

# **Re-assessing the influence of mental intangibility on consumer decision-making**

## **Abstract**

**The present paper explores the influence of mental intangibility on the size of the consideration set, both on tangible products and services. This research also examines the moderating effect of purchase involvement and objective knowledge on the set. Two experimental studies were conducted to examine these relations. Overall, the results indicate that mental intangibility positively influences the size of the consideration set, regardless of the offering type (product or service). This effect is stronger in low levels of knowledge. Consumer involvement does not seem to have a moderating effect on this relation. This study's implications and recommendations for future research are also discussed.**

**Keywords:** *consideration set, mental intangibility, knowledge*

## **1. Theoretical Background**

Given the complexity of the decision-making process, most studies on consumer decision-making converge on the idea that consumers tend to form a consideration set prior to their final choice to simplify their decision-making process (e.g., Shocker et al, 1991). This set precedes the final purchase choice and includes those items the consumer seriously considers for acquisition when facing a purchase decision (Shocker et al, 1991). An important property of the consideration set in terms of both managerial and research implications is its size. The importance of the size of the consideration set is based on the fact that the inclusion of a brand in a small consideration set compared to its inclusion in a larger set reveals a stronger advantage since each brand competes against fewer alternatives and consequently has a larger probability of being chosen. Furthermore, the size of the set has been observed to influence the later stages of the decision-making process, e.g., final choice, post-purchase emotions (Su, Chen & Chao, 2008). The factors that influence the size of the set have also been extensively researched (e.g., Desai & Hoyer, 2000; Lu & Nayakankuppan, 2011; Stocchi, Banelis & Wright, 2016). A factor that has not been explored is product/service intangibility, despite its increasing importance in consumer decision-making research due to the growing use of abstract systems (e.g., internet) and new communication technologies (e.g., Laroche, Bergeron & Goutaland, 2003).

For many decades, intangibility has been considered to be the most distinctive difference between products and services (Lovelock, 1985). Intangibility is an attribute of services that describes their impalpable and not corporeal nature (Shostack, 1977). However, many academics argue that several products should also be considered intangible, since physical tangibility does not necessarily help customers develop a clear and representative image of the product in their mind (e.g., McDougall & Snetsinger, 1990). For instance, customers are equally unable to develop an understanding and form a clear representation of products such

as a software programme or a smartphone, and services such as education and hospitality. This inability is theoretically captured in the notion of mental intangibility (Laroche et al, 2001).

Services marketing theory suggests that mental intangibility further complicates the already confusing consumer decision-making process for both products and services (Laroche et al, 2003). However, to the best of our knowledge, there is no study that examines the consequences of mental intangibility on specific aspects of the sequential decision making process. To this end, this study seeks to make a first attempt to close this gap in the literature by investigating the influence of mental intangibility on the consumers' consideration set and interrelate it with other constructs that have been found to affect the decision-making process, such as purchase involvement and knowledge.

According to Laroche et al. (2003), with all things being equal, consumers experience a higher involvement with services than products due to the higher perceived risk associated with the purchase of a physically intangible offering. Consumers who are highly involved with a purchase decision or a product category engage in extended information search and processing in contrast to the less involved consumers (e.g., Zaichkowsky, 1985). In fact, there is a notable inconsistency in findings with regards to the positive or negative relation between involvement and the size of the set (e.g., Divine, 1995; Gronhaug, 1973; Gruca, 1989), which could be attributed to the variations between products and services.

Another variable that significantly influences and eases all phases of consumer decision-making process and is linked to mental intangibility is knowledge (Bettman & Park, 1980). Knowledge has also been linked to both perceived risk (e.g., Murray & Schlacter, 1990) and involvement (e.g., Aurier et al., 2000). According to Mitchell and Prince (1993), knowledge is a more useful way of reducing decision-related risk in the case of tangible products than in the case of services, where there is considerably less standardisation in their delivery and

consumption. Two types of knowledge are distinguished in the literature: objective (i.e., what consumers know) and subjective knowledge (i.e., what consumers believe that they know) (e.g., Witch & Mattila, 2003). The current research focuses on objective knowledge and views it as a characteristic that reduces the perceived risk and complexity associated with a purchase decision.

## **2. Current Research**

Previous research suggests that the consideration set formation process differs significantly between products and services (Gabbott & Hogg, 1994). Due to the four distinctive characteristics of services (i.e., intangibility, heterogeneity, inseparability, perishability, Lovelock, 1985), consumers alter the way they search for information and evaluate the attributes of the “offering” differently (Johnston & Bonoma, 1981). According to Gabbott and Hogg (1994) the size of the consideration set is also different between products and services. An explanation for this inconsistency in the size of the consideration set in products and services might rest on the fact that mental intangibility, which is linked with perceived risk (i.e., a dimension of involvement), and decision complexity (Laroche et al., 2003), tends to be higher in services than products. However, this rule is not a hard and fast one, since there are products with high mental intangibility and services with low mental intangibility. Due to mental intangibility, consumers often do not have a clear understanding of the “offering” they are paying for, regardless of whether this is a product or service (Laroche et al, 2003). Therefore, increased levels of intangibility evoke higher consumers’ perceived risk of the purchase outcome (McDougall & Snetsinger, 1990) as well as increased complexity of the buying process (Devlin, 2001). In purchase situations in which both the perceived risk and the complexity of a purchase increase, consumers tend to develop a larger consideration set to

avoid excluding an optimum solution from the considered brands (Chakravarti & Janiszewski, 2003). Thus, considering the findings of the previous study and the discussion,

*H1:* The consideration set is smaller when consumers consider products in comparison to when they consider services.

*H2:* Mental intangibility positively influences the size of the consideration set.

One of the factors that explains a great part of variation in the decision process is involvement (e.g., Zaichowsky, 1985; Laroche, Bergeron & Goutaland, 2003). Several studies suggest a strong positive relation between involvement and perceived risk (e.g., Chaudhuri, 2000). In high involvement situations, consumers' perceived risk increases as their concern over excluding the best option in the decision is high (e.g., Chakravarti & Janiszewski, 2003). This is even higher for services, which involve high levels of risk due to their inherent intangibility (Murray & Schlacter, 1990). Thus:

*H3:* The effect of offering type on the size of the consideration set is stronger in high involvement conditions.

Perceived risk and complexity have been found to be reduced as knowledge and available information increases in a specific purchase situation (e.g., Havlena & DeSarbo, 1990). Consumers perceive lower risk in a decision situation when they have a high level of knowledge and thus they do not feel the need to apply risk reduction strategies (Chakravarti & Janiszewski, 2003), resulting in small consideration sets. Thus,

*H4: Objective knowledge negatively influences the size of the consideration set.*

As discussed above, consumers are expected to form large consideration sets in conditions of high mental intangibility due to higher perceived risk involved in the decision making. In this sense, according to Laroche, Bergeron and Goutaland (2003), greater knowledge of both products and services reduces risk perceptions. Moreover, higher knowledge consumers tend to be more selective in terms of the offerings that they consider to be acceptable (Cowley & Mitchell, 2003) and thus form smaller consideration sets. Therefore,

*H5: The effect of mental intangibility on the size of the consideration set is stronger in low levels of objective knowledge.*

Two studies were conducted to investigate the hypotheses. Study 1 explores the effect of the offering type (product vs. service) and the moderating role of purchase involvement, while Study 2 examines the effect of mental intangibility and the moderating effect of objective knowledge on the size of the consideration set. To monitor any potential effect of the decision context on the size of the set (Rottenstreich et al., 2007), both studies were conducted in a stimuli-based context. All categories used as stimuli were fictitious to minimise prior associations with brands.

### ***2.1 Study 1***

Study 1 explores the effect of the offering type (i.e., product or service) on the size of the consideration set considering the moderating role of purchase involvement. To explore these hypotheses, the following experiment was designed and conducted.

*Participants and experimental design.* A total of 64 students (27 men and 37 women,  $M_{\text{age}}=20.10$ ,  $SD = 3.02$ ) were randomly assigned to the four conditions of the following mixed experimental design: 2 (purchase involvement: high or low) x 2 (offering type: product or service). Offering type was measured as a within-subject variable, while involvement was approached as a between-subject variable.

*Experimental stimuli and procedure.* Two focal product categories, namely, microwave oven (product) and restaurant meal (service), were selected to act as research stimuli for the study. The two categories were chosen because they are reported to evoke moderate levels of product involvement (Chaudhuri, 1998; Laroche, 2005), which enabled us to control for this variable in the primary study. This property was confirmed by the results of a preliminary study on a sample of 20 students.

In the main study, the participants were given a paper and pencil, and a self-administered questionnaire consisting of two identical sections, one for each product category (i.e., microwave oven and buying a restaurant meal). For each section purchase, involvement manipulation was initially performed. In each product category, the participants were provided with 12 fictitious alternatives together with their prices and five attributes. It was also possible to control for the effect of the awareness set size on the consideration set size (e.g., Gruca, 1989). Finally, the participants were instructed to form their consideration set for the purchase of a microwave oven. In particular, they were asked the following: “Given that you want to buy a microwave oven which alternatives would you seriously consider purchasing?” Similarly, the participants were asked to form their consideration set for the purchase of a restaurant meal. The question asked, “Given that you want to buy a restaurant meal which alternatives would you seriously consider purchasing?” *Manipulations.* Participants were given different instructions in the two purchase involvement conditions. Participants in the low involvement condition were told, “After the completion of the research

you will take part in a lottery to win a pen”. Participants in the high involvement condition were told, “After the completion of the research, those of you that have followed a realistic decision-making process and have taken the right decisions will enter a lottery to win one of the items that you are thinking of purchasing.”

*Manipulation checks and measures of dependent variables.* The mean of four 7-point scales was used to check the success of the purchase involvement manipulation ( $a_{\text{product}} = .93$ ,  $a_{\text{service}} = .91$ ). The scales measured (a) personal relevance, (b) personal importance of making the right decision, (c) personal interest in judging the quality, (d) cautiousness with which the consideration sets were formed (Park & Hastak, 1994). The dependent variable of the study is the consideration set size, which was operationalised as the number of alternatives included in the respondent’s consideration set (e.g., Desai & Hoyer, 2000).

*Results.* The manipulation of purchase involvement (Product:  $M_{\text{high}} = 5.83$ ,  $M_{\text{low}} = 5.18$ ,  $t(62) = -3.921$ ,  $p < .01$ ; Service:  $M_{\text{high}} = 5.54$ ,  $M_{\text{low}} = 4.50$ ,  $t(62) = -2.139$ ,  $p < .05$ ) was successful. According to the results of the repeated measures ANOVA and in consistency with previous research, there was a significant main effect of the type of offering on the size of the set ( $M_{\text{service}} = 5.54$ ,  $M_{\text{product}} = 4.80$ ,  $F(1,60) = 9.794$ ,  $p < .01$ ), providing support for H1. Consumers formed larger consideration sets, when considering services in comparison to when they considered products. Moreover, the results showed a significant positive main effect of purchase involvement on the size of the set ( $M_{\text{low}} = 4.81$ ,  $M_{\text{high}} = 5.72$ ,  $F(1,60) = 13.192$ ,  $p < .001$ ). No significant interactions occurred; thus, H3 was rejected.

## **2.2 Study 2**



Study 2 builds on the findings of the previous study to test hypotheses H2, H4 and H5 and to provide an explanation for the inconsistency in the size of the consideration set occurring between products and services.

*Participants and research design:* One hundred thirty-six students (62 male and 74 female,  $M_{\text{age}} = 20.23$ ,  $SD = 2.27$ ) were randomly assigned to the eight conditions of the following mixed experimental design: 2(offering type: product or service) x 2(mental intangibility: high or low) x 2(objective knowledge: high or low). Offering type was measured as a within-subject variable, while mental intangibility and objective knowledge were approached as between-subjects variables.

*Experimental stimuli and procedure:* Four product categories were formed as experimental stimuli for Study 2 based on two variables, physical intangibility and mental intangibility (i.e., product with low mental intangibility, product with high mental intangibility, service with low mental intangibility, service with high mental intangibility). Following the results of previous research (Laroche et al, 2005), jeans and external hard disc drives (HDD) served as low and high intangibility products, respectively, while cheque accounts and getting haircuts served as high and low intangibility services, respectively. To test the suitability of the selected product/service categories, a preliminary study ( $n = 24$ ) was conducted where the participants were asked to evaluate the four offerings in terms of their mental intangibility and their degree of involvement with them. The results confirmed the categorisation suggested by Laroche et al (2005). Additionally, the results indicated that all categories evoked moderate levels of product involvement, which allowed us to control for the specific variable in the main study.

In the primary study, participants filled out a self-administered questionnaire, as in Study 1. The questionnaire consisted of two similar sections, that is, one for the product (HDD/jeans) and one for the service (cheque account/haircut). In each section, participants

were first given the list of alternatives accompanied by their attributes and then they were asked to form a consideration set. Similar to Study 1, it was possible to control for the effect of the awareness set size on the consideration set size by keeping the size of the awareness set constant across all four categories.

*Manipulations:* The offering type was fixed to a product and a service. Intangibility was manipulated with the use of two different types of product categories both for the product condition and for the service condition. In each offering type condition (product vs. service), one product category indicated a high level of mental intangibility and the other indicated a low level. Regarding objective knowledge, the current study incorporates the view of Moorthy et al. (1997) and operationalised it as the number of available attributes related to the alternatives of a category. Specifically, in the low objective knowledge condition participants were given a detailed description (10 attributes) of the product category, while in the low knowledge condition participants were provided with a limited description (3 attributes) of the category.

*Manipulation checks and measures:* The manipulation of mental intangibility was tested via a 7-point, 5-item Likert-type scale that was administered to all participants ( $\alpha = 0.86$ ). The scale was previously developed and validated by Laroche et al (2001). The exact wording of the items was the following: *a) I need more information about this product/service to make myself a clear idea of what it is, b) I have a clear picture of this product/service, c) The image of this product/service comes to my mind right away, d) This is not the sort of product/service that is easy to picture and e) This is a difficult product/service to think about.* The manipulation of objective knowledge was checked with a 7-point scale assessing participants' perceptions on the amount of available information for each product category. Consideration set size, the dependent variable, was operationalised in the same way as in Study 1.

*Results:* According to the results of the study the manipulation of mental intangibility was successful ( $M_{\text{low}} = 3.92$ ,  $M_{\text{high}} = 4.41$ ,  $T(134) = 2.23$ ,  $p < .05$ ). Moreover, the manipulation of objective knowledge was also successful ( $M_{\text{low}} = 3.71$ ,  $M_{\text{high}} = 4.58$ ,  $T(132) = 2.83$ ,  $p < .01$ ). The results of the repeated measures ANOVA indicated a main effect of the offering type ( $M_{\text{service}} = 5.65$ ,  $M_{\text{product}} = 5.04$ ,  $F(1,132) = 19.086$ ,  $p < .001$ ) as suggested also in Study 1, and of mental intangibility ( $M_{\text{low}} = 4.64$ ,  $M_{\text{high}} = 5.26$ ,  $F(1,132) = 12.652$ ,  $p < .01$ ) on the size of the consideration set; confirming H1 and H2. The main effect of objective knowledge on the size of the consideration set was not found to be significant ( $F(1,132) = 1.3$ ,  $p > .05$ ) and thus H4 was rejected. Moreover, the interaction between objective knowledge and mental intangibility was found to be significant ( $F(1,132) = 73.723$ ,  $p < .001$ ) indicating a stronger effect of mental intangibility on the size of the consideration set in low levels of objective knowledge and providing support for H5. No other interactions occurred.

### **3. Discussion and Implications**

The current study provides both a theoretical and a practical contribution to understanding the impact of mental intangibility on consumer decision-making. To begin with, mental intangibility, offering type (product or service) and purchase involvement were all found to influence the consumers' consideration set size. The offering type (service or product) was determined to have a significant main effect on the size of the consideration set, with the latter being larger, when consumers considered services instead of products. This finding can be partly explained by the effect of mental intangibility, which tends to be higher in services than products and generates high levels of risk (Laroche et al. 2003). This finding is also confirmed by the results of the present research, since the size of consideration set was found significantly larger for both products and services of high intangibility.

Moreover, it appears that the customers' objective knowledge of the product category affects the relation between mental intangibility and consideration set size. In fact, the positive effect of mental intangibility on the consideration set size is negatively moderated by objective knowledge which, in turn, seems to reduce the level of perceived risk (Havlena & DeSarbo, 1990) and consumer selectivity (Cowley & Mitchell, 2003).

Based on these conclusions, several implications for practitioners can be offered. First, businesses should consider directing their efforts towards enhancing the mental tangibility of goods and services to affect consumers' decision-making. In the past, most of the marketing strategies have suggested ways of reducing physical intangibility and thus the perception of risks associated with intangible offerings. By employing this approach, businesses have overlooked consumers' tendency to form larger consideration sets due to increased mental intangibility. More specifically, consumers are inclined to use risk reduction strategies before making important and complex decisions (Bettman & Kakkar, 1980). The same phenomenon is observed when consumers must address intangible offerings; they end up processing many brands or forming large consideration sets (Chakravarti & Janiszewski, 2003).

To control for this negative effect of intangibility, it might be beneficial for businesses to motivate their sales staff to provide customers with a more detailed description of what they sell. In that sense, employees or sales representatives who educate their customers can offer additional tangibility to their offering and reduce, in turn, the customers' perceived risk. In other words, the negative effect of mental intangibility is decreased when consumers develop a better knowledge and understanding of the offering, and as a result, they form smaller consideration sets (Laroche et al., 2003).

Especially for businesses that sell highly intangible products (e.g., high tech products), it might be useful to deliver a clearer representation of the offering (Laroche et al., 2001) by increasing mental imagery (i.e., the process by which visual information is represented in

working memory). At the same time, firms offering highly intangible services can enhance the service tangibility by revealing part of the service production to the customer (e.g., hotels) or by thoroughly explaining the process to the customer (e.g., medical services) or even by offering free meals to prospective customers (e.g., restaurants). Gaining additional objective knowledge regarding the offering can be extremely useful for consumers who are highly involved with the purchase situation. As such, businesses can reduce perceived risk and assist customers in their evaluation of the offering;

Furthermore, businesses that manage to address the negative effects of mental intangibility can expect to have increased chances of offsetting competition, as well. By default, highly intangible products and services face severe competition, as their offering remains unclear, and the alternatives in the consumers' consideration set are numerous. Hence, increasing the offering tangibility will reduce the number of alternatives in the consumers' consideration set, which can be extremely beneficial for businesses (e.g., when they want to protect their market share or when they want to prevent competitors from entering the market). Therefore, managers need to provide not only additional information about the offering but also to highlight the immediately relevant benefits as a way of differentiating against competition (Stafford, 1996). Similarly, once the offering becomes more mentally tangible and whilst customers are ready to form relatively smaller consideration sets, managers can subsequently direct their marketing activities towards influencing individuals in the early stages of the decision-making process (e.g., by increasing awareness and knowledge in their promotion) to achieve inclusion in their consideration set.

Future research could explore the effect of both physical and mental intangibility, as well as the influence of subjective knowledge on various descriptive properties (e.g., size, variety, stability) of the consideration set.

## References

- Alba, J. W., & Hutchinson, J. W. (1987). Dimensions of consumer expertise. *Journal of Consumer Research*, 13 (4), 411-54.
- Aurier, P., Jean, S., & Zaichkowsky, J.L. (2000). Consideration set size and familiarity with usage context. *Advances in Consumer Research*, (27), 307-313.
- Bettman, R. J., & Park, C. W. (1980). Effects of prior knowledge and experience and phase of the choice process on consumer decision processes. *Journal of Consumer Research*, 7(12), 234-248.
- Chacravarti, A., & Janiszewski, C. (2003). The influence of macro-level motives in consideration set composition in novel purchase situations. *Journal of Consumer Research*, 30(2), 244-258.
- Chaudhuri, A. (1998). Product class effects on perceived risk: The role of emotion. *International Journal of Research in Marketing*, 15(2), 157-168.
- Cowley, E. & Mitchell, A. A. (2003). The Moderating Effect of Product Knowledge on the Learning and Organization of Product Information. *Journal of Consumer Research*, 3(3), 443–54.
- Desai K.K., & Hoyer, W. D. (2000). Descriptive characteristics of memory-based consideration sets: Influence of usage occasion frequency and usage location familiarity. *The Journal of Consumer Research*, 27(3), 309-323.
- Devlin, J. (2001). Consumer evaluation and competitive advantage in financial services: a research agenda. *European Journal of Marketing*, 35 (5/6), 639-660.
- Divine, R. L. (1995). The influence of price on the relationship between involvement and consideration set size. *Marketing Letters*, 6(4), 309-319.
- Evans J., Over, D., & Manktelow, K. (1993). Reasoning, decision-making and rationality. *Cognition*, 49 (1-2), 165–187.

- Gabbott, M., & Hogg, G. (1994). Consumer behaviour and services: A review. *Journal of Marketing Management*, 10 (4), 311-324.
- Gruca, T. S. (1989). Determinants of choice set size: An alternative method for measuring evoked sets. *Advances in Consumer Research*, 16, 515-521.
- Havlena, W. J., & DeSarbo, W. S. (1990). On the measurement of perceived consumer risk. *Decision Sciences*, 22, 927-939.
- Johnston, W.J., & Bonoma, T.V. (1981). Purchase process for capital equipment and services. *Industrial Marketing Management*, 10(4), 253-64.
- Laroche, M., Bergeron, J., & Barbaro-Forleo, G. (2001). Targeting consumers who are willing to pay more for environmentally friendly products, *The Journal of Consumer Marketing*, 18(6), 503-520.
- Laroche,, M., Bergeron, J. & Goutaland, C. (2003). How intangibility affects perceived risk: the moderating role of knowledge and involvement. *Journal of Services Marketing*, 17(2), 122-140.
- Laroche, M., Yang, Z., McDougall, G. H., & Bergeron, J. (2005). Internet versus bricks-and-mortar retailers: An investigation into intangibility and its consequences. *Journal of retailing*, 81(4), 251-267.
- Lovelock, C. H. (1983). Classifying Services to Gain Strategic Marketing Insights. *Journal of Marketing*, 47(Summer), 9 – 20.
- Lu, F. & Nayakankuppam, D (2011) The effects of mindset abstraction on memory-based consideration set formation. *Advances in Consumer Research*, 39, 643-644
- McDougall, G.H.G., & Snettsinger, D.W. (1990). The intangibility of services: measurement and competitive perspectives. *The Journal of Services Marketing*, 4(4), 27-40.
- Mitchell,V.W., & Prince, G.S. (1993). Retailing to experienced and inexperienced consumers: A perceived risk approach. *International Journal of Retail & Distribution Management* 12,(5), 10-21.

- Moorthy, S., Ratchford, B.T., & Talukdar, D. (1997). Consumer information search revisited: Theory and empirical analysis. *Journal of Consumer Research*, 23 (3), 263–277.
- Murray, K.B., & Schlacter, J.L. (1990). The impact of services versus goods on consumers' assessment of perceived risk and variability. *Journal of the Academy of Marketing Science*, 18, 51-65.
- Park, J.W., & Hastak, M. (1994). Memory-based product judgments: Effects of involvement at encoding and retrieval. *Journal of Consumer Research*, 21 (2), 534-547.
- Rottenstreich, Y., Sood, S., & Brenner, L. (2007). Feeling and thinking in memory-based versus stimulus-based choice. *Journal of Consumer Research*, 33 (4), 461-469.
- Shocker, A. D., Ben-Akiva, M., Boccara, B., & Nedungadi, P. (1991). Consideration set influences on consumer decision- making and choice: issues, models, and suggestions. *Marketing Letters*, 2(3), 181-197.
- Shostack, L. G. (1977). Breaking free from product marketing. *Journal of Marketing*, 41, 73-80.
- Stafford, M.R. (1996). Tangibility in services advertising: an investigation of verbal versus visual cues. *Journal of Advertising*, 25, 3, 13-28.
- Stocchi, L., Banelis, M., & Wright, M. (2016). A new measure of consideration set size The average number of salient brands. *International Journal of Market Research*, 58(1), 79-94.
- Su, S., Chen, R. & Zhao, P. (2008). The impact of size of self-generated consideration set on post-choice regret. *Advances in Consumer Research*, 35(1), 805-806.
- Wirtz, J., & Mattila, A. S. (2003). The effects of consumer expertise on evoked set size and service loyalty. *The Journal of Services Marketing*, 17(6/7), 649-657.
- Zaichkowsky, J.L. (1985). Measuring the involvement construct. *Journal of Consumer Research*, 12 (3), 341-352.