

**MEANS-END CHAINS FOR LOW  
INVOLVEMENT FOOD PRODUCTS  
– A STUDY OF DANISH CONSUMERS’  
COGNITIONS REGARDING  
DIFFERENT APPLICATIONS OF  
VEGETABLE OIL**

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CENTRE FOR MARKET SURVEILLANCE, RESEARCH AND STRATEGY FOR THE FOOD SECTOR



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## EXECUTIVE SUMMARY

1. In recent years, means-end chains – and the laddering technique as a way to measure these chains – have become popular in consumer research. At the same time, however, a substantial amount of critique regarding the validity of the theory as well as the method has been published.

2. Some of the critique relates to the use of laddering with low involvement products, neglect of the situational factor when making laddering interviews, and the lack of a link from means-ends chains to constructs which are closer to the actual behaviour of consumers. Furthermore 'hierarchical value maps', which are normally used for analysing laddering data, have been criticised for being questionable representations of raw data.

3. This paper reports on a study in which laddering was used to measure means-end chains for a low involvement product (vegetable oil), explicitly controlling for the situation. Also, a possible way of linking means-ends data to overall product perceptions and alternatives to the 'hierarchical value map' analysis are presented.

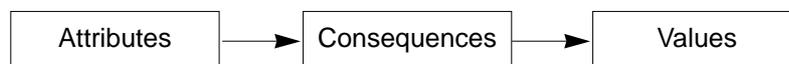
4. The study presented is part of the Danish research project *Rape seed oil for human consumption*. Although modern Danish rape seed oil has nutritional qualities which are comparable to the best vegetable oils on the market, and in spite of the fact that rape seed oil covers as much as one third of the Danish demand for vegetable oil, it still leads an anonymous life in the mind of the Danish food consumer.

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## MEANS-END CHAIN THEORY: THE ROLE OF LOW INVOLVEMENT AND SITUATIONAL FACTOR

Means-end chain (MEC) theory describes the consumer's knowledge of a product or group of products as a hierarchical cognitive structure, consisting of a number of semantic categories at various levels of abstraction, ie specific product attributes, the consequences of these, and personal values. Means-end theory is based on the assumption that the consumer's motives for demanding specific product attributes can be explained by his/her expectations on whether they will lead to the attainment of positive consequences and to the consumer's personal values. Figure 1 illustrates a means-end model with three levels of abstraction.

Figure 1. The means-end chain model



*Attributes* are the concrete characteristics of the product which are important to the consumer's preferences.

*Consequences* are expected functional and psychological implications of the consumer's purchase, use, or disposal of products.

*Values* are the consumer's existential goals. They guide the consumer's attitudes and behaviour.

MEC analysis, ie elicitation of consumers' means-end chains, is normally performed by means of the so-called laddering interview technique. With this technique the interviewer takes point of departure in attributes of importance to the respondent's choice of products within a given set. The interviewer asks the respondent why these attributes are important. The answers are probed with further why-questions until the respondent's personal values are reached or until the respondent is unable to come up with further answers.

Substantial doubt has been raised regarding the usefulness and validity of MEC analysis for low involvement products (eg, Durgee, 1986; Grunert & Grunert, 1995). As will be clear from the discussion below we believe that from a marketing point of view MEC-analysis of low involvement products can be very useful, and that the validity problems can be counteracted.

According to Krugman (1967), a consumer's involvement in a product can be measured as the number of conscious bridging experiences between the product and the consumer's self knowledge. Because personal values represent a person's knowledge about himself (Rokeach, 1973), the involvement concept can be translated to MEC terminology as referring to the number and the strength of cognitive links between product attributes and personal values. According to the theory, for high involvement products, the abstract end of the means-ends

structure (see figure 1) is more complex than for low involvement products. It is important to note that this does not imply that the MECs for low involvement products could not be elaborate on the lower levels of abstraction (ie, attributes and consequences). Although the consumers' associations between their personal values and low involvement products must furthermore be assumed to be few and weak, it must also be expected that some aspects of low involvement products – and low involvement foods in particular, eg, health-related aspects – will be associated with personal values. MEC analysis can be used to clarify which – if any – of the product attributes are associated to personal values.

In MEC-based descriptions of consumer behaviour (eg, Peter & Olson, 1993), the original concept of involvement (Krugman, 1967) is most often divided into two terms, *permanent involvement* and *situational involvement*. Although there probably is some kind of permanent association between the attributes of a product like vegetable oil and the value-level of the MECs (eg, health values), most of the associations must be expected to vary in importance between different usage contexts (everyday meal, special occasion) and/or for different applications (baking, frying, salad dressing etc.). In an interview situation, however, the possibility of situational variance makes it unclear for the interviewer and the respondent which particular situation actually 'guides' the answers and questions, respectively.

In relation to this, Grunert and Grunert (1995) mention that the continuous strive in the interview to reach more abstract levels of cognition, which characterises the laddering method, tends to promote strategic cognitive processes. This implies the risk that the respondent creates associations which are inconsistent with the associations that guide the actual behaviour of the respondent. Based on the argument that respondents are more prone to process the answers strategically, when the involvement in the product in question is either especially low or especially high, Grunert and Grunert (1995) recommend that laddering should preferably only be used when involvement is at a moderate level.

Bech-Larsen (1995) argues that it might be possible to counteract the strategic bias in low involvement laddering by guiding the cognitive processes of the respondent in the direction of an 'authentic' situation. One way of doing this is to specify a situational scenario for the respondent. Thus, a pre-interview specification, and a substantiation throughout the interview, of a situation, could help the respondent focus his attention on the cognitive categories (ie, attributes, consequences and values) which would be relevant in a similar 'authentic' situation. In other words, the specification of a situation could help improve the ecological validity of the study.

In one of the first attempts to conceptualise the situational contingencies of consumer behaviour (Belk, 1975), the situation (eg, purpose or context of purchase) was modelled as a factor, which, together with the product in question, influences the cognitive processes and eventually the behaviour of the consumer. In a similar manner, Gutman (1982) integrated situational contingencies in MEC theory as a factor that influences which personal values and consequences, and consequently which product attributes, are important for the consumer. More recently, Pieters, Steenkamp and Wedel (1992) proposed a set of approaches for the study of situational differences in MECs.

## PURPOSE OF THE STUDY

We used vegetable oil as an example of a low involvement product<sup>1</sup>, as we were interested in finding out whether the laddering method would lead to valid, useful results in spite of the low level of involvement. In addition, we wanted to find out how a specified situational scenario affects the results of a laddering study. Finally, we wanted to experiment with a way of linking MEC data to overall product perceptions.

For food products, it is possible to distinguish between at least two different situational factors, which can influence consumers' means-end chains, namely application and context of usage. In our study, *context of usage* refers to environmental factors related to the occasion (eg, everyday or festive), whereas *type of application* refers to the specific purpose of a product (as ingredient in a dish or in the process of preparation). To decide which of these two situational factors to concentrate on, we conducted three focus group interviews. The results indicated that there were no differences in oil preferences regarding usage contexts (eg, everyday meal versus festive occasion), but that this tended to be the case regarding different applications. Based on these results we decided to concentrate on two different applications of vegetable oil, namely as an ingredient in home-made salad dressings and as a frying agent.

## DATA COLLECTION

In April 1995, 90 interviews were conducted in-house in Copenhagen. All the respondents were women between 20 and 50 years of age, who had at least one child living at home, and who were regular buyers of vegetable oil. The respondents were divided into three groups of 30 respondents each. For one group, the application scenario was specified as oil for salad dressing. For the second group, the application scenario was specified as oil for frying. For the third group there was no application scenario.

The interview consisted of three parts, with the purpose of clarifying: (a) which attributes did the respondent use to distinguish between alternative vegetable oils; (b) the importance of these attributes for product preferences; and (c) the type of consequences and personal values which motivated the respondents' interest in the attributes mentioned in connection with a). The three parts of the interview are discussed further below (the interview guide is described in its full length in appendix A).

*a) Elicitation of attributes.* Seven different types of vegetable oils: plain olive oil, virgin olive oil, corn oil, sunflower oil, grape seed oil, rape seed oil and salad and cooking oil (unspecified produce) were placed in front of the respondent. The respondent was asked to rank the oils according to preference regarding one of the three application scenarios. Subsequently the respondent was encouraged to mention all possible reasons for this ranking.

*b) Evaluation of significance.* The respondent was shown a card with a scale from 0 to 3, and was asked to evaluate the significance of the attributes recorded for

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<sup>1</sup> Focus group interviews conducted prior to this study showed that Danish consumers tend to buy vegetable oil out of habit and that their knowledge of the products in questions is rather limited.

the choice of vegetable oil. The interviewer read aloud each of the attributes recorded, and the respondent answered with 0, 1, 2 or 3 according to whether the attribute had none, less, some or great significance for her preferences.

*c) Laddering.* For all attributes that were given the significance 1, 2 and 3 the respondent was asked a number of why-questions: Why is (the attribute) important to you ... The answer to this question was followed by another question: Why is this important to you ..... and so on until the respondent was no longer able to answer. In this way the respondent's associations between product attributes, consequences and personal values were mapped.

## **ANALYSIS AND RESULTS**

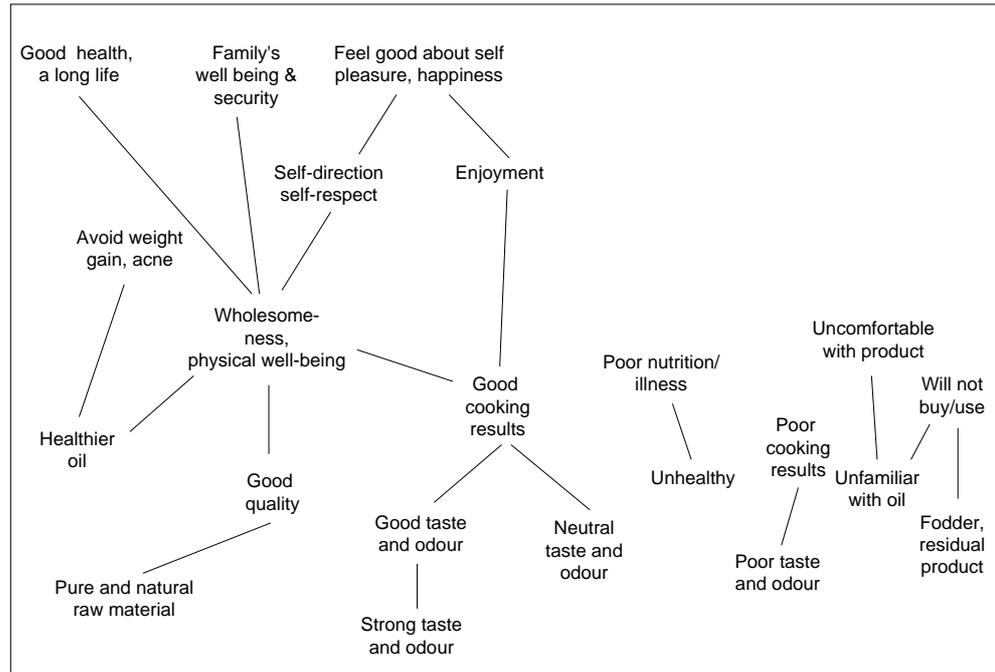
First the general results of the study will be discussed. Then the results regarding situational influences are presented.

The first stage in the analysis of laddering data is a content analysis of the means-end chains obtained from the individual respondents. The content analysis of the 90 laddering interviews resulted in 2543 idiosyncratic concepts being registered and categorised under 60 labels (see appendix B).

Most often, categorised laddering data are aggregated and interpreted by means of *hierarchical value maps* (HVM) (Reynolds & Gutman, 1988). The hierarchical value map gives a graphic illustration of the concepts and associations most frequently mentioned by the respondents. An association is only included in a hierarchical value map if it can meet a minimum frequency requirement, a so-called cut-off criterion. We chose a cut-off level of 15 for this study. As a result all associations mentioned by at least fifteen (ie 17%) of the respondents are included in the map in figure 2.

From figure 2 it can be seen that *wholesomeness/physical well-being* tends to be a very central issue when consumers think about vegetable oil. As many as 69 (78%) of the respondents mentioned *wholesomeness, physical well-being*. (See Appendix B) *Feel good about self* is the value mentioned most often, and this category is mainly associated with *enjoyment, self direction/self respect* and the health related categories mentioned above. Thus, for vegetable oils, the common conflict between *tasty* and *healthy* seems to be non-existent.

Figure 2. HVM for all 90 respondents (cut-off = 15)



### Analysis of situational influences on means-end chains

The first step taken in the study of possible situational influences was to assess to what extent the three groups of 30 respondents could be re-identified based on differences in their MECs. To do this, a cluster analysis based on the city block distance measure was carried out. This procedure resulted in one big cluster (65 respondents) and two small clusters (of 14 and 11 respondents, respectively). Different clustering procedures were applied, but the results were approximately the same. As a result, a re-identification of the three groups of respondents was not possible, indicating only weak differences between the results of the three groups of respondents.

As mentioned, the idiosyncratic terms used by the 90 respondents were content analysed and classified in categories according to their semantic similarity. According to the content analysis, there are only small differences between the categories mentioned and the number of respondents who mention the particular categories in the three different scenarios (see appendix B). However, a few differences can be found. For example, the category *Pure and natural raw material* is mentioned by more respondents in the salad dressing scenario than in the frying and neutral scenarios. This may be caused by the fact that the oil in the salad dressing scenario is an ingredient, where the consumer will be exposed to the sensory qualities of the oil in a much more direct way than in the frying scenario. Another difference is that the category *price* is mentioned by more respondents in the frying scenario than in the salad dressing and neutral scenarios – in spite of the fact that the products used were not price-marked.

The complexity of a MEC structure can be measured in a number of ways (Pieters, Steenkamp & Wedel, 1992). One way is to count the number of semantic

categories in the structure, or the number of associations between the categories. It must be kept in mind, however, that these measures are strongly dependent on the content analysis. Therefore, counting categories or associations cannot be used to measure the complexity of a cognitive structure in any absolute sense, but in so far as two different structures are the result of the same content analysis, it should be possible to assess their relative complexity.

In table 1 the number of categories mentioned and the direct associations between pairs of categories for the three situations are specified.

*Table 1. Number of categories and direct links in the three situations*

	Salad dressing	Neutral	Frying
Categories	536	495	543
Links	544	523	548

The differences are small, but there seems to be a tendency towards more complex means-end structures in the two cases where scenarios were specified (salad dressing and frying). As regards the contents of the means-end chains for the three application scenarios the same tendency seems to hold good. According to the three hierarchical value maps (see figure 3) for the three application scenarios, there seems to be a difference in the complexity in the semantic content of the means-end chains according to whether a scenario is specified or not. Consequently, in the cases with specified applications, the concepts used by the respondents seem to be of greater semantic precision.

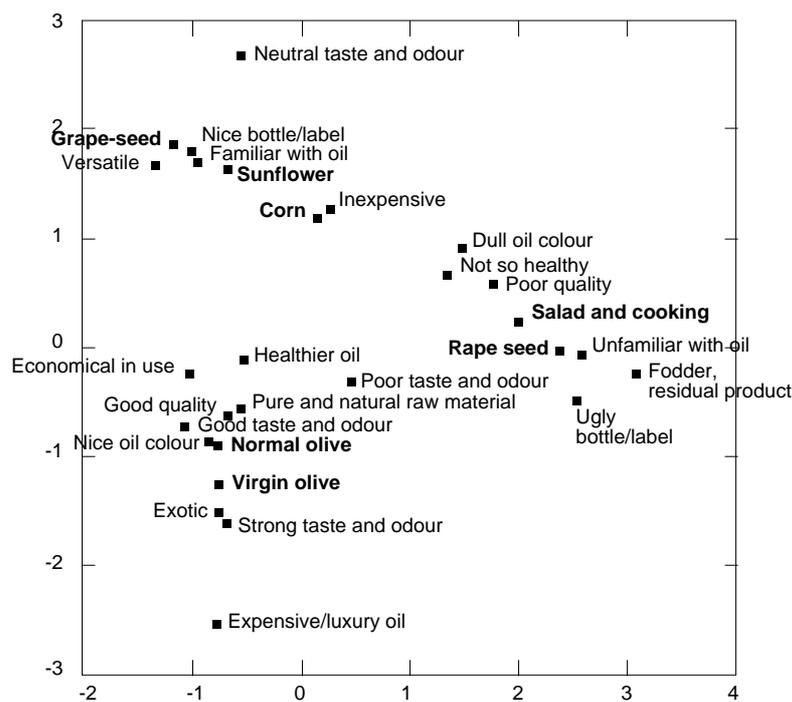


## Means-end data and product perceptions

One of the weaknesses of the traditional analysis of laddering data is the lack of connection between the means-end chains on one side and constructs which are closer to the actual behaviour of consumers, as, eg, overall product perceptions on the other. Figure 4 shows the results of a multiple correspondence analysis (MCA) (eg, Green, Krieger & Carroll, 1987), which illustrates the perceived similarities between the seven oils, and the attributes mentioned in the laddering interviews.

The MCA input data was a matrix containing the number of respondents who mentioned the different attributes as characteristics of each of the seven oils. Based on this matrix, a distance measure (Pearson's chi-square) was calculated as the difference between the expected (under the assumption of independence) and the actual score in each cell. The distances calculated are represented in the perceptual map in figure 4. Consequences and values are not included in the map, but a comparison with the maps in Appendix C reveals which consequences and values are most strongly associated with specific oils.

Figure 4. MCA for the oils and their attributes



According to the results in figure 4, the seven oils seem to belong to three different groups: (a) the two kinds of olive oil, (b) grape seed, sunflower and corn oil, and (c) salad and cooking oil and rape seed oil. Based on our knowledge of the Danish market for vegetable oil, this grouping seems plausible. Furthermore the associations between oils and attributes are confirmed by the results illustrated in the hierarchical value maps for each of the seven oils (see Appendix C).

*Group (a).* The olive oils are generally related to the most positive attributes (eg, *fine taste and odour, purity, and health*). However, the attribute *poor taste and*

*odour* is also quite close to the olive oils. This indicates that Danish consumers are divided into two segments, namely those who enjoy the strong taste of olive oil, and those who do not. Furthermore, the closeness between *group (a)* and the attribute *exotic* reveals the qualities of olive oil that are associated with faraway places, holidays and sunshine.

*Group (b)* (grape seed, sunflower and corn) is mainly associated with attributes like *price*, *knowledge* and *versatile* which could be characterised as rational. Seemingly the respondents liked the labels of this group the most.

Most of the respondents associate rape seed and salad and cooking oil (*group (c)*) with negative attributes (*unhealthy*, *poor taste*, *fodder* etc.). At the same time many respondents say that they *don't know* the oils in this group. This may partly explain the negative connotations, but it must not be neglected that many of the respondents associate especially rape seed oil with inferior product quality, animal food and the like.

### Internal validity of the data and the analysis

According to MEC theory (eg, Reynolds & Gutman, 1988), the attributes which are associated with personal values are more important for the consumer than those which are not. Table 2 shows how the importance rating given to the attributes is related to whether the ensuing means-end chain reached the value level.

Table 2. Importance of attribute and number of ladders reaching value level

Importance	Reached value level		
	Yes	No	Total
1	39	49	88
2	111	132	243
3	277	172	449
Total	353	427	780

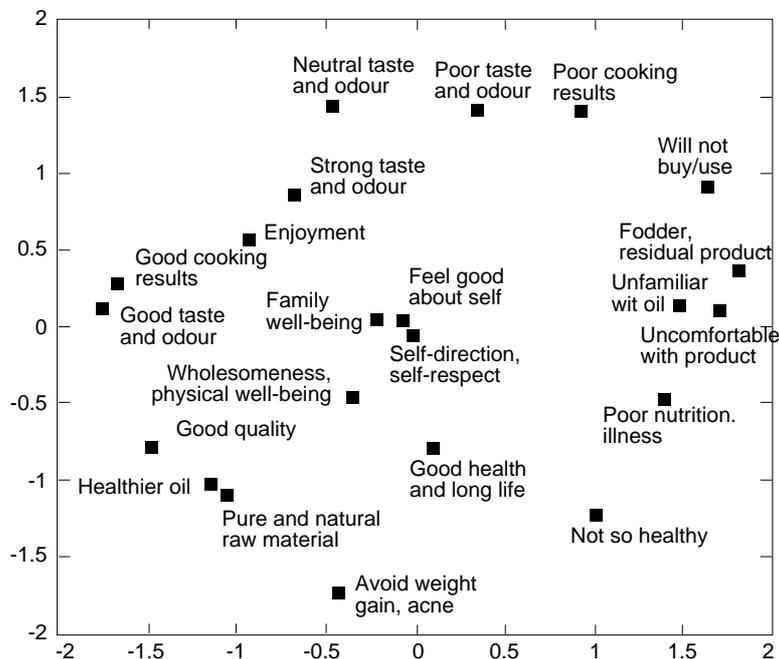
The result of the Pearson's chi-square test for independence is  $p < 0.00003$ . This, as well as the inspection of the frequencies in table 2, implies that the internal validity of the study is satisfactory. Although the test cannot be seen as a confirmation of the external validity of the study, it indicates that the laddering method is feasible for the study of consumer cognitions of low involvement products, as for instance vegetable oils.

The *hierarchical value map* (HVM) analysis may give a distorted picture of the original structure of the collected data. The reason is that an HVM is drawn according to a rule of 'non-redundant' links. As an example, lets imagine an HVM analysis with a cut-off level of 15 as in figure 2. Here the rule of 'non-redundancy' could imply that a direct link mentioned by all 90 respondents would not be illustrated, if 15 or more of the respondents also mentioned some kind of intermediate category. As a result, the indirect links are favoured in an HVM analysis.

Apart from the problem of distorted representation of raw data, which is mentioned by Grunert and Grunert (1995), the 'non-redundancy' rule also implies the lack of opportunity to assess whether the theoretical framework, ie the means-end chain theory, is feasible for the problem studied. Thus, the 'non-redundancy' rule implies that the resulting cognitive map may conceal structures which could potentially invalidate the hierarchical structure of the cognitive network, which is postulated by the MEC theory.

To compensate for the possible bias of the HVM, a multidimensional scaling analysis (MDS) was conducted. The distance measure used was the sum of direct and indirect associations between the categories (attributes, consequences and values) represented in figure 2.

Figure 5. MDS for all 90 respondents (cut off = 15)



Stress for matrix = 0,186, RSQ = 0,799

We have chosen to operate with only two dimensions, although the stress value is rather large. The reason is that the primary aim of the following is to discuss an alternative to the HVM analysis; the secondary aim is to gain new insight into the data structure. Figure 5 reveals that there seems to be a semantic system as to how the different categories are positioned. Categories related to health and taste are placed at the bottom and at the top of the map, respectively. Likewise, the semantic categories to the right side are more negative than those on the left. Caution should be exercised regarding the semantic interpretation of such patterns, however. The laddering method primarily uncovers instrumental associations. These are different from pure semantic associations, but they often contain a semantic element. As an example take the categories *neutral taste and odour* and *strong taste and odour* at the top centre of the figure. The reason for the proximity of these attributes is not that they have an instrumental association but that they lead to the same type of consequences – only for different respondents.

The fact that the value categories are placed at the centre of the map illustrates that these are more often cognitively connected to each other and to more, different categories than the categories at lower levels of abstraction (attributes and consequences). This evidence is in favour of a hierarchical structure and of the centrality of personal values regarding the consumer's cognitive network for vegetable oils. It should not be ignored, however, that the hierarchical structure of the associations is an important consequence of the interviewing procedure, ie the focus on the instrumentality of the attributes.

With regard to the possibility of distortion induced by 'non-redundancy', the MDS task seems to confirm the results shown in figure 2. Most of the links in figure 2 are supported by the closeness of categories in figure 5. Still, there are small differences. For example in figure 5 the *purity* of the oil is closer connected to *health* than seems to be the case from the associative structure presented in figure 2.

## CONCLUSIONS

As mentioned in the introduction, means-end chains and the laddering technique as a way to measure them have become popular in consumer research. Apart from the fact that it is easy to implement the method, the reason for the popularity is that laddering makes it possible to combine qualitative mapping of preferences and motives with a quantitative analysis. However, this combination leads to a number of problems as well, some of which have been discussed in this paper.

It has been proposed that laddering should be restricted to high involvement items. The results presented in this paper suggest that laddering can give valuable and valid results also for low involvement products. Furthermore, the analysis of laddering data has been criticised for neglecting the connection from means-ends chains to constructs which are closer to the actual behaviour of consumers. In this paper, one easily implementable approach to the connection of means-end chains to product perceptions was presented. Finally, the influence of the situational influence on means-end chains was studied. According to the results, differences between various situational scenarios were small, but the tendency seems to be that the concepts mentioned by the respondent have a higher semantic precision, when situational scenarios are specified. And perhaps more important: the ecological validity must – all other things being equal – be expected to improve, when realistic scenarios are specified.

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## **APPENDIX A**

### **Guide for laddering interview concerning rape seed oil**

#### **1. General introduction**

*At the moment we are working on a survey on consumption of vegetable oils. One of the things we would like to know is **how** people rank different types of vegetable oils and **why** they do so.*

*If you are interested in knowing more about the objective of this survey and who is behind etc., I can tell you more about it – but not until afterwards.*

*This interview, which I am going to make with you, is divided into two parts. First I will ask you about your consumption of vegetable oils and for what purposes you use them. Then I will show you different types of vegetable oils and I would like to hear your opinion about them.*

#### **2. Opening questions concerning consumption**

*What types of vegetable oils have you/your family used within the past month?*

*For what purposes do you use these vegetable oils?*

*How much vegetable oil do you/your family use per month?*

#### **3. Registration of attributes**

*Seven different types of vegetable oils: olive oil (ordinary), olive oil (virgin), corn oil, sunflower oil, grape seed oil, salad and cooking oil and rape seed oil are placed in front of the respondent.*

The respondent is asked to rank the oils according to preference.

*I will ask you to sort these oils into three groups. In the first group you put the one or more oils that you prefer. In the second group you put the one or more oils that you would prefer if you could not get any of the oils from the first group. In the third group you put the one or more oils that you do not like very much.*

Then the respondent is asked:

*How do the oils from the first group differ from the ones in the group of oils that you do not like very much? Do the two groups differ in other ways?*

*How do the vegetable oils in the group of preferred oils differ from the products in the group of oils that you would choose if you could not get any of the preferred oils? Do the two groups differ in other ways?*

*How do the vegetable oils in the group of oils you would prefer if you could not get any of the products from the group of preferred oils differ from the group of oils that you do not like very much? Do the two groups differ in other ways?*

These questions are repeated a number of times (in other words) until the respondent cannot come up with more differences.

Now the respondent is asked to rank the products in the group of preferred oils according to preference (if there is more than one product in this group).

*Which of these oils do you prefer? What makes you prefer this product to the others in the group? Do you have other reasons for choosing this product? If you could not get this product, which one would you choose then? Why? Etc.*

This procedure is repeated for the two other groups. For the group of vegetable oils that the consumer likes least, the questions can be formulated the other way around, eg *What makes you like this product less...?*

All attributes mentioned are recorded in a matrix. In the cases where the attributes refer to more than one of the seven oils, they are added to the first oil and the others are marked with an x.

#### **4. Evaluation of significance**

The respondent is given a card with a scale from 0 to 3, where the significance of the grades are (none, less, some and great), and with this scale she is asked to evaluate the significance of the recorded attributes (see item no. 4) according to the choice of vegetable oil. This means that the interviewer reads aloud each of the recorded attributes in table A and that the respondent then answers with 0, 1, 2 or 3 according to significance valued: none, less, some or great referring to the rank of preference. The interviewer records the numbers 0-3 in table A along with the relevant attribute.

In connection with this part of the interview, the interviewer makes sure that the attributes mentioned have been conceived and formulated in accordance with the respondent's intentions.

#### **5. Laddering interview**

All attributes that have been given the significance 1, 2 and 3 are recorded in the bottom row of a matrix. If some of the attributes refer to more abstract statements (eg tastes good, good quality, looks nice), the respondent is asked to concretise his/her statement, eg:

*Why does this olive oil taste good?*

If the respondent in this connection mentions more concrete attributes, they are all recorded into the bottom row of a matrix.

Then the interviewing method is introduced:

*Now I will ask you about why you chose one type of vegetable oil rather than the other.*

*I will ask you in a way where I continue to pursue some leads until you yourself think that there is nothing more to say. You may think that I am rather prying, but I hope that you are game. You are not supposed to give long and thorough answers. I am more interested in your spontaneous answering. Perhaps you will find that it is a rather curt way of interviewing, but if you like, we can talk a little about how you felt about the interview afterwards – do you think it was fun or unpleasant or...*

*I would like to emphasise that there are no right or wrong answers. I would like you to answer my questions as spontaneously and honestly as possible.*

*But if you think it is too foolish to try to pursue something you have said or if you think that you are beginning to repeat yourself, please say so.*

The laddering interview is now carried out. On the basis of the attributes in the bottom row of the matrix, the respondent is asked a number of questions of the type: *Why is it important to you that...*

When all attributes from the bottom row of the matrix have been used, the respondent is asked: *Did you think of a/some specific purpose(s) when you answered the questions? Which?*

## **6. Demographic questions**

How old are you?

What is your latest completed school education?

What is your vocational/supplementary education?

What is your occupation?

What is the present total income of the family?

How much of the daily shopping do you do?

Date:

Month:

District:

Municipality:

Interviewer's no.:

## **Background**

Until now, Danish rape seed oil has been marketed as a fairly anonymous product. But Danish rape seed oil has a number of good and healthy qualities. Therefore, the producers are interested in selling rape seed oil as an alternative to other healthy vegetable oils – eg olive oil.

Before a campaign is launched, the producers are interested in knowing more about what consumers value when they buy vegetable oil. One way of finding out, is to interview consumers the way we just did now.

The way this interview is carried out – the way of asking – is a method that has not been used very much yet. Therefore, this interview is also a study of a method of certain research interest. Danish researchers at the Aarhus School of Business are very interested in finding out whether an interview like this can be used to measure the opinions and values of consumers.

## APPENDIX B

The 90 respondents divided into three groups with 30 respondents in each. The numbers show how many respondents mentioned the category

	Frying	Neutral	Salad dressing
<b>Attributes</b>			
Healthier oil	21	23	25
Good taste, odour and texture	19	23	23
Good quality	12	18	17
Strong taste and odour	17	13	15
Pure and natural raw material	11	13	15
Do not know	17	13	18
Poor quality	15	8	10
Fodder, residual product	12	10	14
Know product, familiar with oil	15	10	15
Neutral taste and odour	13	10	12
Not so healthy/dangerous	11	8	8
Poor taste, odour and texture	11	11	14
Expensive/luxury oil	12	11	7
Nice bottle/label	8	5	8
Inexpensive	9	5	6
Versatile oil	6	8	3
Ugly bottle/label	3	3	7
Danish product	4	8	4
Not transparent raw material	3	5	7
Dull oil colour	4	4	3
Exotic	3	2	3
Not versatile oil	5	2	3
Economical in use	1	2	4
Nice colour	1	0	4
Environmentally sound bottle/label	1	1	1
Poor information on label	1	1	1
<b>Total</b>	<b>235</b>	<b>217</b>	<b>24</b>

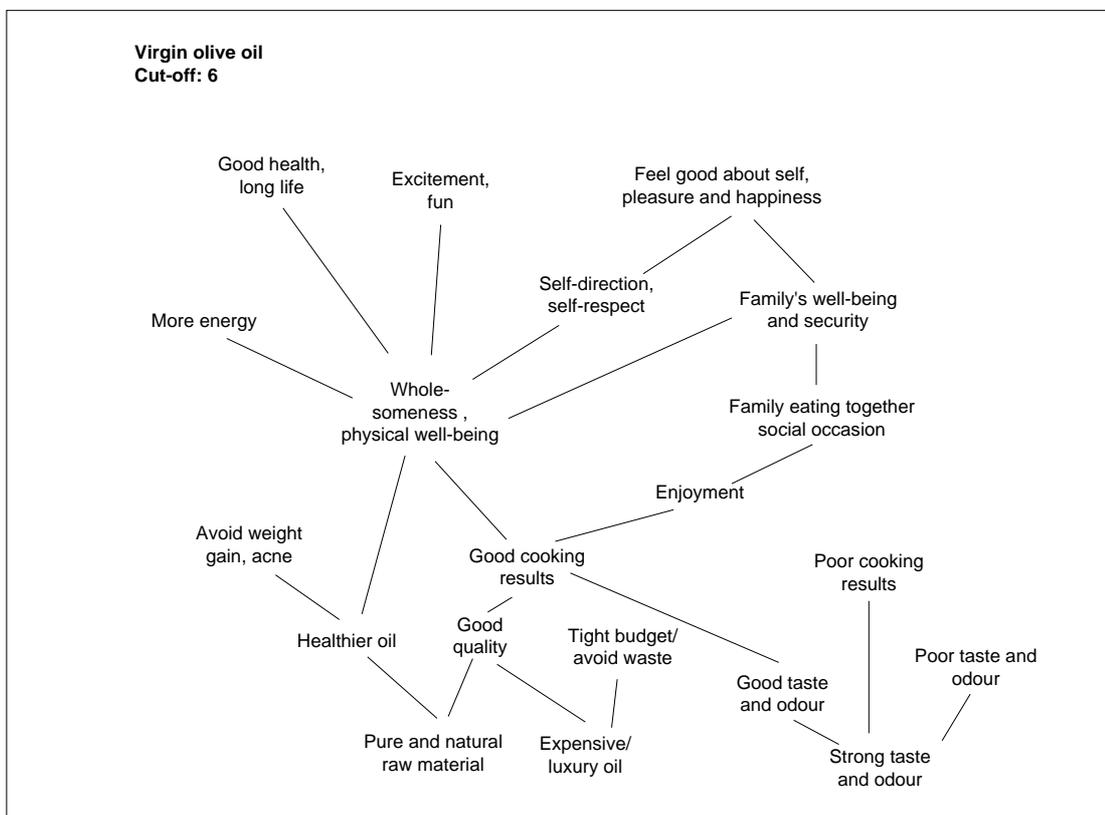
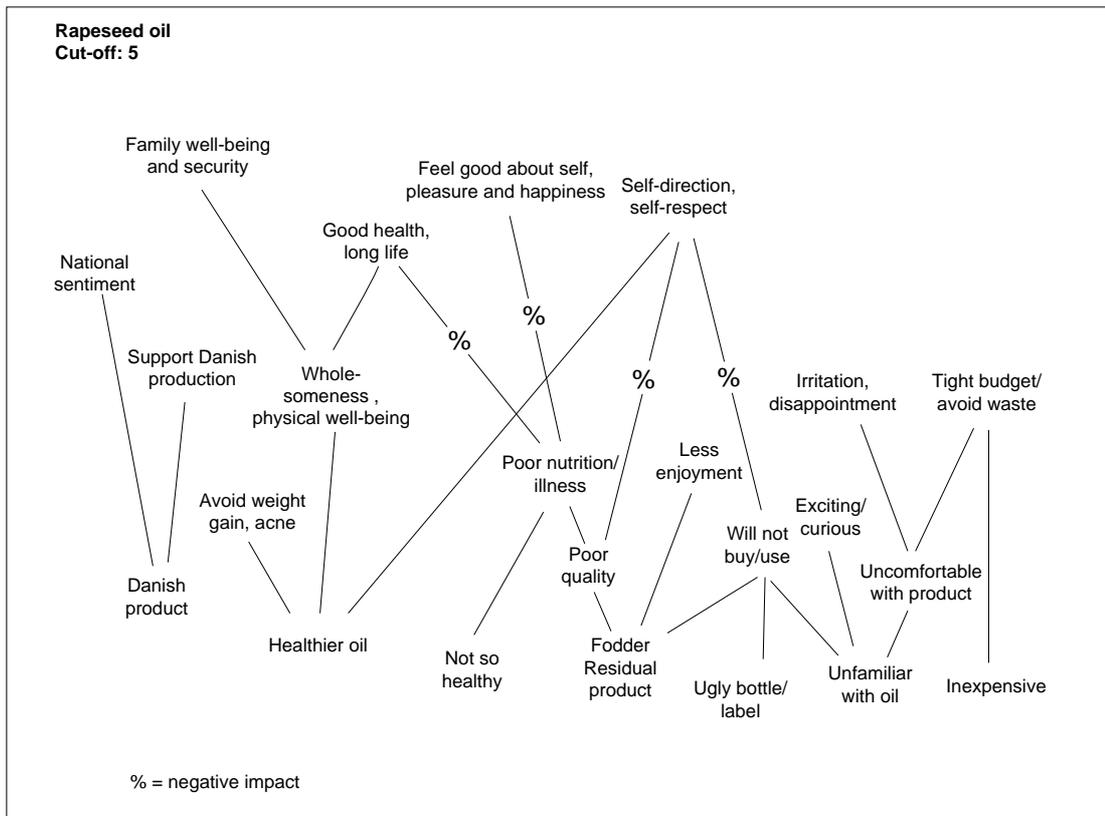
**Consequences**

Wholesomeness, physical well-being	20	24	25
Good cooking results	20	20	20
Enjoyment	19	22	17
Will not buy/use	17	15	21
Tight budget – avoid waste	15	13	9
Uncomfortable with product	14	10	15
Comfortable with product	8	11	11
Poor cooking results	11	10	11
Poor nutrition/illness	11	10	7
Less enjoyment	11	8	12
Avoid weight gain, acne	5	7	11
More energy	7	3	9
Time saving, time for the family	6	7	9
Easy to buy/use	6	8	5
Irritation – disappointment	5	6	7
Exciting	4	7	7
Spend time with the family	7	6	4
My family and I like it	5	4	4
Better conditions for education & career	2	3	2
Time consuming	2	4	3
Less energy	2	3	3
Only oneproduct necessary	4	3	1
Support Danish production	3	3	0
Reduces time spent with family	2	3	1
Space considerations	2	3	1
Difficult to buy/use	3	1	1
The family does not like	2	2	0
Total	213	216	216

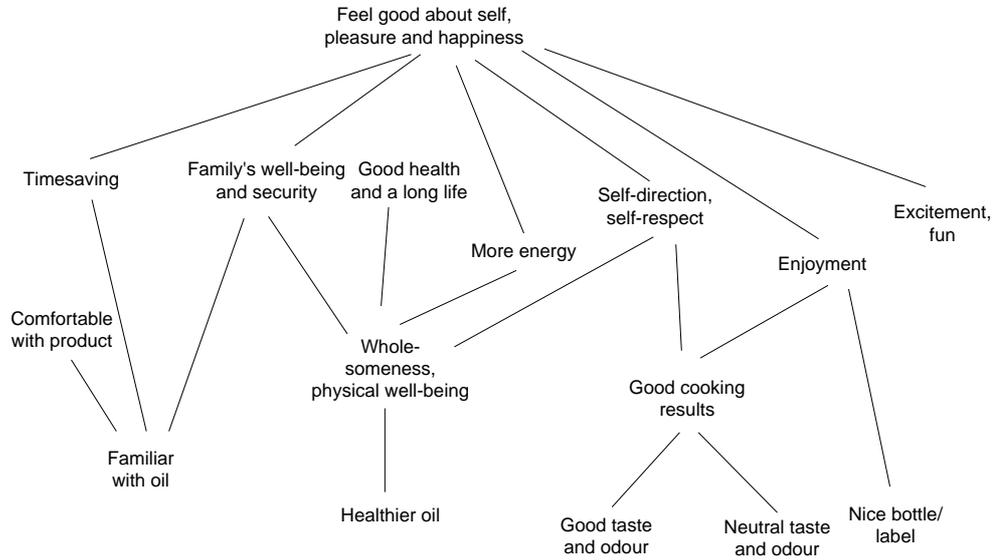
**Values**

Feel good about self, pleasure, happiness	26	25	21
Self-direction, self-respect	20	17	21
Family's well-being and security	15	14	13
Good healt, long life	15	11	13
Development, activity	13	11	9
Solidarity with nature & inner harmony	6	9	6
National sentiment	1	3	2
Total	96	90	85

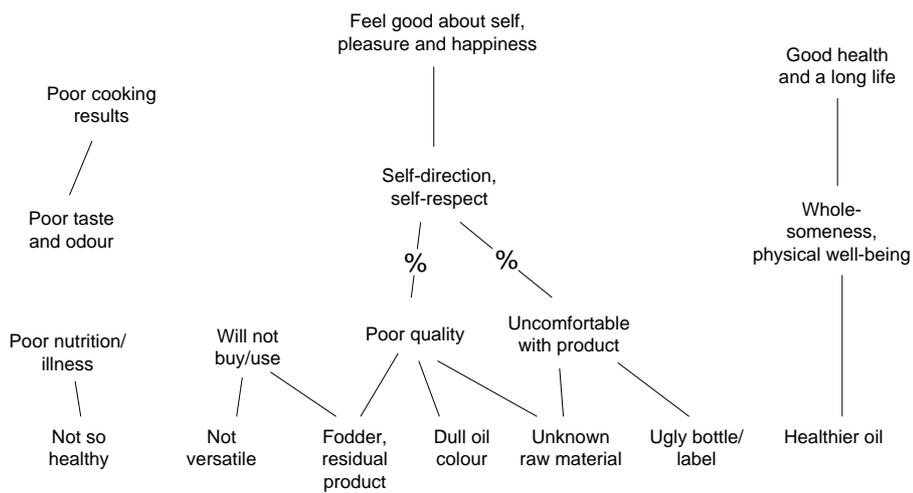
## APPENDIX C



**Sunflower oil**  
Cut-off: 4

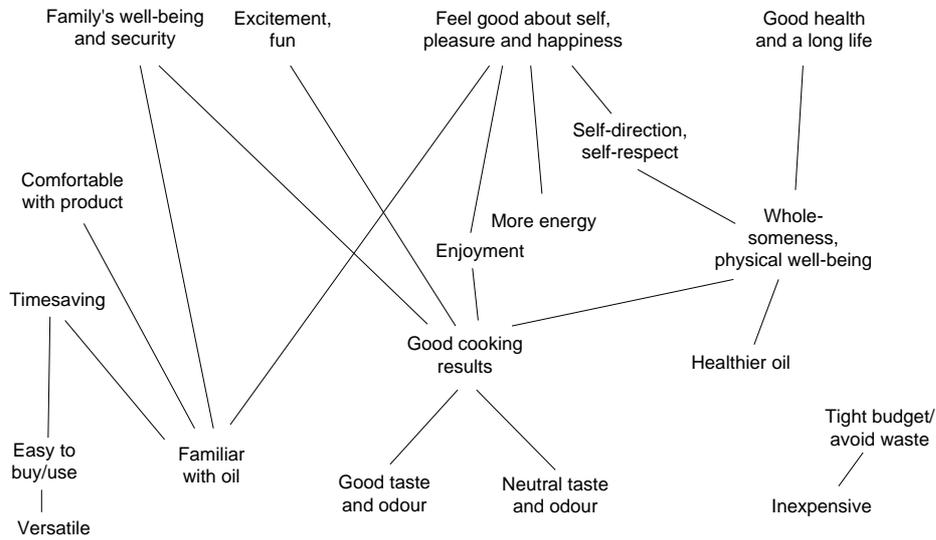


**Salad and cooking oil**  
Cut-off: 5

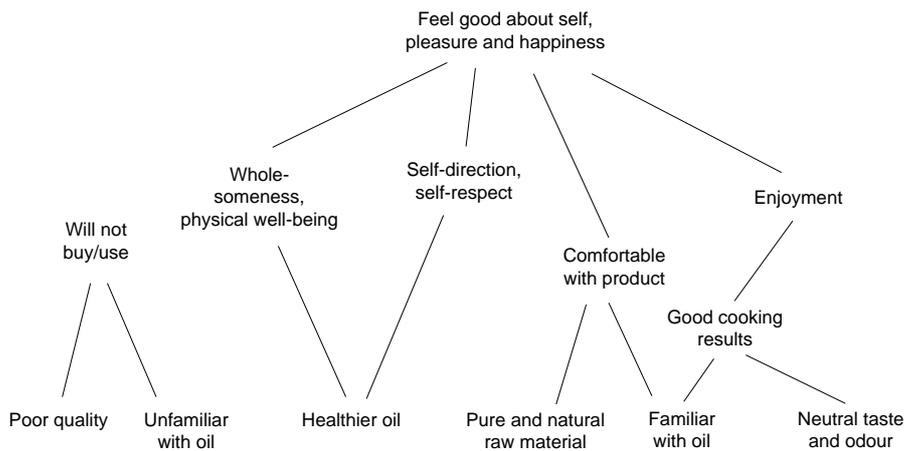


% = negative impact

**Grape seed oil**  
Cut-off: 6



**Corn oil**  
Cut-off: 5



**Normal olive oil**  
**Cut-off: 6**

