

Brand knowledge: Definitions and measures

Abstract

A great deal of research has integrated the concept of consumer knowledge. However, 'knowledge' has been defined in very different ways, and the means used to measure it are usually poor and cannot reflect the complexity of this phenomenon. We define consumer knowledge and identify four methods used to assess it. An empirical study is done in order to assess the correlations between the measures of brand knowledge.

Keywords: cognitive psychology, knowledge, brand, PLS methodology.

Track: consumer behaviour

First attempts at modeling consumer behavior emerged in the second half of the sixties, the aim being to describe “all of the stages experienced by individuals during the purchasing process” (Pras and Tarondeau, 1981, p. 25). This knowledge provides an explanation for important concepts such as information search behavior (Brucks, 1985; Fiske et al., 1994), price perception (Rao and Sieben, 1992), co-branding appraisal (Simonin and Ruth, 1998) or the effectiveness of an advertising campaign (Campbell and Keller, 2003).

Despite the importance attached to knowledge in literature about consumer behavior, a certain discrepancy with regard to the definition and operationalization of this concept may be noted (Aurier and Ngobo, 1999; Feick, Park and Mothersbaugh, 1992), resulting in a decrease in the internal and external validity of studies based on knowledge measurements. In much the same way, it is difficult to compare different studies as the measurements used are not the same. Our research, therefore, has the following three objectives: to define the concept of consumer knowledge and, more particularly, brand knowledge; to clarify the underlying knowledge measurements; and to assess correlations between these measurements, to determine whether they are interchangeable.

#### LITERATURE REVIEW: THE CONCEPT OF CONSUMER KNOWLEDGE

The definition adopted here will be: **Consumer knowledge is information concerning the market stored in consumers’s long-term memory.**

By market, we mean the products, brands, and their environment (consumers and other individuals, legislative provisions and/or pressure groups, etc.).

Memory is a system that consists of schematically encoding, storing, and then retrieving information. Long-term memory is defined by Shavelson and Stanton (1975, p. 72) as a “subset of memory that is both permanent, with a virtually unlimited storage capacity, and well organized”. Consumer knowledge is seen as consisting of networks of associations (Anderson, 1983). This approach stems from research conducted in the field of cognitive psychology, notably by Collins and Loftus (1975) and later by Anderson (1983). It is widely accepted in the fields of marketing and consumer behavior (e.g. Keller, 1993; Mitchell and Dacin, 1996).

On the basis of these definitions, we introduce two further concepts: product category knowledge and brand knowledge<sup>1</sup>:

**By product category knowledge, we mean information pertaining to this product category stored in consumers’s long-term memory.**

**By brand knowledge, we mean information pertaining to this brand stored in consumers’s long-term memory.**

It should be noted that this knowledge may be false (Park et al., 1994; Stoltman et al., 1992), as a consequence of poor encoding, misunderstanding of information, or bad inferences (Alba and Hutchinson, 1987). An example of erroneous information would be: “Philips is a Japanese brand”. A consumer’s knowledge may vary, in particular with regard to the amount of information stored in memory and its type, and also the proportion of erroneous information.

*Consumer knowledge, according to Alba and Hutchinson (1987): familiarity and expertise*

Consumer knowledge is believed to consist of two complementary dimensions: familiarity (sometimes called experience) and expertise (Alba and Hutchinson 1987, Jacoby et al. 1986):

- **Familiarity** is defined as the "number of product related experiences that have been accumulated by consumers", in other words advertising exposure, information searches, e.g. discussions with salespeople or friends, frequenting retail outlets, owning products, etc.

- **Expertise** is defined as the “ability to perform product-related tasks successfully”. It includes both the cognitive structures (e.g.: beliefs about product attributes) and cognitive processes (e.g.: decision rules for acting on those beliefs).

Increased familiarity with a brand may result in a better developed knowledge structure - both in terms of the knowledge an individual has stored in memory as well as what people perceive they know about a brand (Brucks 1985).

A certain discrepancy may be noted with regard to the operationalization of the concept of knowledge (Feick et al., 1992). Before addressing this point, it is worthwhile to review the concepts of familiarity and expertise in detail, to facilitate future measurements.

*The concept of familiarity: one- or multidimensional?*

Baker et al. (1986, p.637) defined brand familiarity as "a one-dimensional construct directly related to the amount of time spent processing information about the brand" The authors admitted that this definition was "very rudimentary." Other authors however suggest that familiarity is a multidimensional phenomenon. Numerous studies have shown that direct experiences, such as use, and indirect experiences, like advertising exposure, do not affect consumers in the same way (Mooy and Robben, 1998; Wright and Lynch, 1995). Anderson (1983) has proved that the number of repetitions, rather than the time spent processing information, that has a greater impact on the strength of information stored in the memory.

Although there is conceptual evidence for brand familiarity as a multidimensional construct, the operationalization of brand familiarity always seems to have been one-dimensional. Traditionally, familiarity has been operationalized via accumulated purchases, or as search, ownership, or experience (Bettman and Park 1980; Park et al., 1994). The definition of familiarity advanced by Alba and Hutchinson (1987) poses a problem however: the use of the term *number* of experiences implicitly suggests that the *type* of experience is not very relevant, which is inconsistent with the assertions above. We therefore propose the following definition:

**Familiarity with a brand is a multidimensional construct connected to the various experiences relating to a brand accumulated by a consumer.**

We argue that there are three dimensions of brand familiarity: familiarity with brand communication, interpersonal familiarity, familiarity with the products. This analysis is consistent with the Krishnan studies (1996, p. 394) concerning the origins of brand associations, i.e. the nodes related to a given brand in an individual's long-term memory. It is important to note that the relations between sub-dimensions of familiarity are causal, or formative (Chin, 1998 ; Jarvis et al., 2003). The concept of familiarity is regarded as an index, starting from causal sub-dimensions. These dimensions are called first-order factors, while familiarity is a second-order factor. A function of the causal first-order factors determines an individual's familiarity level, and not the reverse. The fact that a person uses products of a given brand does not mean, however, that she has seen more of the brand's advertising.

*The concept of expertise: one- or multidimensional?*

The definition of expertise given by Alba and Hutchinson (1987, p. 411) is rather complex, and should be studied in detail. It refers to the:

- *ability to perform product-related tasks successfully*: in real life, such a task might be the ability to help a friend interested in purchasing a given product by providing information about different brands and their prices, as well as information concerning decisive attributes;
- *cognitive structures*: expertise is based mainly on the concept of memory and is directly related to the number of associations with a given product that are both retained in long-term memory and correct (Fiske et al., 1994; Park et al., 1994);
- *cognitive processes (e.g., decision rules for acting on these beliefs)*: this concept implies two things: firstly, the attributes of the object in question must be known; secondly, it must be

possible to link these attributes together, to compare and/or combine them in such a way as to produce *high quality* decisions. This line of reasoning is yet another argument in favor of a multidimensional vision of expertise: some people may be very familiar with a product's attributes and yet not make the right choice, while others, with a more limited understanding may be able to apply superior decision rules. This aspect of expertise has often been neglected in literature, as authors generally prefer only to measure the technical aspects of product knowledge (e.g., Sujan, 1985; Park et al., 1994).

As for familiarity, questions with regard to the dimensional aspect may also be applied to expertise. The latter has often been dealt with in a one-dimensional way. Many researchers' lack of attention to detail when defining and, particularly, measuring expertise: the *cognitive structures* dimension of expertise does not rely solely on technical aspects, like knowing what *oversampling* means in the case of a compact disc player, but also on a knowledge of leading brands, prices charged, or even sales outlets. An individual may possess an in-depth technical understanding of a given field without knowing what prices are generally charged.

We may postulate the existence of dimensions of expertise. They relate to the distinction between the cognitive processes and structures of Alba and Hutchinson (1987). The structural dimension measures knowledge of exact facts. The dimension related to processes, on the other hand, measures the ability to answer questions necessitating more complex operations. This is expected to have the same formative configuration as familiarity.

#### USUAL MEASUREMENTS OF KNOWLEDGE

We consider familiarity as an antecedent of knowledge and expertise as a consequence: individuals store information about a given object on the strength of their experiences (Park et al., 1994; Krishnan, 1996). This information then forms the basis of their level of expertise. In the following paragraphs, we describe the constructs generally used to measure knowledge.

In all, five knowledge measurements are generally applied to brands or product categories (Brucks, 1985; Aurier and Ngobo, 1999; Park et al., 1994; Selnes and Grønhaug, 1986).

1. experience, i.e. all direct exposure, consistent with familiarity;
2. the number of associations stored in memory pertaining to the brand (NASM). For a given brand, this measurement represents the number brand associations stored in memory;
3. self-assessed, or subjective, knowledge, representing perceptions a person may have concerning their knowledge;
4. objective knowledge, representing what an individual truly knows about a subject. This concept ties in with expertise;
5. mixed measurements, comprising elements of some or all of the measurements described above. From this perspective, authors may combine elements related to familiarity with other elements related to subjective knowledge or to expertise. We do not believe that this kind of measurement is based on theoretical reasoning. There appears to be no justification for combining theoretically different concepts in this way to form a single measurement.

In conclusion, it may be said of the three measurements the most often cited that **familiarity measures exposure to a field, expertise represents what is truly known, and subjective knowledge what is believed to be known**. Although correlated, these measurements are not interchangeable: in fact, situational factors, or factors related to the item under study, may play a role (Selnes and Grønhaug, 1986). We also add a fourth measurement: NASM, which is very rarely used. For reasons previously given, we shall not resort to mixed measurements.

We feel that familiarity and expertise are not, as a rule, satisfactorily measured in literature, as certain facets of these constructs are neglected. Furthermore, the quasi-totality of studies judge them to be one-dimensional, which is incorrect, in light of our previous discussion.

Furthermore, authors often prefer to use a subjective knowledge measurement, which is much simpler, requiring only a few simple questions. There may be occasions, however, where it will be more theoretically appropriate to use another measurement of expertise.

#### ASSESSING RELATIONSHIPS BETWEEN DIFFERENT MEASUREMENTS OF BRAND KNOWLEDGE

It would appear, therefore, that different measurements of knowledge constitute distinct concepts. At this stage, we feel it is important to assess relations between these measurements. We collected data on several different brands: Celio and Kenzo for men, Kookaï and Kenzo for women. We chose to work with the fashion sector because consumer familiarity with the brands may be expected to vary significantly. The female participants submitted 494 questionnaires concerning Kookaï and Kenzo and we collected 302 questionnaires from the male participants concerning Celio and 309 for Kenzo.

We used exploratory factor analysis, Cronbach alpha calculations, and confirmatory factor analysis (Gerbing and Anderson, 1988) to develop measures. This procedure is only possible for reflective constructs, i.e. dimensions related to product familiarity and subjective knowledge. In other cases, we followed the procedure described by Diamantopoulos and Winklhofer (2001).

#### *Measuring brand familiarity<sup>2</sup>*

Brand familiarity is measured by assessing the various dimensions of this construct, i.e., interpersonal familiarity, familiarity with communication, and product familiarity. An individual's level of familiarity is determined, as previously mentioned, by combining these three dimensions. It should be noted that brand familiarity measurements are dependent on product category, because purchasing frequency and quantities differ substantially.

#### *Measuring subjective knowledge*

Our review of literature identified 4 items for measuring subjective knowledge. Exploratory factor analysis, followed by confirmatory factor analysis, led to the elimination of one item.

#### *Measuring objective knowledge, or expertise*

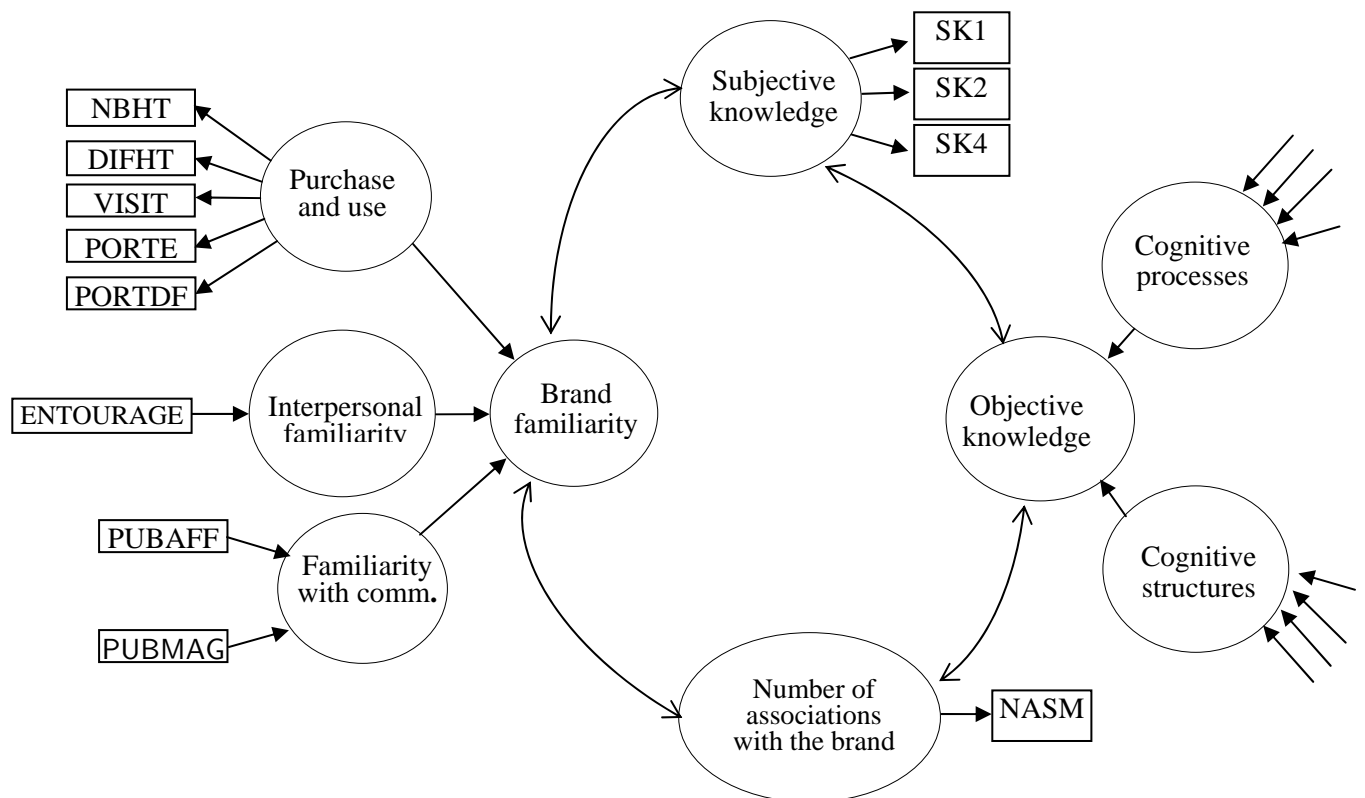
As in the case of familiarity, it was important to measure expertise as comprehensively as possible. The "cognitive structures" dimension relates to knowledge of facts concerning a given brand, it was measured by identifying connections in the respondents' memory between certain informational nodes and the brand under study. Our questions asked whether respondents were aware of dates when brands were created, how they got their names, the names of their perfumes, the types of products marketed, etc. To measure the "cognitive process" dimension, we used questions calling for a more active knowledge of brands. We asked interviewees to name competitors of the brands under study, describe typical consumers or products, and give reasons why consumers of these brands wear their products.

#### *Measuring the number of associations stored in the memory pertaining to a brand (NASM).*

We started by combining the number of answers obtained for open questions concerning descriptions of shops, knowledge of competitors, and reasons for using a brand, as well as descriptions of consumers and products. We then added the number of associations elicited by some closed questions

#### *Assessing correlations between brand knowledge measurements*

Structural equation models were used to assess correlations between the constructs presented above. The following model was analyzed using PLSGRAPH software:



**Figure 1: Assessing correlations between the four measurements of brand knowledge**  
 The names of items pertaining to objective knowledge have been excluded for clarity

The model was tested for the four brands. Results were constant. Furthermore, data seemed to adapt well to the model, as there are significant links between constructs and items.

Correlations	Celio n=302	Kenzo men n=309	Kookai n=531	Kenzo women n=494
Familiarity/subjective knowledge	.71	.68	.71	.60
Familiarity/NASM	.63	.71	.68	.70
Familiarity/expertise	.62	.68	.51	.62
Subjective knowledge/NASM	.47	.55	.54	.47
Subjective knowledge /expertise	.53	.49	.43	.45
Expertise/NASM	.82	.94	.90	.97

**Table 1: correlations between the four measurements of brand knowledge**

Correlations between measurements were moderate and occasionally strong. Two key observations may be made:

1. Subjective knowledge and expertise have an average correlation of .47. While there is a significant link between what is believed to be known and what is truly known, this link is too weak to be able to use these constructs interchangeably.
2. The correlation between the number of brand associations stored in memory and expertise is very strong, with very few erroneous brand associations. To a certain extent, this result contradicts psychology research showing that a subject's knowledge is frequently be false. However, unlike more complex matters, such as chess or mathematics, learning in relation to a brand is very simple, demanding comparatively little effort and cognitive ability. Consumer perceptions of a brand are, therefore, frequently correct (Söderlund, 2002).

## CONCLUSION

Our literature review revealed that familiarity and expertise measurements were often flawed. As yet, these concepts have only been partially analyzed. This is probably due to the fact that they are considered one-dimensional, whereas they are multidimensional. For that reason, we have redefined them by identifying their constituent dimensions. More complex concept definitions should result in more useful measurements, thus facilitating analysis of their respective impact on consumer behavior (information search behavior, price perception, etc.). We identified a total of four knowledge measurements and established connections between them. From a theoretical point of view, the main advantages of this modeling may be summed up in two points: a description and explanation of relations between various memory phenomena, and as thorough a measurement as possible of these phenomena. It thus becomes clear that the different memory measurements are conceptually distinct and may not, therefore, be used indiscriminately.

This raises a practical problem: a large number of questions are required to measure familiarity and expertise concepts adequately. Ideally, all studies requiring the operationalization of knowledge should, therefore, include these measurements and assess their respective impact. Such an option is, however, unrealistic, as it would require significantly longer questionnaires. We feel it is crucial to implement a series of studies to assess the impacts of these various measurements.

We, therefore, recommend that researchers who need to use a knowledge measurement should clearly justify their choice, which is not yet common practice. As we have previously noted, self-assessed knowledge is subjective in nature and implicitly related to the concept of trust: it may therefore be used for studying motivation. By definition, objective knowledge and NASM are not concerned by this subjective concept and are therefore more suited for use in studies concerning consumer capabilities. The strong correlation between these two measurements argues in favor of using NASM rather than an objective knowledge measurement: when a study postulates a link between objective knowledge and another construct, the NASM may be used as a proxy. It is easier and quicker to measure quantities of information stored in memory, notably by way of open-ended questions, as the number of answers may be counted, rather than creating an entire test of expertise and resorting to experts to encode interviewees' answers. At all events, there is not sufficient correlation between subjective knowledge and expertise to merit using the former instead of and/or as an approximation of the latter.

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<sup>1</sup> For the rest of this paper, we shall mostly concentrate on brand knowledge. Results may, however, be easily apply to a category of products.

<sup>2</sup> Details concerning scales used may be obtained from the author.