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## Understanding consumers' cognitive maps in today's complex marketing environments

### Abstract

Consumer's balancing between choice alternatives has been extensively studied in the literature. Companies should be aware of the real signals and cues that are being used by their consumers. Their cognitive maps make part of a more holistic context, in which they face many complementary and competitive product settings, experiences and social/cultural trends. This conceptual paper extended with examples and an empirical study shows that consumers' knowledge structures and cognitive maps may be totally different from the company's initial point of view. Competition among alternatives may not be about new marketing mix related dimensions, but also about reinterpreted old dimensions (within the consumer's specific context). Moreover, marketing mix instruments are strongly interrelated in the consumer's mind. This implies that product, price, communication and distribution efforts no longer can be treated as separate elements of the marketing mix, as often presented in marketing plans. Instead they should be integrated in "one marketing concept" that is based on all associations characterizing consumers' cognitive maps. Finally, the empirical study shows that lack of authenticity, consistency and simplicity are three important drivers of cognitive discrepancies between the company and the consumer.

**Keywords:** cognitive maps, marketing mix, contextual marketing.

### Introduction

Knowing why consumers truly buy is a hot topic. Lindstrom (2008) even talks about the new discipline "buyology". Moreover, consumer's balancing between choice alternatives has been extensively studied in the literature (Chernev, 2005). The introduction of a new product alternative will often alter the consumers' reference framework (Moran and Meyer, 2006). To learn about a new product, consumers will rely on their existing knowledge from a familiar domain. This may imply that consumers with different product knowledge will respond differently to new products. Moreau et al. (2001) illustrate this with the digital camera. They find that consumers having limited camera knowledge, but extensive computer knowledge are the most likely to purchase a digital camera, whereas those having camera knowledge, but limited computer knowledge, are the least likely to adopt it.

Thompson et al. (2005) and Rust et al. (2006) find that increasing the number of features of product alternatives may not only lead to a capability gain, but also to a usability loss, because of increased complexity.

As complexity increases, consumers have to be convinced by the extra value of the new product alternative, in order to be willing to buy the product (Steenkamp and Gielens, 2003).

The complexity level may be related to the number, order and interdependence/interaction of the various subsystems (components and features at a lower level) (Fleming and Sorenson, 2003). As defined in Gatignon et al. (2002) core subsystems are those

that are tightly coupled to other subsystems. Peripheral subsystems on the other hand, are weakly related. An innovation may involve a change in the subsystems (general innovation) or in the linkages (architectural innovation). The more subsystems make up the product, the more it may be dependent on new trends for each of these subsystems and hence complicate a consumer's purchase decision. The more (fewer) linkages, the less (more) easily the innovation can be imitated by others. For instance, modular architectures in the IT industry (decreasing the number of separate linkages) increase the entry of imitators (Rivkin, 2000).

Another important issue in analyzing consumers facing product complexity is their bounded rationality (Gigerenzer and Selten, 2002), indicating that they have to evaluate new products in a rapidly changing context with imperfect knowledge and uncertainty about the future (see also Murnighan and Mowen, 2002, and Calantone et al., 2006). Besides minimum threshold effects there may also be maximum threshold effects for consumers, indicating that companies can overperform (Adner and Levinthal, 2001). There may even be an installed base effect, which is the effect of an existing technology that tends to preclude or slow down the adoption of a superseding technology or product. These effects may be highly dependent on the customer profile. For instance, lead users or innovators may be more motivated to innovate or experience new needs than the majority of the target market (see importance of learning from lead-users in Lilien et al., 2002).

Resistance may occur in particular when characteristics of the new product imply a change in behavior

(more actions or more complicated actions to be performed by the customer) (Gourville, 2006; Calantone et al., 2006). Verryzer (1998) also found that changes in consumption patterns are “key factors” in affecting the customer’s evaluation of new products.

According to Rogers (1995), the adoption of new products can be explained by its relative advantage, compatibility, complexity, trial ability and observability. In terms of observability, a key question however remains what product related cues are being used by the consumers and how they are being processed within their mental minds.

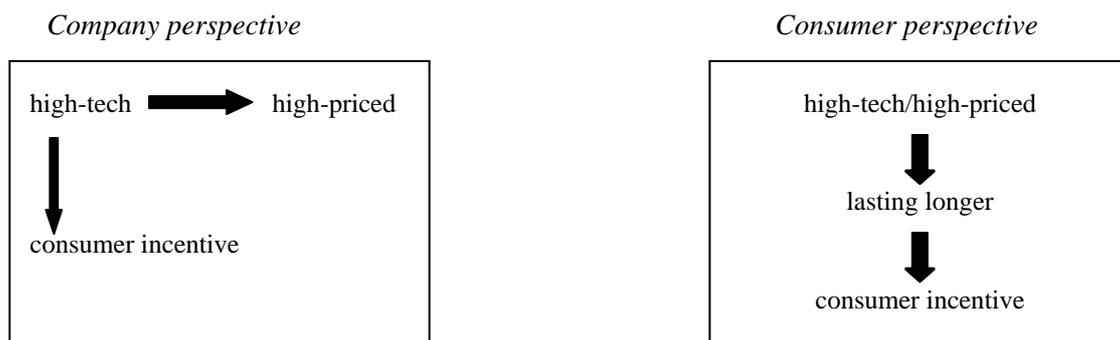
**1. The real cognitive maps and knowledge structures of consumers**

Companies should be aware of the real signals and cues that are being used by their consumers such as indicators of quality and price (Berry and Bendapudi, 2003; Anderson and Simester, 2003; Shiu et al., 2006). According to Bertini et al. (2007) consumers may infer a positive correlation between the observed quality of a new feature and

the unobserved quality of the base product.

Forsyth et al. (2006) give the example of a European battery supplier, who noticed that its high-tech/high-priced batteries showed nice sales results. Believing that high-tech users were driving demand, the company started placing display racks that describe the battery’s benefits for high-tech applications such as in digital devices. Unexpectedly, sales began to fell. It turned out that many users had bought these high-tech/high-priced batteries for another reason, believing that these batteries lasted longer, independent of the application. The fact that digital devices were mentioned specifically now in the communication (displays), had an opposite effect on some users looking for long-lasting batteries in all applications and not looking for batteries in specific applications (from their perspective).

This example shows that insight in consumers’ knowledge structures and cognitive maps remains an essential part of marketing, as the structures and maps may be totally different from the company’s initial point of view (Fig. 1).



**Fig. 1. Differences in cognitive maps (example)**

It may also change the relational property schemes that are well-known in the literature.

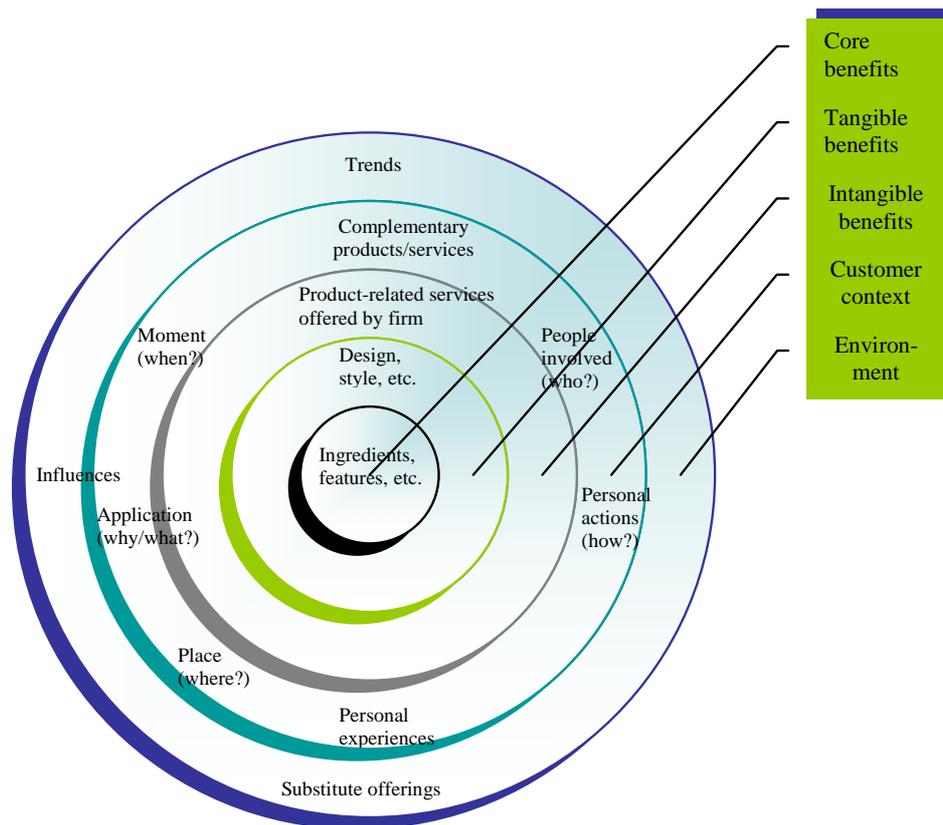
According to the principle of regularity a non-preferred alternative (for example,  $x$  compared to  $y$ ) cannot become preferred when new alternatives (for example,  $z$ ) become available. This implies: if  $y$  is chosen from the set  $(x, y)$  then one would expect that  $x$  should not be chosen from the set  $(x, y, z)$ .

However, according to the decoy effect theory, the introduction of a new alternative (a decoy), which is dominated (on a certain dimension) by at least one of the original alternatives, may alter the preferences among the original competing alternatives (Moran and Meyer, 2006). This implies: If  $y$  is chosen from the set  $(x, y)$ , based on dimension  $a$ , then it is possible that  $x$  is chosen from the set  $(x, y, z)$ , based on

another dimension  $b$  that comes into the consumer’s consideration set (after the introduction of  $z$ ).

The battery example shows that the new dimension  $b$  introduced by the new alternative (in our example: high-tech dimension), may alter the perception towards an old dimension  $a$  (in our example: durability). Therefore, competition among alternatives may not only be about the new dimension, but also about a “reinterpreted” old dimension. This extends the previous decoy theory.

Moreover, consumers’ product perceptions and preferences make part of a more holistic context, in which consumers face many complementary and competitive product settings, experiences and social/cultural trends (see Fig. 2 from Logman, 2008).



**Fig. 2. Holistic reference framework of customers**

Gijsbrechts et al. (2008) show, for instance, that consumers visit multiple retail stores to take advantage of two types of store complementarity:

- ◆ to balance transportation and handling costs against acquisition costs (which all make part of the customer’s experience);
- ◆ and/or to choose the best value for different product categories in different stores.

Moreover, today’s consumer may choose the most expensive brand within a product category (not being very price sensitive within that product category within the store), but expecting to buy the same brand cheaper compared to competitive stores (hence being price sensitive from a competitive point of view). It shows that in today’s competitive context, all marketing mix related instruments are clearly interrelated in the consumer’s mind.

**2. Empirical study**

To test the theory of “cognitive map differences” and to detect the various reasons why, a small empirical study was conducted. The central consumer research question was formulated as: “Are there any brand or brand varieties that you stopped buying because of a recent change in the marketing proposition ?” Due to the broad definition of the central

research question, our study was mainly exploratory and qualitative in nature.

Data were collected through an online questionnaire that was sent to people included in the member database of Instima/Stichting Marketing (the Belgian professional marketing foundation) as these people are interested in marketing related topics. Two open-ended questions (related to the what and why dimension of the central research question) were asked to allow the respondents to tell their own story and to make sure that it became clear what exactly had driven their change in purchase behavior.

Afterwards, different categories were developed that allowed covering the answers of the respondents. Ideally in qualitative research, these categories should be mutually exclusive and exhaustive (all data fitting some category), if possible. These two criteria were met to a large extent.

Thirty-two responses were found to contain enough information to qualify the reason behind the change in buying behavior and to develop cognitive map differences between company and consumer.

Four important categories (returning similar answers) were derived, as indicated in the following table.

Table 1. The reasons of change in purchase behavior

Company/brand perspective	Consumer perspective
- The company believes that correcting measures allow them to return to their old reputation. <i>Example: A beer brand (Palm) discovering that the new 33 cl variety has negative implications (distributors' storage problems and so on) and therefore returning to the 25 cl bottle.</i>	- The consumer becomes more critical to future actions and does not accept these measures immediately. <i>Example (consumer statement): "After that mistake I became more critical towards that brand, noticing moreover that the new bottle was purely inspired by Carlsberg. Do they really think they can compete with the best beer in the world?"</i>
- The company tries to convince the consumer with new "real" attributes. <i>Example: Margarine (Becel Proactive) claiming that new ingredients are fat reducing and more healthy.</i>	- The consumer perceives them as not being real or authentic, but fake. <i>Example (consumer statement): "Having read an article about the fact that there would be negative (unhealthy) side effects, has withdrawn me from further buying such product varieties".</i>
- The company believes that more product varieties fit more peoples' desires and needs. <i>Example: Coca Cola offering more varieties (Zero, Cherry, Lemon, etc.) believing it fits into its values.</i>	- The consumer perceives them as a move away from the traditional values of the brand (creating an inconsistency problem). <i>Example (consumer statement): "I notice that one great taste becomes more and more less great tastes".</i>
- The company believes that new product versions (with advanced functionality) will always be appreciated by its customers. <i>Example: New Gillette Razors (such as Gillette Fusion) adding more and better blades, more microfins following the contours of the face, ... and hence believing it adds extra value to the shaving experience.</i>	- The consumer experiences a level of complexity that becomes too high and/or makes the new offer irrelevant. <i>Example (consumer statement): "I tried Gillette Fusion, but experienced that the shaving difference is not that big as communicated. So, I returned to Gillette Mach 3".</i>

These four categories show that there may be a discrepancy between the company's cognitive maps (reasoning) and that of the consumer, due to reasons related to brand history, authenticity, complexity and inconsistency.

The remaining (quite obvious) reasons for leaving the brand or brand variety were: "better competitive offer", "time for a change (looking for variety)", "bad service" and "price too high".

**Implications**

Recent review studies (Constantinides, 2006; Möller, 2006) show that marketing mix related benefits are often too internally oriented and hence lack a customer orientation. The first part in this brief paper shows that product, price, communication and distribution efforts no longer can be treated as separate elements of the marketing mix, as often presented in marketing plans. Instead they should be integrated in "one marketing concept" that is based on all associations characterizing consumers' cognitive maps.

**References**

1. Adner, R. and Levinthal, D. (2001), Demand heterogeneity and technology evolution: implications for product and process innovation, *Management Science*, 47 (5), pp. 611-628.
2. Anderson, E. and Simester, D. (2003), Mind your pricing cues, *Harvard Business Review*, September, pp. 97-103.
3. Berry, L.L. and Bendapudi, N. (2003), Clueing in customers, *Harvard Business Review*, February, pp. 100-106.
4. Bertini, M., Ofek, E., Ariely, D. (2007), To Add or Not To Add? The Effects of Add-ons on Product Evaluation, *Advances in Consumer Research*, Vol. 34, 2007, p. 163.
5. Calantone, R.J., Chang, K. and Cui, A.S. (2006), Decomposing product innovativeness and its effects on new product success, *Journal of Product Innovation Management*, 23, pp. 408-421.
6. Chernev, A. (2005), Context effects without a context. Attribute Balance as a Reason for Choice, *Journal of Consumer Research*, September, 32, pp. 213-223.
7. Constantinides, E. (2006), The marketing mix revisited: towards the 21<sup>st</sup> century, *Journal of Marketing Management*, 22, pp. 407-438.
8. Fleming, L. and Sörenson, O. (2003), Navigating the technological landscape of innovation, *MIT Sloan Management Review*, 44 (2), pp. 15-23.

Sheth, Sisodia and Sharma (2000) have proposed the concept of customer-centric marketing, where consumers participate in shaping the individual marketing mix instruments. This paper shows that customer-centric marketing should also be about finding how these individual marketing mix instruments are interrelated within and across different product categories and channels (from a consumer perspective). It also shows that new marketing mix related attributes may change the consumer's interpretation of existing attributes.

Moreover, the empirical study shows that there are three important drivers explaining the difference in cognitive maps between the company and the consumer:

- ◆ a lack of authenticity (see also Gilmore and Pine, 2007);
- ◆ a lack of consistency (see also Logman, 2004; 2007);
- ◆ a lack of simplicity (see also Thompson et al., 2005).

9. Forsyth, J.E., Galante, N. and Guild, T. (2006), Capitalizing on customer insights, *The McKinsey Quarterly*, 3, pp. 42-53.
10. Gatignon, H. and Robertson, T.S. (1991), Innovation decision process, In: Handbook of Consumer Behavior, T.S. Robertson & H.H. Kassarian (eds.), Englewood Cliffs, NJ: Prentice Hall, pp. 316-348.
11. Gijbrecchts, E., Campo, K. and Nisol, P. (2008), Beyond promotion-based store switching: Antecedents and patterns of systematic multiple-store shopping, *International Journal of Research in Marketing*, 25, pp. 5-21.
12. Gilmore, J.H. and Pine II, B.J. (2007), *Authenticity: What consumers really want*, Harvard Business Press.
13. Gourville, J.T. (2006), Eager sellers, strong buyers. Understanding the psychology of new product adoption, *Harvard Business Review*, June, pp. 99-106.
14. Li, T. and Calantone, R.J. (1998), The impact of market knowledge competences on new product advantage: conceptualization and empirical examination, *Journal of Marketing*, 62, pp. 13-29.
15. Lilien, G.L., Morrison, P.D., Searls, K., Sonnack, M. and von Hippel, E. (2002), Performance assessment of the lead-user idea generation process for new product development, *Management Science*, August, pp. 1042-1059.
16. Lindstrom, M. (2008), *Buyology: Truth and lies about why we buy*, Doubleday business.
17. Logman, M. (2004), The LOGMAN model: A logical brand management model, *the Journal of Product and Brand Management*, 13(2), pp. 94-104.
18. Logman, M. (2007), Logical brand management in a dynamic context of growth and innovation, *the Journal of Product and Brand Management*, 16(4), pp. 257-268.
19. Logman M. (2008), Customer value as an ideation tool, *Value World*, Vol. 31 (1), pp. 3-13.
20. Mohr, J., Sengupta S. and Slater, S. (2005), *Marketing of high technology products and innovations*, Pearson.
21. Möller, K. (2006), Comment on the marketing mix revisited: towards the 21<sup>st</sup> century, *Journal of Marketing Management*, 22, pp. 439-450.
22. Moran, S. and Meyer, J. (2006), Using context effects to increase a leader's advantage: What set of alternatives should be included in the comparison set?, *International Journal of Research in Marketing*, 23, pp. 141-154.
23. Moreau, C. Page, Lehmann, Donald R., Markman, Arthur B.(2001), Entrenched Knowledge Structures and Consumer Response to New Products, *Journal of Marketing Research*, 38 (1), pp. 14-29.
24. Mueller, J.L. and Story, M.F. (2002), Universal design: principles for driving growth into new markets, In: *The PDMA toolbook 1 for new product development*, eds. Paul Belleveau et al., John Wiley & Sons, NY.
25. Murnighan, J.K. and Mowen, J.C. (2002), *The art of high stakes decision making, tough calls in a speed driven world*, New York: Wiley & Sons.
26. Rijkenberg, J. (2001), *Concepting – Creating successful brands in a communication-oriented era*, Word Advertising Research Centre, Henley-on-Thames.
27. Rivkin, J.W. (2000), Imitation of complex strategies, *Management Science*, 46 (6), pp. 824-844 .
28. Rogers, E.M. (1995), *Diffusion of Innovations*, 3d ed. New York: The Free Press.
29. Rust, R.T., Thompson, D.V. and Hamilton, R.W. (2006), Defeating feature fatigue, *Harvard Business Review*, February, pp. 89-107 .
30. Sawhney, M. and Balasubramanian, S. (2004), Creating growth with services, *MIT Sloan Management Review*, 45 (2), pp. 34-43.
31. Sheth, Jagdish N., Rajendra S. Sisodia & Arun Sharma (2000), The antecedents and consequences of customer-centric marketing, *Journal of the Academy of Marketing Science*, 28(1), pp. 55-66.
32. Shiu, E., Walker, D. and Cheng, C.J. (2006), A theoretical investigation into the potential applications of olfactory cues to the marketing of new products, *Innovative Marketing*, 2 (4), pp. 44-53.
33. Steenkamp, J.-B. and Gielens, K. (2003), Consumer and market drivers of the trial probability of new consumer packaged goods, *Journal of Consumer Research*, 30, pp. 368-384.
34. Thompson, D.V., Hamilton R.W. and Roland T. Rust (2005), Feature fatigue: when product capabilities become too much of a good thing, *Journal of Marketing Research*, XLII, pp. 431-442.
35. Trott, P. (2005). *Innovation Management and New Product Development*, Pearson.
36. Verryzer, R.W. (1998), Key factors affecting customer evaluation of discontinuous new products, *Journal of Product Innovation Management*, 15, pp. 136-150.
37. Von Hippel, E. (2006), *Democratizing innovation*, Cambridge/Mass: MIT Press.