations. Advertisement tries to put the ideas and concepts to the customers on one hand and persuades people to buy the products on the other. It carries a convincing message about the brand attributes and its availability. When we talk of advertisement, we talk about the art in advertising which creates an image in the mind. Image creation is a mental process created through audio-visual advertisements. But, the biggest challenge to Indian advertising professionals today is the negative public image. False and misleading advertising does often take consumers' for ride. Advertisers as well as the company associated with the advertisement generally want their advertisement to be perceived as credible. The particular study is intended to explore this image and identified advertisement as **Informative, Educative and persuasive in nature**. It is also believed that majority of the advertisements are of poor taste and not believable. The advertisers and the associated product brand categories should think of redesigning the advertisement to create an impressive image in mind's of consumers.

References:

1. Aaker, David A., Rajeev Batra, and John G. Myers (1992). Advertising Management, 4th ed. Englewood Cliffs, NJ: Prentice-Hall, Inc.
2. Goddard, A. (1998). The language of advertising. London: Routledge
3. Inger Borg, Patrick J.F groenen, Modern Multi Dimensional Scaling, Second edition, Springer, 2005
4. Lars Berg kvist, Immediate responses that influence ad and brand perceptions, Visionary Marketing for the 21st Century: Facing the Challenge, ANZMAC 2000
5. Kotler Philip, Keller Kevin lane, Marketing Management, Pearson prentice Hall, 2007
6. Lavidge, R. J., G. A. Steiner. 1961. A model for predictive measurements of advertising effectiveness. J. Marketing 25(October) 59-62.
7. MacInnis, D.J., B.J. Jaworski. 1989. Information Processing from Advertisements: Toward an Integrative Framework. Journal of Marketing. 53(4) 1-23.
8. MacInnis, D.J., C. Moorman, B.J. Jaworski. 1991. Enhancing and Measuring Consumers' Motivation, Opportunity, and Ability to Process Brand Information from Ads. Journal of Marketing. 55(4) 32-54.
9. Mc Quarrie, E.F. and Mick, D.G., (2009), A Laboratory Study of the Effect of Verbal Versus Repetition When Consumers are not directed to Process Advertising, International Journal of Advertising, 28, 2, 287-312.
10. Mc Quarrie, E.F. and Mick, D.G., (2003), Visual and Verbal Rhetorical Figures Under Directed Processing Versus Incidental Exposure To Advertising, Journal of Consumer Research, 29, 3, 579-587.
11. Mc Quarrie, E.F. and Mick, D.G., (1999), Visual Rhetoric in Advertising: Text-Interpretive, Experiential, and Reader-Response Analyses, Journal of Consumer Research, 26, 6, 37-54.
12. Manrai LA, Manrai AK, Lascu DN 1997. How green claim strength and country disposition affect product evaluation and company image. Psychology and Marketing, 11(5): 511-537.
13. Michael J. Baker and Susan J. Hart and, 2008, Elsevier, Usa
14. Naresh K. Malhotra and Satya bhushan Das, 2011, marketing Research, Person education

15. Nabil Mzoughi, Samar Abdelhak, The Impact of Visual and Verbal Rhetoric in Advertising on Mental Imagery and International Journal of Business and Social Science Vol. 2 No. 9 [Special Issue - May 2011]
16. S.A Chunawalla and K.C Sethia, Advertsing Theory and Practices, Himalaya Publishing House, 2006
17. Smith, R. E., W. R. Swinyard. 1982. Information response models: An integrated approach. *J. Marketing* 46(1) 81–93.
18. Smith, R. E., W. R. Swinyard. 1983. Attitude-behavior consistency: The impact of product trial versus advertising. *J. Marketing Res.* 20(3) 257–267.
19. Smith, R. E., W. R. Swinyard. 1988. Cognitive response to advertising and trial: Belief strength, belief confidence and product curiosity. *J. Advertising* 17(3) 3–14.
20. Smith, R. E., X. Yang. 2004, Towards a general theory of creativity in advertising: Examining the role of divergence. *Marketing Theory* 4(1/2) 29–55.
21. Smith, R. E., J. Chen, X. Yang. 2008. The impact of advertising creativity on the hierarchy-of-effects. *J. Advertising* 37(4)47–61.
22. Smith, R. E., S. B. Mac Kenzie, X. Yang, L. M. Buchholz, W. K. Darley. 2007. Modeling the determinants and effects of creativity in advertising. *Marketing Sci.* 26(6) 819–833
23. Vakratsas, D. and T. Ambler. 1999. How Advertising Works: What Do We Really Know? *Journal of Marketing.* 63(1) 26-43.
24. Wells, William, John Burnett, and Sandra Moriarty (2000), *Advertising Principles & Practice*, 5th ed . Upper Saddle River, NJ: Prentice Hall.