Customer Segmentation through Quality/Service expectation

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ABSTRACT
Traditional customer satisfaction survey tackles only the extent of satisfaction on various attributes. In today's competitive environment, more insightful information about customers' attitudes and preferences is needed. Identification of Gaps is more practical than mere knowing how satisfied the customers are. If customers are not satisfied on issues that are not important, the provider needs not worry. Gaps only exist where items are important and yet customers are not happy about. The ISG (Importance, Satisfaction, Gaps) questionnaire can fulfil this role of helping managers to better appreciate the needs of customers and devise appropriate strategies. This paper illustrates the application of ISG questionnaire in customer segmentation. The factors relating to Importance, Satisfaction, and Gaps in the thread market are also revealed through Factor Analysis.

Keywords: Segmentation, ISG Questionnaire, Cluster Analysis, Factor Analysis

What is Market Segmentation?

"Market Segmentation" is first recognized by Wendell R. Smith in 1956. It has evolved from an academic concept into a practical marketing planning strategy.

"Segmentation" (Weinstein, 1987) is the process of partitioning markets into segments of potential customers with similar characteristics who are likely to exhibit similar purchase behaviors. Segmentation helps:
(a) designing responsive products;
(b) determining effective or efficient promotional strategies;
(c) evaluating competition and marketing position; and
(d) providing insight on present marketing strategies.

"Market Segmentation" is a foundation for overall marketing strategy.   It analyzes the markets, finds a suitable market niche, and develops and capitalizes on a superior competitive position. It helps match goods and services to customer needs and wants.

Segmentation can be considered as the process of partitioning a market into distinct subsets of customers who are similar in designated ways and who are likely to exhibit similar purchase behavior. These subsets may conceivably be selected as a target market to be reached with a distinct marketing mix (Kotler, 1994; Crask et al. 1995; Danneels 1996; Moschis et al. 1997). A market segment is a group of present or potential customers with some common characteristics which are relevant in explaining or predicting their response to a supplier's marketing stimuli (Smith, 1995).

Hayes (1996) says that market segmentation is based on the overt recognition that customers within the market are heterogeneous. It rests on three basic premises (Matear, 1995):
1. Customers are different
2. These differences influence demand
3. Segments of the customers can be isolated within the overall market

Market segmentation underlines the view that markets, and their segments are clusters of potential customers. It is also viewed as a proactive process involving the application of analytic techniques to identify these segments (Jenkins et al. 1997).

Market segmentation is a strategic marketing management tool for resource allocation, which seeks to enhance customer satisfaction and improve organizational profitability. The process of market segmentation includes an understanding of how and why customers buy, how a company can fit its competence with customer needs, and how to develop strategies and marketing programmes to satisfy customers profitably (Murphy, 1994).

Importance / Benefits of Market Segmentation

Market segmentation is considered by Berry et al. (1995) as an important step in formulating a marketing strategy.

Bickert (1997) suggests that market segmentation is important because it helps an organization to :
- identify key consumer segments
- recognize the varying importance of those segments to the company
- understand individual consumers to bridge the gap between mass marketing and "one-to-one" emphasis
- predict how consumers will react to new product, change brand loyalty and respond to diverse media etc...
- target new prospects more effectively; and
- communicate more effectively with customers and prospects to establish and enhance relationships

Brooksbank (1994) claims that the market segment approach can offer the choice of differential advantage, which defines how the company will compete with rivals in that particular segment. Segmenting reduces rivalry in the market place because there should be fewer competitors in any given segment (Cahill, 1996).

Dibb et al. (1997) list the following benefits of successful market segmentation:
- putting the needs and satisfaction of the customers as top priority
- providing more efficient use of resources and maximizes strengths over competitors
- better understanding of the market
- more effective marketing information system
- fresh customer focus
- instant tactical improvement
- relationship building across departments.

According to Matear et al. (1995), segmentation helps determine why a customer buys a product and therefore, why similar people buys a product if the benefit is communicated to them.

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Yankelovich (1964) sees the following benefits that arise from the implementation of segmentation analysis:
- directing the appropriate amounts of promotional attention
- designing product lines that truly parallel market demands
- detecting market changes
- determining the concepts most effective in advertising
- choosing advertising media more wisely
- correcting the time for advertising efforts
- better understanding demographic market information

It is obvious that marketing management approaches to help organizations win competitive advantages highly resemble to quality management approaches. There is much to be learnt and compared between the 'Marketing' and 'Quality' disciplines.

Drawbacks / Limitations of Market Segmentation

Young (1996) points out that market segmentation has been difficult to implement because of lack of linkage of expertise in marketing and statistical personnel. Segmentation often fails because of two reasons :
1. Marketer dominated approach often lacks research data to support its recommendation
2. Statistical approach, which having identified consumer differences, fails to align with company's objective.

To overcome this problem, Young (ibid.) advocates the importance of integrating marketing and statistical knowledge. (nota bene: This is exactly what action learning can help achieve!)

Regarding segmentation and target marketing, Wright (1996) has the following three criticisms :
1. Segment identification - segment membership is not stable over time. Real segments exist if several different algorithms locate the same segment (i.e. Triangulation approach is therefore recommended).
2. Logic of targeting - There is no logical reason to conclude that targeting the highest response segment will necessarily generate the greatest overall response. For example, there can be "leakage" to other non-targeted segments.
3. Empirical evidence in falsifying segmentation and targeting theory. It is difficult to demonstrate that segmentation and target marketing lead to higher sales or there are discrete groups of consumer preferring particular brands.

Pre-requisites and Characteristics of Market Segmentation

According to Dibb et al. (1997), Michael et al. (1995), Sharma et al. (1994) and Kotler (1994), market segmentation ought to be:
- Measurable (allowing marketers to evaluate segment size and future potential)
- Substantial (large or profitable enough to warrant attention)
- Accessible (possible for marketers to focus marketing effort on)
- Actionable (allowing marketers to develop effective programs to serve the segment)
- Differentiable (The segment should show clear variations in market behavior in comparison with other segments - the response of the segment to promotional variables must be different)

Importance-Satisfaction-Gap (ISG) Questionnaire

An ISG Questionnaire was designed to measure the perceived 'Importance', 'Satisfaction' and 'Gaps' of 21 quality attributes by various thread users in Hong Kong. It contains four major categories: (a) *General Information* (e.g. company profiles of the respondents); (b) *Quality Information* (e.g. views towards ISO certification, Oko-Tex, AATCC …); (c) *Service Information* (e.g. delivery and technical advisory services); and (d) *Other Information* (e.g. perceived Importance and perceived Satisfaction). This paper focuses on the use and application of ISG questionnaire to help concerned companies to improve the various quality attributes. Since the questionnaire is on named basis and its return is entirely voluntary by the respondents, the researchers only received 238 responses from 1500 questionnaires distributed. The response rate of 16% is satisfactory for survey of this nature in Hong Kong. The number of 238 is also adequate for meaningful statistical analyses.

The importance scores (on a Likert scale of "1" is the most important to "5" is the least important) signifies the extents of importance perceived by the customers towards the 21 quality attributes. The satisfaction scores measure the satisfaction level of each quality attribute. The gaps (operationally defined as the difference between the importance and satisfaction scores with sign appropriately adjusted depending on the direction of the Likert scale used) are the improvement areas. The larger the gaps the more important it is for the concerned company to address and improve the respective issues. Negative figures represent the respective quality attributes are "over-performance". Table 1 below summarized the gaps of the key suppliers in the thread market.

Table 1: Summary of perceived gaps of thread manufacturers

Quality Attributes	Company				
	A	**B**	**C**	**D**	**E**
1. Brand Image	-0.34	-0.15	0.07	-0.02	0.29
2. Product Performance	0.61	0.66	1.04	0.91	1.13
3. Product Range	0.39	0.53	0.77	0.60	0.94
4. Color Range	0.82	0.92	1.31	1.20	1.28
5. Product Package	-0.27	-0.27	-0.27	0.00	-0.05
6. Price	2.22	2.04	1.98	2.14	1.36
7. Special Color Service	0.97	1.14	1.62	1.64	1.79
8. Thread Sample Service	0.85	1.21	1.29	1.30	0.98
9. Technical Advisory Service	0.48	0.72	0.96	1.03	1.23
10. Delivery Quality & Reliability	1.26	1.29	1.14	1.27	1.13
11. Accurate Quantity Delivery	1.15	1.12	1.13	1.23	1.16
12. Delivery Lead Time	1.49	1.27	1.62	1.65	1.31
13. Stock Availability	1.71	1.21	1.49	1.54	1.46
14. Flexible Dyed Quantity Policy	1.35	1.06	1.24	1.51	1.71
15. China Delivery	1.28	0.98	0.53	0.92	0.93
16. Reputation	0.65	0.57	0.91	0.84	0.98
17. Responsiveness of Sales Representatives	0.74	1.10	1.09	1.35	1.04
18. Professionalism of Sales Representatives	0.76	0.94	1.13	1.26	1.18
19. Effective Communication	0.67	0.95	0.93	1.11	0.77
20. Partnership Orientation	0.51	0.69	0.75	0.93	0.62
21. International Coverage	-0.17	0.20	0.43	0.53	0.67

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Cluster Analyses by Quality Attributes

The 238 respondents are then clustered into four segments by K-Means Cluster Analysis. According to ISG approach, three cluster analyses were performed respectively on Importance, Satisfaction, and Gaps.

For the Cluster Analysis on 'Importance', there are only eight and three respondents grouped in segments 1 and 3 respectively. Customers in segment 1 are somewhat neutral in all the quality attributes. Whereas, customers in Segment 3 are distinctly clear with what their requirements are and their ratings are on the extreme ends of the scale (i.e. 1 being very important and 5 being very unimportant). Customers (being the most populous with 113 counts) in segment 2 view almost every item to be important. Customers in segment 4 (with 79 counts) treat some attributes to be important and the rest somewhat neutral.

The Cluster Analysis on 'Satisfaction' suggests that customers in segment 1 are more satisfied with Company A's products. Customers in segment 2 are distinctly unhappy with China delivery services. Segment 3 is a marginally dissatisfied group and segment 4 is a marginally satisfied group.

Lastly Cluster Analysis on 'Gap' reveals that segment 2 has only one customer who is an extremist in scoring the gap for Company A. Customers in segment 1 perceive small level of performance gaps with Company A. Customers in segment 3 perceive much larger performance gaps with Company A. Customers in segment 4 perceive extremely small gaps with Company A. The four segments are clear distinct groups. Combining with the respective company profile information, Company A can devise tailor-designed marketing/quality strategies to attract the different customer segments.

Factor Analyses of Quality Aspects

The 21 quality attributes are considered by the management team of Company A to be the determining factors affecting customers' overall satisfaction and hence their purchase decisions.

Intuitively these 21 quality aspects are grouped under the following categories:
- Product
- Services
- Relationship
- Geographic

However it would be useful to examine the underlying dimensions, or factors, of these thread quality aspects.

A factor analysis is performed on the importance scores with varimax rotation and pairwise deletion. As an algorithm for orthogonal rotation to a simple structure, varimax rotation is used to minimize the number of variables that have high loadings on a factor.

Quality Aspects - Importance scores of quality attributes

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The Kaiser-Meyer-Olkin (KMO) measure for sampling adequacy is computed. The KMO is 0.83 which can be described as meritorious. This suggests that the factor analysis can be comfortably applied.

Five factors are identified for the importance scores for thread quality aspects.
These factors can be labeled in Table 5:

Table 2: Importance scores of 21 quality attributes factors into five factors:

Five Factors	Quality Attributes	Factors				
		1	**2**	**3**	**4**	**5**
Logistic Reliability	Delivery Quality & Reliability	**0.88**	0.14	0.05	0.03	0.14
	Accurate Quantity Delivery	**0.88**	0.10	0.07	0.16	0.05
	Delivery Lead Time	**0.80**	0.11	0.19	0.12	0.11
	Stock Availability	**0.75**	-0.06	0.14	0.19	0.17
	Price	**0.48**	-0.17	0.19	0.24	0.33
	Responsiveness of Sales	**0.38**	0.33	0.31	0.33	0.34
Supplier Support	Packaging	0.09	**0.79**	-0.02	-0.18	0.17
	Technical Advisory Services	0.15	**0.77**	0.08	0.03	0.04
	International Coverage	-0.11	**0.55**	0.16	0.25	0.20
	Brand Image	-0.09	**0.54**	0.25	0.21	0.22
	Supplier Reputation	0.21	**0.46**	0.23	0.40	0.06
Professional Partnership	China Delivery	0.08	-0.03	**0.72**	0.00	0.15
	Partnership Orientation	0.15	0.47	**0.66**	0.13	-0.09
	Effective Communication	0.42	0.41	**0.55**	0.16	0.01
	Professionalism of Sales	0.44	0.32	**0.54**	0.10	0.11
Product Feature	Color Range	0.21	-0.03	0.02	**0.80**	0.17
	Product Range	0.14	0.44	-0.14	**0.66**	0.08
	Product Performance	0.20	0.02	0.42	**0.62**	0.08
Tailored Services	Thread Sample	0.14	0.11	0.01	0.23	**0.80**
	Special Color Services	0.14	0.30	0.00	0.11	**0.79**
	Flexible Dyed Quantity Policy	0.30	0.12	0.33	-0.09	**0.57**

Factors of Satisfaction scores of thread attributes with Company A

Similarly the factor analysis can be performed on the satisfaction scores with Company A. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is 0.71. This is described as middling. Factor analysis is acceptable. Four factors are identified for the satisfaction scores for thread quality aspects with Company A. These factors can be labeled as follows:
Partnership (Effective Communication; Partnership Orientation; Responsiveness of Sales; Professionalism of Sales; International Coverage; Thread Sample; and Technical Advisory Services)
Product (Packaging; Product Range; Brand Image; Color Range; Product Performance; and Special Color Services)
Logistic (Stock Availability; Delivery Lead Time; Accurate Quantity Delivery; Delivery Quality and Reliability; and Supplier Reputation)
Others (China Delivery; Price; and Flexible Dyed Quantity Policy)

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Factors of Gap scores of thread attributes with Company A

The gaps are also an important concept in the study of customer behaviors. The factor analysis is similarly performed with varimax rotation and pair-wise deletion. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy is 0.80 which can be described as meritorious. The factor analysis identifies five factors, which categorically are the key improvement areas for Company A. These factors are listed as below:

Relationship (Effective Communication; International Coverage; Responsiveness of Sales; Professionalism of Sales; Partnership Orientation; Technical Advisory Services; Special Color Services; and Supplier Reputation)
Place (Delivery Quality & Reliability; Delivery Lead Time; Stock Availability; Accurate Quantity Delivery; and Flexible Dyed Quantity Policy)
Product (Color Range; Product Performance; Thread Sample; and Product Range)
Promotion (Packaging and Brand Image)
Price (China Deliver and Price)

Conclusion and recommendation

As opposed to the popular and traditional customer satisfaction survey questionnaire, this paper demonstrates the usefulness of incorporating the perceived importance in the survey questionnaire. The ISG questionnaire offers a more comprehensive picture for the management to make more pragmatic and appropriate informed-decision. The ISG segmentation approach offers new perspectives and opportunities for both the academics and business practitioners. It is recommended that future research studies can be conducted to real how different customer segments perceive the various attributes including more specifically the ISO certification benefits (Koo et al., 1998, Koo et al. 1999, Ho, 1994, Quazi et al. 1997). These research findings of quality attributes using ISG questionnaire will provide new insight for ISO consultants, companies possessing ISO certificates and companies intending to acquire ISO certificates.

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