

**MOTIVATIONS AND NEEDS OF CONSUMERS OF FRESH SEAFOOD
PRODUCTS IN FRANCE:
NEW OPPORTUNITIES AND MARKETING STRATEGIES**

Lucile Mesnildrey, Marie Lesueur, Stéphane Gouin

lucile.mesnildrey@agrocampus-ouest.fr

Pôle halieutique AGROCAMPUS OUEST CFR Rennes
65 rue de Saint Briec - CS 84215 – 35042 Rennes Cedex, France

ABSTRACT

Since 2004, the French fishery field has had to cope with a levelling off of consumption of fresh seafood products whereas the consumption of processed seafood products is increasing. Nowadays, consumers prefer easier products: fresh deli products, easy to cook or ready to consume. Therefore, fresh seafood products do not seem to fulfil current consumer demand intrinsically (aspect, taste) and extrinsically (cooking methods, use, origin, brand and price). In order to understand the evolution of behaviour, motivation and consumers' needs, several behavioural studies have been conducted within the COGEPECHE research programme. In our article we focus on three of them: focus groups, trade off and cognitive map.

This study has been carried out using an innovative methodology. First, focus groups were organized to evaluate cognitive, emotional and prospective behaviours. Then, the drivers and discriminate criteria of purchasing behaviour were analysed by the trade off method. A cognitive map was created in order to understand consumer expectations when purchasing seafood.

Such association allowed us to highlight consumers' purchasing criteria (price, freshness). However, dissonances have been shown between consumers' declarations and their behaviour. As a whole, these methods have pointed out the lack of consumers' knowledge about seafood products. Five general motives for seafood choices have been noted: safety, pleasure, health, convenience and ethics.

Key-words

Fresh seafood product, behaviour, motivations, needs, focus group, trade off, cognitive map.

INTRODUCTION

Over the past few years, food consumption has evolved. And the same is true for seafood products. Since 2004, French consumption of fresh seafood products is levelling off whereas the consumption of processed seafood products is increasing. These products are characterised by their convenience. Nowadays, consumers don't want to lost time cooking, therefore, supermarkets and traditional fish shops must adapt to this situation. Previous studies carried out on general food choices and particularly on seafood choices found that the four most important general motives to consumers when choosing seafood are health benefits, taste, convenience and process characteristics [1].

In order to understand these changes, it is important to focus on behavioural aspects but also on motivations and needs to understand why do some consumers turn away from fresh seafood.

This paper draws on a study exploring consumers' motivations and needs regarding fresh seafood products. We used an innovative methodology that associates quantitative (trade off, cognitive chains) and qualitative (focus groups, cognitive dissonance and Delphi method) consumers surveys. In our article we focus on three of them: focus groups, trade off and cognitive map.

METHODOLOGY

Focus group

Focus groups are qualitative in-depth studies that were conducted with the aim of identifying motives and barriers to fish consumption. Indeed, focus groups are an established way of obtaining deeper insights into beliefs and subjective meaning structures of consumers [2].

Focus groups consist in group interviews. Sessions lasted between 150 and 180 minutes were made easier by a moderator. An interview guide used for structuring the group discussions was initially developed by the research team. Additionally, the sessions were videotaped and literally transcribed for subsequent analyses. 8 to 10 participants were recruited for each of the 18 focus groups. All groups were mixed as regards age in order to have both old and young consumers in each group. In total, 136 consumers participated in this study. 13 focus groups were carried out in six cities of French Atlantic coast: Brest, Rennes, Nantes, Saint Nazaire, La Rochelle and Bordeaux. Five focus groups were conducted in Paris and its suburb where the population is known as representative of French inhabitants. The transcripts from the focus groups discussions were analysed by coding responses and examining the discussions' content for common themes according to content analysis procedures [3].

Trade off

After gaining preliminary insights into consumers' motivations and needs about fresh seafood products, a quantitative consumer survey was carried out to highlight purchase criteria. This part develops and describes the method used to evaluate the value systems of consumers: trade-off analysis or conjoint analysis.

Trade-off theory

Marketing researchers use conjoint measurement to know what consumers want. Trade off analysis can be defined as [4]:

- a technique of data collection requiring a respondent to consider "trade-offs" among desirable alternatives,
- a computational method which derives "utilities" accounting as nearly as possible for each respondent's choice behaviour,
- and a simple market simulation model which attempts to determine those characteristics of a product which will maximise its share preference within particular competitive context.

Data collection procedure

In this study, we used Grenn and Rao's procedure [5] which might be called a "concept evaluation" technique. Respondents provide rank orders of preference for product concepts which differ with respect to attributes being studied [4][5]. The concept evaluation approach has advantages of greater "realism", since respondents are choosing among concepts which are more elaborately specified, and at least theoretically, of being able to quantify interactions among attributes [4].

One of the first steps in designing a conjoint study is to develop a set of attributes and corresponding attribute levels to characterize the competitive domain. Focus groups are some of the sources researchers use to structure the sets of attributes and levels that guide the rest of the study [6].

We used a set of 7 attributes with two levels, for a total of 14 levels (Table 1). However, the total number of possible combinations of levels is 128. The number of stimulus descriptions that a respondent sees was reduced to a small fraction of the total number of combinations. In this study, an array of 8 profiles (6.25 % of the total) is sufficient to estimate all attribute-level main effects. Respondents were asked to provide rank orders of preference for the 8 fish tags concepts.

Table 1: Attributes and levels – Trade off.

Attributes	Levels
Origin	Wild fish / Farmed fish
Fat content	NON oily fish / Ø
Preservation	Fresh fish / Frozen fish
Omega-3 content	High level of omega-3 fatty acids / Ø
Bones	Boneless / Ø
Stock	Sustainable fishery / Ø
Convenience	Whole fish / Filleted fish

Interviews were conducted in the same way in three cities: Paris, Rennes and Brest. Pre-testing of the questionnaire was carried out in the same geographic area (60 participants in each city). This enables us to build a representative sample in order to optimize test's power. This survey was conducted with a representative sample of 849 respondents. In each city, a quota sampling was applied, with age, sex and town as main control factors. Next to the fieldwork, this sample was weighted in order to be as representative as it could be of French population in term of sex ratio and age class. Utilities were calculated based on variance analysis methodology. An "R package" was created and made available to all (to be published in CRAN and named "allstat").

Means-end chains model

The aim of this third method is to highlight motives and values underlying seafood purchase.

Means-end theory

Means-end chains model is proposed as a method of studying how a product selection facilitates the achievement of desired end states. Means are products in which people

engage, whereas ends are valued states of being such as happiness, safety, accomplishment [7]. Attributes are concrete or abstract product characteristics. Consequences are any result (functional or psycho-social) the product is perceived to deliver to the consumer.

Data collection procedure

Means-end chains model was carried out using laddering method. Reynolds and Gutman [8] described it as an in-depth, one-on-one interviewing technique used to understand how consumers translate the attributes of products into meaningful associations with respect to Means-End Theory [7]. Laddering involves a tailored interviewing format using primarily a series of directed probes, typified by the “Why is that important to you?” question, with the express goal of determining sets of linkages between the key perceptual elements across the range of attributes (A), consequences (C), and values (V).

In our study, four lists (representing four levels of abstraction) pertaining to attributes of fresh seafood, consequences and values (2). Lists of attributes (47) and consequences (17) were defined following focus groups and trade off results. Two kinds of values defined by Rokeach [7] were used: instrumental values and terminal values. Instrumental values (V_i) are related to modes of behaviour whereas terminal values (V_t) are end-states of existences.

Respondents were asked to select up to four attributes from the joined list. Then, for each selected attribute, the respondents were asked to fill out paper laddering chart. The first level was the “attributes”; the second level named “consequences” explain why the first level was important for the respondent and so on with the third level “instrumental values” and the fourth level “terminal values”. Participants completed up to four charts. In total, 104 participants were asked to fill out ladders (58% women, 42% men). 54 were conducted with a web survey and 40 were collected by e-mail survey.

Analysis of laddering data

Data analysis was carried out using Reynolds and Gutman methodology [8]. First of all and prior to data collection, a content analysis was carried out. Some attributes or consequences were grouped together under a common heading. Then, an implication matrix was constructed. This consists in a matrix which displays the number of times each element leads to each other element. A hierarchical value map was built from the ten most important attributes. Then, linkages between A to C, C to V_i and V_i to V_t were added to the map. Because there are no theoretical or statistical criteria to guide the selection of the cut-off level, a compromise had to be done between retaining information on the one hand and creating a manageable map on the other hand [8][9]. In this study, hierarchical value map displays linkages that were mentioned by at least 10% of the respondents. This relatively low cut-off point enables us to prevent loss of information when constructing hierarchical value map.

RESULTS

Focus group

According to our results, focus groups participants considered fresh seafood products as tasty. Health is also an important motive for fish consumption. Consumers perceive fish as a healthy product, easy to digest and essential for a balanced diet. Besides

intrinsic characteristics, extrinsic characteristics are important motive for fish consumption. Many respondents associated fish dishes with friendliness, conviviality, nature and seascape. These attributes are a real plus to promote fresh seafood products. Generally speaking, fish is perceived as a way to be out of the ordinary, it makes a change to the meat.

However, most of the respondents think that seafood products are too expensive. Consumers dislike inconvenience of cooking fish. It is considered as time consuming and particularly fussy because of the smell and bones. Focus groups participants deplored the lack of information about fish's origin, the way it has been caught and the impacts on the marine ecosystems. According to the focus groups discussions, consumers mistrust fish preservative. Unlike meat, consumers don't know how to preserve seafood products that are perceived as a delicate product.

For most consumers, large supermarkets are the prime channels for seafood purchase. Thus, almost 2/3 of the respondents prefer buying fish in supermarkets because they are perceived as more convenient and less expensive than speciality shops. Reasons of this success are mainly extrinsic and are not related to the product itself. Speciality shops are not considered in the same way. Half of the respondents regularly buy fish at marketplace and 27 % at fishmongers. Reasons of this gap are on the one hand the price considered too expensive and convenience. Even if traditional fish shops are not the most common shopping place in France, consumers like buying fish there. These shops are associated with quality and freshness, and the salesman is seen as good and trustworthy adviser. For special occasions, consumers prefer buying fish in these shops. Marketplaces seem to attract people for the conviviality.

More than 90 % of the respondents' interviewed in focus groups guide their choices according to the freshness, the specie and the price. Focus groups participants appear to be extremely vigilant and demanding regarding fish freshness. Thus unlike wild fish, consumers say that they mistrust farmed fish regarding freshness. Consumers seem to choose fish for convenience and/or for festivities. Although price is a determinant purchasing criteria for fish, consumers don't trust special offers which are associated with lack of freshness. The place the fish has been caught or farmed, convenience criteria, health are intermediate purchasing criteria. Labels are considered as important in the choice for only 11 % of the respondents.

Trade off

Trade off interviews have been conducted on almost 850 consumers that were asked to rank fish tags with different levels of attributes (Table 2). The major criterion driving demand was related to fish production. In each case, wild caught fish was preferred to farmed fish. As we can see in focus groups' results, healthy criteria were important to respondents. But, it seems that healthy criteria were more important than nutritional criteria. Thus, on the one hand, respondents were motivated by purchasing low fat fish but not significantly by fish with a high level of omega-3 fatty acids. Convenience criteria such as filleted fish (18 %) boneless (16 %) were significant and positive factors in inducing seafood purchase. When ranking fish tags, respondents had the choice between fresh and frozen fish. This criterion affected the decision for a 12 %. Overall, respondents were more involved in fresh fish than frozen fish. The findings revealed that respondents were not interested in purchasing sustainable fish.

Results have been segmented between male and female and according to ages. The findings reveal that two criteria differ from male and female. Whereas women care about the preservation of these products and choose for fresh fish (20%, $p < 0.001$), this criterion is not significant for men (4 %, $p = 0.28$). Then, whereas information about low content of fat influence the choice of women for 19 % ($p < 0.001$), it counts for 27% in the choice of men ($p < 0.001$). There was a positive increasing interest in information related to the level of omega-3 fatty acids with the age of respondents. Furthermore, elderly respondents are more involved in fish origin than younger respondents. The more consumers are young the more convenience criteria such as boneless and filleted fish are important.

Table 2: Relative importance for all respondents, women and men for each criterion – Trade off.

Attributes	Levels	Relative importance		
		Total (n=849)	For women (n=441)	For men (n=408)
Production method	wild fish	0.31 ***	0.29 ***	0.33 ***
	farmed fish	- 0.31 ***	- 0.29 ***	- 0.33 ***
Fat content	NON oily fish	0.23 ***	0.19 ***	0.27 ***
	-	- 0.23 ***	- 0.19 ***	- 0.27 ***
Preparation	filleted fish	0.18 ***	0.18 ***	0.17 ***
	whole fish	- 0.18 ***	- 0.18 ***	- 0.17 ***
Bones	boneless	0.16 ***	0.16 ***	0.16 ***
	-	- 0.16 ***	- 0.16 ***	- 0.16 ***
Conservative	fresh fish	0.12 ***	0.20 ***	0.04 ns
	frozen fish	- 0.12 ***	- 0.20 ***	- 0.04 ns
Fish sustainability	Sustainable fishery	0.04 ns	- 0.03 ns	- 0.05 ns
	-	- 0.04 ns	0.03 ns	0.05 ns
Omega-3	Omega-3	0.01 ns	0.02 ns	- 0.04 ns
	-	- 0.01 ns	- 0.02 ns	0.04 ns

P values: *** < 0.001 , ** < 0.01 , * < 0.05 , · < 0.1 , ns = not significant

Means-end chains model

10 attributes out of 47 were mentioned by more than a 13 % of respondent (Table 3). According to these results, consumers' seafood purchases are driven largely by quality considerations: almost half considered that freshness is an important attribute when purchasing fish (46 %) and a major part of them choose their fish according to the species (41 %). Then the price has to be reasonable (40 %) and the catch area mentioned (37 %). Other attributes have been mentioned such as taste, day of caught, boneless... Convenience criteria such as filleted fish or no bones fish led to functional consequences such as convenience and save of time. Two kind of consequences have been chosen by consumers: intrinsic and extrinsic consequences. First of all, consumers want a fish that is tasty, fresh and healthy, then, they expect seafood products to be time and money saving. Instrumental values related to modes of behaviour which are instrumental in achieving these end states: clean, logical, responsible Terminal values are concerned with preferred end-states of existence. The most important terminal

values (three top ones in table) were pleasure, satisfaction and safety. Thus, pleasure, satisfaction and safety seem to be powerful forces in governing consumer's behaviour.

Table 3: Attributes, consequences and values – Means-end chains.

Attributes	Consequences	Instrumental values	Terminal values
1. Freshness (46%)	1. Quality taste	1. Rational	1. Safety
2. Specie (41%)	2. Guarantee of freshness	2. Responsible	2. Pleasure
3. Reasonable price (40%)	3. Healthy product	3. Honest	3. Satisfaction
4. Place the fish has been caught (37%)	4. Good value for money	4. Clean	4. Freedom
5. Taste (23%)	5. Easy to prepare	5. Independent	5. Reasonableness
6. Day the fish has been caught (20%)	6. Save time	6. Respectful	6. Take of the people we like
7. Appearance (18%)	7. Origin	7. Helpful	7. Sustainable choice
8. Filleted fish (15%)			
9. Boneless (14%)			

DISCUSSION

When choosing a product consumers opt for the best compromise. They will choose the one which best meets their needs, the ideal product. According to our findings, the ideal fish for consumers is a wild fish, with low fat content, filleted, boneless and fresh.

We showed that consumers were extremely concerned about the method of fish production. In each study, wild caught fish was preferred to farmed fish. This result highlights a contradiction between consumers' needs and their behaviour. Indeed, in France, the seafood product the most consumed is salmon which comes from farms in more than a 90 % times. The reason of such a discrepancy may be the difference between farmed salmon prices and wild caught products.

Generally speaking, fresh seafood products are seen as healthy products. Sometimes, fish is even considered as a medicine, recommended by physicians [10]. In other words, some consumers eat seafood especially in order to be in good health. Olsen [11] showed that there is a significant and positive relationship between health involvement and seafood consumption. Yet, while most consumers consider fish as a healthy product, the link between the level of omega-3 fatty acids and nutritional benefits does not seem to be automatic for most of them.

As earlier studies showed [11][12], consumers do not want to spend time cooking fish and think it is unpleasant that's why convenience food purchase is increasing. Fish has to be filleted, boneless in order to fulfil consumers' needs. However there are

differences between consumers and there is a significant and positive relationship between age and perceived convenience of seafood [11].

According to our results, state of the oceans and fish resources did not frequently impact on buying behaviour. When choosing seafood products, consumers mainly focus on freshness and price. Respondents had to compromise. This is perhaps why sustainable label did not seem to be important for them. Nevertheless, some consumers would like to know if the fish they eat comes from sustainable fisheries, but when purchasing fish, this concern is not significant enough to affect their act of buying. A recent study showed that even though environmental concerns be secondary to quality and price as purchase criteria, they still rank high and concern is mounting for European consumers [13].

In these consumers' surveys, price's impact has not been taken into account. Nevertheless, it is sure that fish's price will influence purchasing act. Indeed, people can't afford everything they want.

In conclusion to these surveys, five general trends have been noted: safety, pleasure, health, convenience and ethics. Some of these needs are not fulfilled yet. This is may be why consumers do not buy products they do want. Several improvements have to be done in order to fulfil consumers' needs and to make seafood products more attractive.

ACKNOWLEDGEMENTS

The research reported in this article was carried out as a part of a project entitled "COGEPECHE: consumers' behaviour and needs of seafood products" funded by FranceAgriMer, la Région Bretagne and Aglia.

REFERENCES

- [1] Børresen T. (2008) Improving seafood products for the consumer. *Seafood plus*
- [2] Verbeke W., Pieniak Z., Brunsø K., Scholderer J., Olsen S.O (2008) Evaluating consumer information needs in the purchase of seafood products *In Improving seafood products for the consumer*. Edited by Børresen T. (2008).
- [3] Evrard Y., Pras B., Roux E. (1993) Market – Etudes et recherches en marketing. 1^{re} éd., Ed Nathan, collection « connaître et pratiquer la gestion, 629p.
- [4] Johnson R., (1974) Trade-off Analysis of Consumer Values. *Journal of Marketing Research*, vol.11, n°2 (May, 1974), pp.121-127.
- [5] Green P.E., Rao V.R. (1971) Conjoint Measurement for Quantifying Judgmental Data. *Journal of Marketing Research*, vol.8, n°3 (Aug., 1971), pp.355-363.
- [6] Green P.E., Krieger A.M., Wind Y. (2001) Thirty Years of Conjoint Analysis: Reflections and Prospects. *Interfaces*, vol.31, n°3, Marketing Engineering (May-June, 2001), pp.S56-S73
- [7] Gutman J. (1982) A Means-End Chain Model Based on Consumer Categorization processes. *The Journal of Marketing*, vol.46, n°2 (Spring, 1982), pp.60-72.
- [8] Reynolds T.J., Gutman J. (1988) Laddering theory, method, analysis, and interpretation. *Journal of Advertising Research*, n°28 (feb/march), pp.11-31.

[9] Reynolds T.J., Olson J.C (2001) Understanding Consumer Decision Making: The Means-End Approach to Marketing and Advertising Strategy. Lawrence Erlbaum Associates, Mahwah, NJ. P63, chap 3: Grunert K.G., Beckmann S.C., Sørensen E. Means-end chains and laddering: an inventory of problems and an agenda for research.

[10] Mesnildrey L., Lesueur M., Gouin S. (2009) Etude des attentes des consommateurs de produits de la mer frais et de leurs comportements selon les circuits de distribution. Analyse des opinions d'experts. COGEPECHE Report n°5, 36p.

[11] Olsen S.O. (2003) Understanding the relationship between age and seafood consumption: the mediating role of attitude, health involvement and convenience. *Food Quality and Preference* 14 (2003) pp.199-209.

[12] Boer M., McCarthy M.B (2003) Means-ends chain theory applied to Irish convenience food consumers. In: 83rd EAAE Seminar on "Food Quality Products in the advent of the 21st Century: Production, Demand and Public Policy", September 2003, Chania, Greece. Cahiers *Options Méditerranéennes*, n°64, pp.59-72

[13] Seafood Choices Alliance (2007) The European Marketplace for Sustainable Seafood. Seafood Choices Alliance, april 2007, 31p.