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Intuitive judgments effects on consumer's evaluation of a product assortment: a preliminary study

Abstract: In this paper, we apply Intuition Theory to the understanding of consumer's choice in stores. Using perceived time for choosing and expertise in the product category as proxies, we distinguish between system 1 and system 2, respectively intuitive and deliberative, and in the former, we further distinguish between intuition based on expertise and intuition based on heuristics. For each decision process, we then explore organization and variety influences on consumers' attitude and purchase intention. Our results (504 observations in 3 product categories, n = 184) suggest that while consumer's evaluation in system 2 or in system 1 based on heuristics relies more heavily on assortment's organization than on the variety displayed, intuitive judgment based on expertise relies almost equally on both.

Key words: intuition, assortment evaluation, expertise, time, decision making

Track : Retailing, Channel Management and Logistics

Retail stores' efficiency directly depends on their assortment and for the same product category we observe performance indicators ranging from 80 to 120 (Assortment Practice Area, 2008). Accordingly, many studies have focused on how to optimize assortment definition but many improvements can be done on studying consumer behavior (Mantrala et al., 2009). In this context, our paper is focused on the influences of intuitive judgments -as defined by Kahneman and Klein (2009) - on the in-store assortment evaluation made by consumers. We also refer to the Naturalistic Decision Making (NDM) research work which aims at understanding how people use their experience to take decisions in everyday field settings (Klein, 2011). Both approaches help us to study the issue of the possible influences exerted by the thinking mode of the consumer (i.e. deliberative mode, intuitive mode based on heuristics, intuitive mode based on expertise) on his perceptions of the variety and of the organization of the product assortment which are two important determinants of his attitude and his intention to purchase in the product section or department. A sample of 184 consumers interviewed on three different product categories allows us to test the model across the three decision modes' profiles. The results suggest that the formation of the attitude toward the assortment is significantly different for consumers involved in an intuitive mode based on expertise compared to the other two groups. On the other hand, perceptions are very much alike for consumers involved in a deliberative mode and those involved in an intuitive mode based on heuristics. In the final discussion, we outline possible explanations for our findings and draw several orientations for some further research work.

1. Theoretical framework and research hypotheses

1.1 Intuition : the key roles of expertise and time

In 1982, Kahneman, Slovic and Tversky demonstrated that individuals are often far from taking optimal and rational decisions and instead tend to rely on biases and heuristics. In 2011, Kahneman goes further and distinguishes between two modes of thinking: an intuitive mode, system 1, and a deliberative mode, system 2. While the first one is fast, the second one is analytical and slow. The intuitive mode allows individuals to take decisions rapidly and without any sense of efforts but nevertheless it can be anchored, eventually, in special abilities or skills. In fact, Kahneman and Klein (2009) have been working together at deepening the understanding of system 1 and finally differentiated between intuition based on expertise and intuition based on heuristics.

The Natural Decision Making approach, since its origin, studies decision making in real and complex settings without considering intuitions as rational biases (Lipshitz, Klein, Orasanu and Salas, 2001). In this research stream, Hogarth suggests that: *“The essence of intuition or intuitive responses is that they are reached with little apparent effort, and typically without conscious awareness. They involve little or no conscious deliberation. To this I add that intuitive judgments are typically – but not always – correlated with speed and often a sense of confidence.][Finally, intuition is the result of learning”* (2010, p.339). This approach pinpoints the learning process inherent to the thinking modes, which for each individual develops special abilities in various degrees: *“Indeed, recognition memory is at the heart of intuitive expertise, such as the ability of chess masters to recognize many thousands of positions from possible games”* (2010, p. 341). For Kahneman and Klein (2009), effective conditions can develop in non-random situations ample opportunities for practice and feedback. Effective intuitions, mainly based on expertise can appear in natural settings where people can gain the necessary months and years of experience. Then for many researchers,

one of the main issues is to specify the critical cues in the environment which are determinant in the decision making of individuals involved in intuitive reasoning.

Despite their different perspectives about intuitive processing, these two theoretical approaches converge on understanding intuition as a cognitive mode, altogether fast and linked to the expertise level of the individuals (as it results from their former learning processes). Such convergence legitimates our selection of both perceived time to choose and expertise level in the product category as satisfying proxies of the thinking mode activated by the consumer:

- High level of expertise in the product category and short time perceived probably point out that the consumer is involved in an intuitive mode based on expertise,
- Low level of expertise in the product category and short time perceived probably point out that the consumer is involved in an intuitive mode based on heuristics,
- Long time perceived, whatever the level of expertise, probably points out that the consumer is involved in a deliberative mode.

In each mode, research work in Intuition Theory suggest that the environmental factors determinant of the attitude and choice which are perceived by individuals are, if not different by nature, at least different in loadings (Hammond, Hamm, Grassia and Pearson, 1987). Thus we formulate the following proposition:

P1: The formation base of the consumer attitude toward the product assortment in store is a function of the decision process at stake (i.e. deliberative, intuitive based on heuristics, intuitive based on expertise).

1.2 Determining factors of choices in store: assortments organization and variety

In everyday shopping, through an increasing richness and complexity of displays, the buying context encourages consumers to use shortcuts in their product choices. Consumer's preferences are formed almost at the very same time that decisions and the context has a strong impact on their intensity (Simonson, 2005; Yoon and Simonson, 2008). What are the most important cues in this context for a consumer to build his attitude toward the assortment and his intention to purchase a product in a given store department or section?

From the consumer's side, it appears that product variety in display is important. Variety seeking behavior is defined as the tendency for individuals to switch their choices of products or brands from one time of purchase to another (Kahn, Kalwani and Morrison, 1986) and it explains the usual preferences for assortments displaying a great variety of products. Research work in this area shows that the higher the variety in the assortment, the higher the preferences and sales (Reibstein, Youngblood and Fromkin, 1975, Kahn and Wansink, 2004). Assortments displaying more variety than others are also preferred because people anticipate on their own future variety-seeking behaviors (McAlister and Pessemier, 1982; Simonson, 1990).

Along with research on variety-seeking behaviors, work on assortment organization perception has been conducted. Organization perception is defined as the consumer's ability to perceive the logic underlying the products and brands displayed in the assortment (Morales, Kahn, McAlister and Broniarczyk, 2005). Authors on this topic do not usually focus on the direct effect of the organization perception on the attitude toward the assortment but instead, focus on its interactions with the consumer's variety perception (Hoch, Bradlow and Wansink, 1999; Kahn and Wansink, 2004; Morales, Kahn, McAlister and Broniarczyk, 2005). Nevertheless, research work is convergent on the fact that product variety and category organization are both major cues in consumers' perceptions at stake when evaluating assortments. Thus, we hypothesize that both are determinant of the attitude toward the

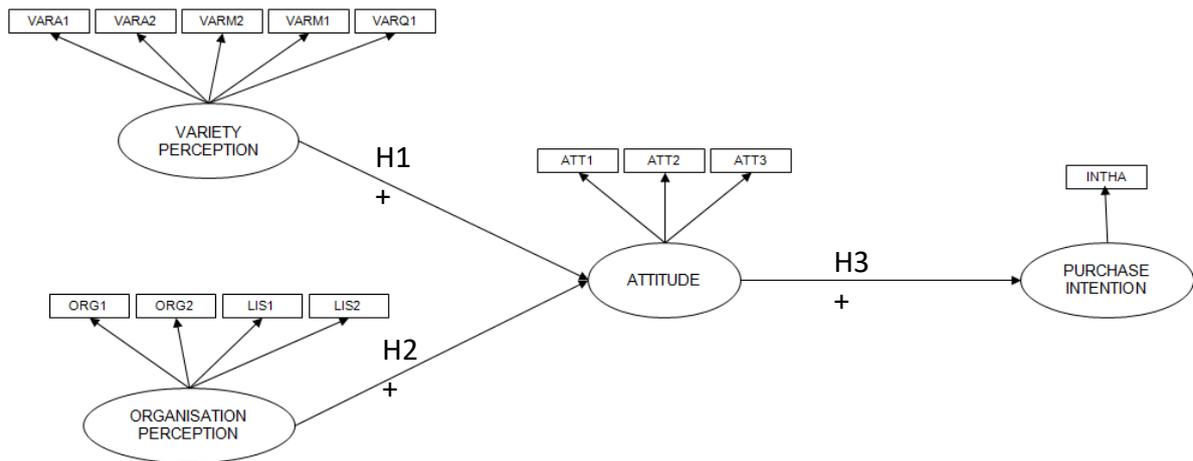
assortment and by transitivity, to the intention to purchase in the product section or department (Cf. Figure 1: Research Model).

H1: Variety perception has a positive effect on the attitude toward the assortment.

H2: Organization perception has a positive effect on the attitude toward the assortment

H3: Attitude toward the assortment has a positive effect on the intention to purchase in the assortment displayed.

Figure 1: Research Model



2. Methodology

A data base of 504 observations collected from a sample of 184 consumers interviewed about three different product categories (rice, tea and dishwashing liquids) has been used to test our model and study its variations according to each decision process. Looking at pictures shot in real stores, consumers were asked to select three products in three different supermarket assortments.

3. Results

The model is fully validated by the analysis. We first conducted a two-step process of PLS path model assessment for the general model (Henseler, Ringle and Sinkovics, 2009). First, concerning the outer model, we checked the reliability and validity of reflective constructs (all the Cronbach's alphas are above 0.8 and the absolute correlations between a construct and each of its manifest variables is higher than 0.7) and the validity of formative constructs ($AVE > 0.5$ and the loading of each indicator is greater than all of its cross-loadings). Second, concerning the inner model, we examined variance explanation (considered moderate) of endogenous constructs and predictive relevance ($GoF = 0.594$). It explains about 57% of attitude variance and 40% of purchase intentions variance. Attitude has a positive effect on purchase intention (coef. 0,640, $t = 18,640$, $p = 0,000$) and both variety and assortment organization perceptions have a positive effect on attitude (respectively : coef. 0,343, $t = 11,135$, $p = 0,000$ and coef. 0,572, $t = 18,582$, $p = 0,000$). Hypotheses 1 to 3 are then confirmed. Further on, we used a multi-group PLS path model in order to compare our three groups (group 1: deliberative mode, group 2: intuitive mode based on expertise, group 3: intuitive mode based on heuristics). The multi-group analysis shows significant differences between

the group gathering consumers supposedly involved in intuitive judgments based on expertise and the other two: deliberative and intuitive based on heuristics (*Cf. Table 1: Path coefficient differences*).

Table 1: Path coefficient differences

Groupes	Différence	DDL	p-value
2 vs 1	0,174	291	0,039
3 vs 1	0,016	402	0,866
3 vs 2	0,158	309	0,047

More precisely, while consumers in groups 1 and 3 pay much more attention to assortment organization than to assortment variety, consumers in group 2 rely almost equally on variety perception and on organization perception to build their attitude toward the assortment in displays (*Cf. Figure 2 : Impact and contribution to Attitude*).

Figure 2: Impact and contribution for Attitude

	Group 1		Group 2		Group 3	
	Organisation	Variety	Organisation	Variety	Organisation	Variety
Correlation	0,700	0,507	0,709	0,697	0,651	0,530
Path coefficient	0,599	0,313	0,508	0,487	0,525	0,329
Corrélation * coefficient	0,419	0,159	0,360	0,339	0,342	0,175
Contribution to R ² (%)	72,533	27,467	51,494	48,506	66,191	33,809
% cumuated	72,533	100	51,494	100	66,191	100

4. Discussion

In summary, our empirical analysis allows us:

- to validate our hypotheses about the important roles played by two perception variables (variety and organization) in the formation of the consumer's attitude toward the assortment and, by transitivity, in the formation of his intention to purchase a product in the assortment in display;
- to notice significant differences concerning assortment perceptions if people are involved in an intuitive thinking mode based on expertise compared to the two other thinking modes: deliberative or intuitive based on heuristics;
- to notice similarities concerning assortment perceptions whether people are involved in a deliberative thinking process or in an intuitive thinking process based on heuristics.

The validation of our simple model of consumer's formation of attitude and purchase intention when facing an assortment is theoretically interesting: to our knowledge, the direct and important effect of the perceived organization of the assortment on attitude has not yet been demonstrated by former research work mainly preoccupied by understanding its effect on perceived variety. In practice, this result shows how much retailers are wise to invest in the organization of their assortments of product categories. Beyond that, it provides them with cues about the respective importance of variety and organization as far as attitude and intention to purchase in the product section are concerned. It also suggests that, in developing the *Click and collect*, as they actually do, instead of concentrating all efforts on defining the

proper varieties in their product assortments, retailers should also take significant care of how the assortments displayed on their websites are organized.

Concerning our general proposition about the differences in perceptions across the three thinking processes studied, our findings suggest that consumers in an intuitive mode based on expertise do have a special perception process. Conversely, they also suggest that consumers in deliberative mode or in intuitive mode based on heuristics rely on quite similar perceptual cues. Therefore, our general proposition on the differentiation of thinking modes (supposedly improving our understanding the formation of consumers' attitude toward assortments in stores) is only partially sustained by our empirical study. Nevertheless, if the unexpected similarity between deliberative mode and intuitive mode based on heuristics is not sufficient in itself to reject our proposition, and if this result is not related to the inherent limits of our proxies (perceived time and expertise in the category), one explanation can be that this lack of significant difference pertains to the similarity in expertise levels between the two groups. In other words, when a consumer is involved in an intuitive mode which combines high levels of expertise and rapidity to choose, he probably knows how to read any level of variety displayed and therefore, acts consequently. Conversely, when his expertise in the product category is not yet acquired and when, consequently he does not feel confident in his ability to evaluate variety, it does not matter if he is in an intuitive mode based on heuristics or in a deliberative mode. He relies much more on the organization displayed to set his attitude, and, over time, his knowledge.

The results suggest complementary research work which would integrate, for example: consumer familiarity with the product category, customer loyalty to the store, brands strength in the product categories... If segmentations analysis is envisioned by retailers, it would also be interesting to deepen our knowledge about individuals in each of the thinking modes (age, gender, cultural background, nationality etc...).

Methodologically, further research could use some interesting tools created by the NDM researchers such as the Cognitive Task Analysis techniques (CTA; Crandall, Klein and Hoffman, 2006) or the Tacit Knowledge Tests (Wagner and Sternberg, 1985), to deepen further our understanding of the intuitive processes of consumers when evaluating assortments.

Finally, all considered, this preliminary study is an encouragement to go further than the System1/System2 differentiation when conceptualizing consumer behavior. It claims to further differentiate between intuitive judgment based on heuristics and intuitive judgment based on expertise.

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