

## Perceptual Mapping of Different Toothpaste Brands Available in Bangladesh: A Study in Dhaka City

Md. Atiqur Rahman\*

### Abstract

*This paper investigates how the consumers in Bangladesh perceive different toothpaste brands against major quality attributes. Consumers' perception of six brands (Pepsodent, Meswak, Colgate, Sensodyne, Mediplus and Crest) was analyzed on seven attributes (Anti-Cavity, Medicinal, Herbal, Cleaning, Taste, Mouth freshening and Price). A total of 60 respondents were randomly selected at different sales outlets at Dhaka city. Respondents were asked to rate their most preferred brand, which he/she buys, against seven attributes on a seven point Semantic Differential Scale. The collected data were analyzed by Discriminant Model using SPSS and the perceptual map was developed by MS-Excel. It was found that Meswak is highly perceived as being Herbal, whereas Colgate was perceived to have both mouth freshening and cleaning properties followed by some herbal properties. Pepsodent was supposed to have significant cleaning and anti-cavity properties. Mediplus and Sensodyne have strong medical properties. Crest was perceived to have no anti-cavity, medical or herbal properties. It was also evident that Sensodyne and Mediplus are close competitors, and Colgate competes with both Meswak and Pepsodent.*

**Keywords:** Brand, Toothpaste, Medical and Herbal Property, Anti-Cavity, Perceptual Map

### Introduction

Perceptual Maps are widely used by market researchers, to portray a brand's image or consumer's reactions to product features. Most products and services have many physical and intangible attributes with varied characteristics for a would-be purchaser. For example, toothpaste is not merely "a tooth cleaning product". Rather, for a consumer, it is a bundle of objective and subjective characteristics like taste, mouth freshener, decay protection, bad breath, price, and so on. The marketer's task is the difficult one of deciding how many attributes to build into the product, how much quality to include in each attribute, and how to put the attributes together to gain a competitive advantage. Fortunately, only a few product

---

\* Assistant Professor, Department of Management, Islamic University, Kushtia, Bangladesh

attributes are important in any actual choice process of consumers. Indeed, two or three key attributes are often sufficient to predict consumer choices. As products become more complex and consumers become more sophisticated, however, marketers must build more attributes into the product. This is notable that key attributes vary by market segment and therefore the marketing effort must change accordingly.

A variety of statistical techniques can be used to generate Perceptual maps. Usually perceptual maps are constructed via multidimensional scaling - multiple discriminant functions – correspondence analysis- and factor analysis. Here the researchers used multiple discriminant functions.

This study will focus on the attributes of the selected toothpaste brands, and identify if there is any gap in the market that may be filled to satisfy customer expectations. However, before deciding to fill any gaps in the market, firms need to ensure that there is likely to be a demand for a product positioned in that gap.

### **Literature Review**

Perceptual mapping is one of the few marketing research techniques that provide direct input into the strategic marketing planning process. It allows senior marketing planners to take a broad view of the strengths and weaknesses of their product or service offerings relative to that of their competition (Lederer and Hill, 2001). To differentiate products and/or service offerings, companies brand their products/services (Aaker, 1996). In other words, brand is “a name, term, sign, symbol or design, or a combination of them intended to identify the goods or services of one seller or group of sellers and to differentiate them from those of competitors. These differences may be functional, rational, or emotional or Intangible related to what the brand represents. All these differences in the eye of consumers form brand perception. According to Dahiva (1996), positive perception and attitude of consumer towards a particular brand is very useful in purchasing that brand. A brand that is not considered cannot be chosen (Baker et al. 1986). Further, the probability of the brand being chosen is a condition of the number of other brands in the consideration set.

The knowledge of brand perception of consumers helps developing powerful brand (Chernatony and McDonald, 2000). Brand perception is consumers’ ability to identify the brand under different conditions, as reflected by their brand recognition or recall performance (Calderon et. al. 1997). Brand awareness and brand perceived quality are the significant factors to create and maintain brand equity. Perceived quality is defined as the consumer's judgment about a product's overall excellence or superiority (Zeithaml, 1988; Jacoby et. al., 1977). Sethuraman and Cole (1997) found that perceived quality explains a considerable portion of the variance in the price premium consumers are willing to pay for national brands. The perceived quality of products and services of strong brands add value to consumers' purchase evaluations.

Consumers constitute these perceptions around some quality attributes. Therefore, it is very important for a company to know how its products are being perceived by the consumers, and how do consumers rate different product attributes. Product attributes are the benefits of products, which influence brand attitude (Rossister, 1987). So, every company tries to

differentiate their products emphasizing some differentiating attributes, sometimes which are not actually used by consumers at all (Chowdhury & Islam 2003). In this regard perceptual mapping plays an important role in identifying the relative position of a brand in the minds of consumers. Any gap in the perceptual map opens up avenues for new product development.

Although perceptual mapping techniques have been used extensively over a large number of applied research studies, and for a very wide variety of product and service categories, no significant research has been found in the context of soap market in Bangladesh. Therefore, the researchers have had an opportunity to investigate the consumers' perception of different soap brand in Bangladesh, particularly in Dhaka city.

### Objectives of the Study

The main objective of the study is to explore how the selected brands of toothpaste are perceived by the respondents against the set seven quality attributes. To attain the main objective the researchers have set the following specific objectives:

1. To develop a perceptual map of toothpaste brands.
2. To identify how consumers evaluate different attributes of toothpaste; i.e. the correlation of different attributes.
3. To find out close competitors of each of the brands.
4. To find out if there is any gap in the perceptual map that can offer new product development opportunities.
5. To recommend policy implications of the findings to manufacturers.

### Methodology of the Study

In this study, six different brands and seven quality attributes were selected for analysis. A total of 60 respondents (10 brand users for each brand) were randomly selected at different sales outlets like grocery stores, superstores, departmental stores and small shops located at Dhaka city.

Brands	No. of brand users (Respondents)	Attributes	Survey Areas
Pepsodent	10	Anti-Cavity	Grocery stores, superstores, departmental stores and small shops located at Dhaka city
Meswak	10	Medicinal	
Colgate	10	Herbal	
Sensodyne	10	Cleaning	
Mediplus	10	Taste	
Crest	10	Mouth freshening	
Total= 60		Price	

This study is based on primary data, which was collected between May 20, 2011 to June 10, 2011; using a structured questionnaire. In the questionnaire, the respondents were asked to rate his most preferred brand (which he buys) for each of the seven attributes on a seven point Bipolar Rating Scale, i.e. Semantic Differential Scale, which is as follows:

	1	2	3	4	5	6	7	
No Cavity Protection	_____	_____	_____	_____	_____	_____	_____	High Cavity Protection
No Medicinal Property	_____	_____	_____	_____	_____	_____	_____	Strong Medicinal Property
No Herbal Property	_____	_____	_____	_____	_____	_____	_____	Strong Herbal Property
Ineffective Cleaning	_____	_____	_____	_____	_____	_____	_____	Effective Cleaning
Unpleasant Taste	_____	_____	_____	_____	_____	_____	_____	Pleasant Taste
Weak Mouth Freshening	_____	_____	_____	_____	_____	_____	_____	Strong Mouth freshening
Low Price	_____	_____	_____	_____	_____	_____	_____	High on Price

The collected data were analyzed by “Discriminant Model” using SPSS (Version 15.0). The Perceptual Map was developed by Microsoft Excel using the SPSS outputs.

### Discussion and Analysis

Here in this study, the researchers have taken six brands of toothpaste and seven attributes. However, from table-1, we see that six out of those seven attributes namely taste mouth freshening, cleaning, anti-cavity, medicinal and herbal significantly discriminate the toothpaste brands, whereas only price was not a significant discriminating attribute to the respondents.

**Table-1:**

#### Tests of Equality of Group Means

	Wilks' Lambda	F	df1	df2	Sig.
PRICE	.826	2.278	5	54	.060
TASTE	.651	5.788	5	54	.000
MOUTHFRS	.606	7.011	5	54	.000
CLEANING	.612	6.845	5	54	.000
ANTICAV	.434	14.110	5	54	.000
MEDICINA	.497	10.942	5	54	.000
HERBAL	.301	25.033	5	54	.000

**Table-2: Summary of Canonical Discriminant Functions****Eigenvalues**

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	3.099 <sup>a</sup>	44.9	44.9	.870
2	3.040 <sup>a</sup>	44.0	88.9	.867
3	.444 <sup>a</sup>	6.4	95.4	.555
4	.225 <sup>a</sup>	3.3	98.6	.429
5	.095 <sup>a</sup>	1.4	100.0	.294

a. First 5 canonical discriminant functions were used in the analysis.

From Table-2, we see that the maximum number of discriminating function can be five. However, first two functions describe 88.9% of the total variability in the six brands. Therefore, the perceptual map was developed using only function 1 and 2.

**Table-3****Standardized Canonical Discriminant Function Coefficients**

	Function				
	1	2	3	4	5
PRICE	-.161	.149	-.125	-.181	.777
TASTE	-.267	.036	.009	.839	.403
MOUTHFRS	-.318	.321	-.189	.058	-.289
CLEANING	-.062	.137	.942	-.362	.155
ANTICAV	.734	-.052	.181	.536	-.141
MEDICINA	.343	-.540	-.124	-.090	.436
HERBAL	.456	.866	-.321	-.175	-.102

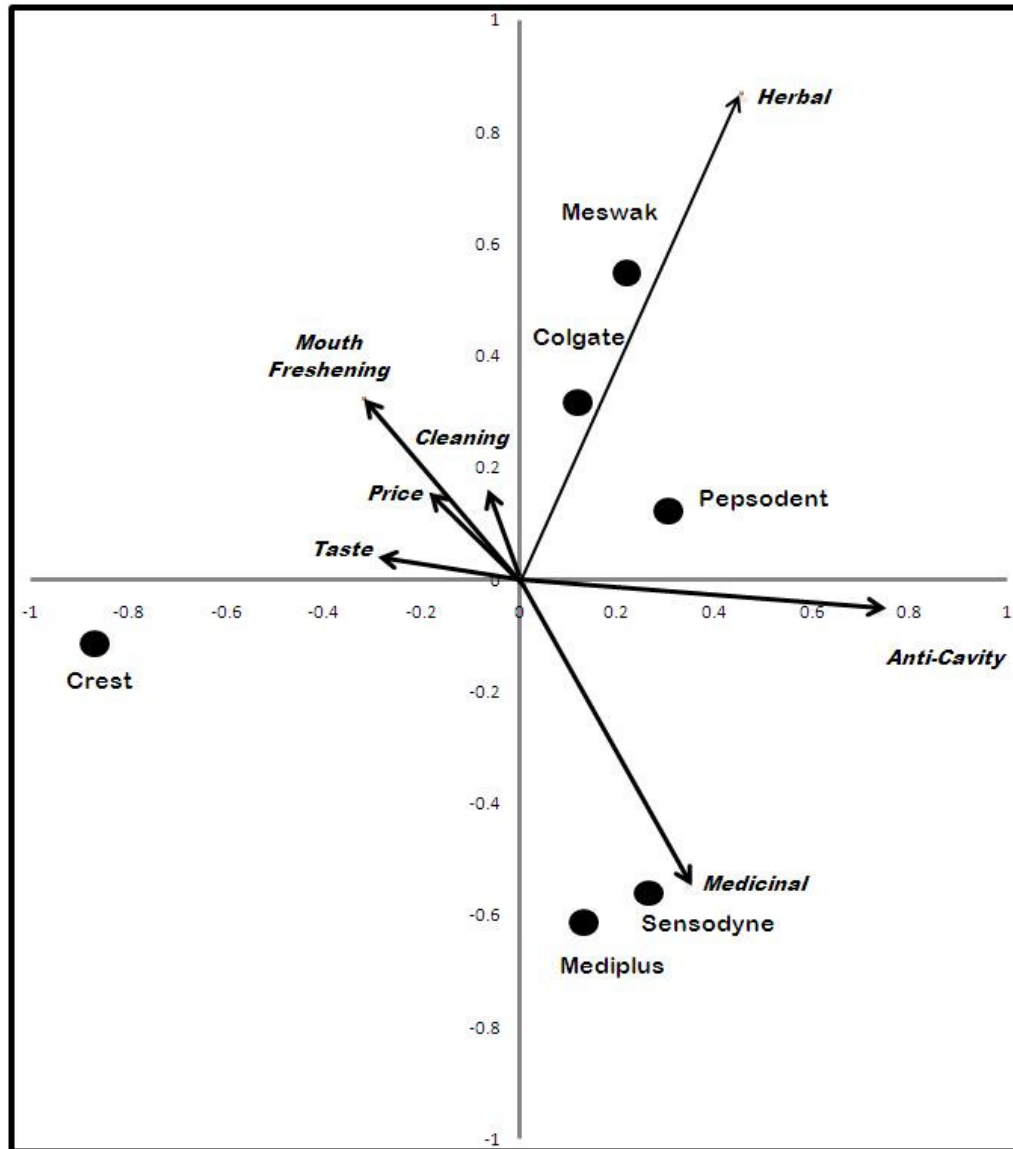
**Table-4****Functions at Group Centroids**

BRAND	Function				
	1	2	3	4	5
Pepsodent	1.037	.774	.884	.654	.166
Colgate	.310	1.392	.389	-.802	.114
MediPlus	.605	-2.259	-.650	-2.09E-02	.472
Meswak	.596	2.137	-1.011	.235	-.178
Close Up	-3.678	-.305	8.723E-02	.113	-5.42E-02
Sensodyne	1.159	-2.105	.197	-.101	-.485

Unstandardized canonical discriminant functions evaluated at group means

Standardized Canonical-discriminant-function- coefficients of attributes (Table-3) were used to plot the attributes and Unstandardized Canonical-discriminant-functions, evaluated at group means (Table-4) were taken to plot the brands on the map. The resulting perceptual Map is shown in Figure-1.

**Figure-1: Perceptual Map of Toothpaste Brands**



---

***Analysis of Attribute Vectors:***

In this map it is shown that anti-cavity is correlated with medicinal and herbal attributes, and highly negatively correlated with taste. In other words, respondents perceive that a paste with anti-cavity property cannot be tasty.

***Analysis of Brand Positions:***

In this map we see that Meswak is highly perceived as being Herbal. Colgate is perceived to have both mouth freshening and cleaning properties followed by some herbal attributes. Pepsodent is supposed to have significant cleaning and anti-cavity properties. However, Mediplus and Sensodyne stand out and close to “medical” vector. It is also strongly evident in the map that Crest does not have any anti-cavity, medical or herbal attributes, and have only mouth freshening and cleaning properties.

In the above perceptual map, Sensodyne and Mediplus are positioned very closely, which means that they are close competitors in the market place. On the other side, Meswak and Colgate are competing with each other. However, Pepsodent occupies to some extent a distinct position in the map, with some proximity with Colgate.

**Conclusion and Recommendation**

This Perceptual Map provides a clear picture of how the different brands of toothpaste are positioned in the mind of the consumers in Bangladesh. This has a great implication in brand positioning strategies of the manufacturers. Again, companies can now identify their major competing brands, which would help in deploying competitive strategies. This map will also help in new product development by identifying gaps in the market. For example, among the selected brands there is no brand positioned very closely to “taste” and “mouth freshening” attributes. Therefore a new brand can be introduced in the market and positioned based on those two attributes.



---

**References:**

---

- Aaker, D.A (1996), *Building Strong Brands* (New York: The Free Press)
- Baker, W., J. W. Hutchinson, D. Moore and P. Nedungadi (1986), "Brand familiarity and Advertising: Effects on the Evoked set and Brand preferences," *Advance in Consumer Research*, Vol.1
- Calderon, H; Cervera, A and Molla, A (1997) "*Brand Assessment: A Key Element of Marketing Strategy*" *Journal of Product and Brand Management* Vol.6 No.5
- Chernatony, L and McDonald, M (2000) *Creating Powerful Brands* (London: Butterworth-Heinemann)
- Chowdhury, M.H.K & Islam, R. (2003) "Critical Factor in Consumer Perceptions: A Cognitive Approach", *Journal of Business Research*, Vol. 5, pp.1-18.
- Dahiya. D. S., (1996). "Psychographic Aspects of Advertising--An Attitudinal Study of Consumers", *Indian Journal of Commerce*, Vol. XLIX No. 189 Part IV, pp 101-106.
- Jacoby, J, Szybillo, G; Busato-Schach, J. (1977) "information Acquisition Behavior in Brand Choice Situations", *Journal of Consumer Research*, Vol. 3, pp. 209-216.
- Lederer, C & Hill, S (2001). See Your Brands' Through Your Customers Eyes. *Harvard Business Review*, June
- Lyer, G (2008), *Perceptual Mapping Techniques* "South Asian Journal of Marketing" Vol. 4 No. 3. 63-68.
- Rossister J. Peryl, (1987) "*Advertising and Promotional Management*," McGraw-Hill Book.Com
- Sethuraman, R. and Cole, C. (1997), *Why Do Consumers Pay More for National Brands Than for Store Brands?*, Marketing Science Institute, Report No. 979-126, Cambridge, MA.
- Zeithaml, V.A. (1988), "Consumer perceptions of price, quality and value: a means-end model and synthesis of evidence," *Journal of Marketing*, Vol. 52, No. 3, pp. 2-22.