

## **Consideration set size and choice in fish consumption: The influence of attitude, knowledge, convenience, and category presentation**



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## **Abstract**

*Purpose* – Three main objectives are defined in this thesis: 1) To determine the extent to which the nature of a consideration set affects consumer choice; 2) To investigate how consumer attitudes, knowledge, and convenience motivations affect the formation of a consideration set; and 3) To investigate how category presentation moderates the relationship between convenience motivations and consideration set composition.

*Design/methodology/approach* – Different research designs, several data sources, and different analytical procedures are employed in four papers. Papers #1, #2, and #3 use survey designs and are based on two large ( $n > 1000$ ) cross-sectional datasets. Data in these papers are analyzed using structural equation modeling in LISREL 8.72. Paper #4 is based on two laboratory experiments ( $n = 150$ ) with  $2 \times 2$  between-subject factorial designs. Data in Paper #4 are analyzed using a two-way ANOVA in SPSS.

*Findings and contribution* – This dissertation shows that consideration set size is important in explaining a consumer's choice and consumption of food, and is influenced by individual consumer variables such as attitude, knowledge, perceived inconvenience, and convenience orientation. Procedural knowledge is shown to be especially important for the number of food alternatives considered. In addition, the research in this dissertation demonstrates how situational and occasional factors such as availability and the urge to save time or effort (convenience) can affect aspects of consideration set attributes: stability, variety, and size. Importantly, the studies in this dissertation show that these relationships are moderated by the ways food is presented to the consumer (category presentation). While the overall findings are in accordance with previous research on consideration sets, this dissertation builds on and extends the past research by exploring the relationship between convenience and consideration set characteristics. The moderating influence of category presentation on the relationship between convenience motivations and consideration set characteristics is an especially important contribution of this dissertation research.

*Practical implications* – Because the likelihood of being chosen is affected by the size of the consideration set, food producers should advocate that consumers should consider preparing their products in as many ways and in as many combinations with

side ingredients as is reasonable. Furthermore, food marketers should focus on activities that enhance the consumer's direct product experience through testing, trials, tasting, and samples, since procedural knowledge is shown to be of major importance for the number of considered alternatives.

If marketers can identify cut-off values of salient attributes such as the time and effort spent on dinner preparation for a particular segment, they will have the ability to position products in accordance with these factors and thereby enhance the possibility of being considered. Furthermore, the moderating effect of category presentation on the relationship between the urge to save time and consideration set (stability, variety, and size) has several practical implications for marketing issues, such as advertising, placement in the retail store, shelf labeling, product development, and package labeling.

*Research limitations* – A limitation of this study is that the relationship between the consideration set and choice was only tested for size dimensions of the consideration set. Future research may focus on the relationship between all the different dimensions of the consideration set (stability, variety, preference dispersion, and size) and choice, at both taxonomic and script category level. In addition, in future research the relationship between knowledge and consideration set (stability, variety, and preference dispersion) should be investigated, because of the close relationship between knowledge and consideration set size shown in this dissertation. Finally, the moderating effect of category presentation is one of the major contributions of this dissertation. These findings should be validated in similar and alternative empirical settings and designs in future research.

*Originality/value* – The findings of this dissertation are in accordance with previous research in the field. The findings also have implications for future theory development and research, as well as practical implications and benefits for the marketing strategy decisions of producers and businesses.

## **Acknowledgements**

During my years (2004–2010) as a PhD student, first at the Norwegian College of Fishery Science and finally at Tromsø University Business School, I have had the privilege of becoming father for the second and third times. For this reason, I have been on paternity leave for about 15 months during the almost six years since I started this work. However, I have managed to submit my thesis within the period of my scholarship, and for this achievement I am indebted to several people and institutions.

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## PART III. PAPERS

- Paper 1. Rortveit, A. W. & Olsen, S. O. (2007). The role of consideration set size in explaining fish consumption. *Appetite*, 49(1): 214–222.
- Paper 2. Rortveit, A. W. & Olsen, S. O. (2009) Combining the role of convenience and consideration set size in explaining fish consumption in Norway. *Appetite*, 52(2): 313–317.
- Paper 3. Rortveit, A. W. & Olsen, S. O. The effects of consumer knowledge on consideration set size. Submitted to *Journal of Marketing Management*.
- Paper 4. Rortveit, A. W., Haugtvedt, C. P., & Olsen, S. O. Goal-derived categories and convenience: Influences on consideration set formation. Submitted to *Journal of Consumer Behavior*.





## **PART I. INTRODUCTION**

### ***1.1. Background and purpose***

The purpose of this thesis is to contribute to a deeper understanding of the cognitive processes that the consumer undertakes prior to choosing. The term “evoked set” became a part of marketing vocabulary in the 1960s (Howard & Sheth, 1969) and was defined as the set of alternatives that are cognitively available within a product category. Over time, the concept of an evoked set has evolved to become the consideration set, which is the core concept of this dissertation. This is a construct with strong empirical support through many years of research (Roberts & Lattin, 1997). My interest in this issue emerged because I observed that most marketers seem to be focused on whether or not their products are chosen and are not interested in or are unable to gain an understanding of the psychological processes that consumers experience prior to choosing. Many products or alternatives in the marketplace are often not even considered, but marketers sometimes believe that they have been just unlucky when the consumer has chosen a competing brand or product. The findings presented in this dissertation have practical implications for how products or alternatives can enter the consideration set as well as how these products or alternatives can remain in the consideration set.

The formation of a consideration set is dependent on the occasion, environment, and consumer characteristics such as knowledge or ability to retrieve alternatives. The consideration set is defined as the set of alternatives that is retrieved from memory or brought to mind by external cues on a particular choice occasion (Nedungadi, 1990). For example, when thinking about music to buy for an iPod, the sets of alternatives considered depend on numerous factors such as personal preferences or attitude, knowledge, type of product, and so on. If driving a long distance by car, consumers would probably consider different music alternatives than when going to a party on a Saturday night. The music considered will depend on not only the usage situation but also the situation and location of the consumer during consideration, as well as the consumer's knowledge about and attitude towards music.

Attitudes or preferences are among some of the most important factors for explaining human behavior and consumer choices (Armitage & Conner, 2001; Eagly, Kulesa, Chen, & Chaiken, 2001; Bagozzi, Gurhan-Canli, & Priester, 2002). Previous research has also shown that attitude affect choice indirectly through the mediator consideration set (Priester, Nayakankuppam, Fleming, & Godek, 2004). Therefore, it is important to discuss attitude in relation to the formation of the consideration set, even though the direct effects of attitude on choice are not a main topic of this thesis.

Knowledge within a product or brand category is important for the construction of the consideration set. Alba and Chattopadhyay (1985) identified the consideration set as a smaller part of the consumer's knowledge set, which in turn can be seen as a smaller part of the competitive set. Nedungadi (1990) defines a consideration set as "alternatives brought to mind by external cues or retrieved from memory." This characterization is another example of the close relationship between consumer knowledge and the consideration set.

In early writings, convenience goods were described as products that required minimal time and effort to purchase (Copland, 1923). In recent years, convenience has become an attribute associated with the product itself (Candel, 2001), and convenience has emerged to be a goal-derived category (Ratneshwar, Barsalou, Pechmann, & Moore, 2001). How people categorize products in the marketplace affects the formation of the consideration set (Felcher, Malaviya, & McGill, 2001), and the goal-derived category of convenience is of special interest in this thesis.

People have an inherent urge to categorize. It is a basic cognitive function that helps us systemize our thoughts and make sense of our experiences (Medin, Ross, & Markman, 2005). New experiences often challenge our established categories and make us either assimilate the experience into existing categories or reorganize our category structure. Consumers categorize products and services into different kinds of product categories, and new product development will from time to time challenge our cognitive categorical representation. Most new products fit into existing categories. However, sometimes new product developments are highly innovative and different from what we are used to, which makes us reorganize our categorical representations or invent new ones (e.g., iPhone, iPad, hybrid cars, etc.). When

marketers introduce new products into the market, the category in which they are introduced is not immaterial. The marketer's presentation of alternatives in categories influences the formation of the consideration set, and category presentation will also be investigated in this thesis.

This dissertation is within the domain of food choices, with a special focus on the daily dinner meal prepared and eaten at home. The dinner meal category is a daily consideration for the consumer and is a good setting for the testing of my research questions. Most previous studies (Nedungadi, 1990; Paulssen & Bagozzi, 2005; Priester et al., 2004) have investigated the consideration set at brand level, whereas this dissertation investigates the consideration set at category level. Both the taxonomic category level (fish/seafood) and script category level (dinner) have been applied (Ross & Murphy, 1999). Food has previously been used as an object for studying the consideration set (Desai & Hoyer, 2000), knowledge (Aurier, Jean, & Zaichkowsky, 2000), and convenience (Candel, 2001).

### **Research objectives**

There are three main objectives in this thesis:

1. To determine the extent to which the nature of a consideration set affects consumer choice.
2. To investigate how consumer attitudes, knowledge, and convenience motivations affect the formation of a consideration set.
3. To investigate how category presentation moderates the relationship between convenience motivations and consideration set composition.

*The first objective* is to establish the importance of the consideration set (stage) in relation to behavior or choice. I will use both behavior and choice as concepts that represent the same meaning. Consideration is shown to be a necessary precondition of choice (Aurier et al., 2000). Nedungadi (1990) made a distinction between the consideration set and the choice set. The consideration stage concerns how brands or alternatives are brought to mind, whereas the choice stage entails the evaluation of these brands or alternatives.

In choice situations, consumers make their choices from the available alternatives. It is not enough that the alternatives are physically available; they also need to be cognitively available. The number of alternatives to choose from in a marketplace is often larger than consumers are able to process cognitively; not all the alternatives will be mentally available. The positive relationship between consideration set and choice has been shown in previous studies, and Nedungadi (1990, p. 264) expresses that “it is by now a truism of marketing that brand awareness is a necessary precondition for choice”. Consequently, a brand or alternative has to be a part of the consideration set to be chosen. This is the main reason why I find the concept of consideration very important.

Roberts and Lattin (1997) showed that choice could be predicted more accurately if the consideration stage was integrated into the choice model. The consideration set is, however, a multidimensional concept, where the different dimensions will have unequal or different effects on behavior. In this dissertation, I will discuss the different dimensions of the consideration set in relation to choice. However, I will only test the relationship between consideration set size and choice. Consideration set size is the dimension of the concept that in previous research has most frequently been shown to affect choice (Aurier et al., 2000; Nedungadi, 1990; Paulssen & Bagozzi, 2005; Priester et al., 2004). Aurier et al. (2000, p. 307) describe the relationship between consideration set size and choice as follows: “If being considered constitutes a necessary condition for being purchased, then set size plays a crucial role on consumer behavior, choice probabilities and then on marketing strategy.” In this dissertation, I will contribute to further verification of this statement.

The consumer’s consideration set is a construct that is intangible and difficult both to identify and to measure. In a review article, Roberts and Lattin (1997) called for research that could identify the formation and characteristics of the consideration set. Desai and Hoyer (2000) published a study where they identified the descriptive properties of the consideration set: stability, variety, preference dispersion, and size. Thus, *the second objective* of this dissertation is to explore the formation of the consideration set, its characteristics, and how it is affected by attitude, knowledge, and convenience.

*Attitude* appears to be a main driver of consumer choice or behavior in general (Armitage & Conner, 2001; Eagly et al., 2001), as well as when explaining food consumption frequency (Raats & Shepherd, 1996; Olsen, 2003). The relationship between attitude and the consideration set was shown in one study that stated that brands liked by the consumer are considered more than disliked brands (Priester et al., 2004). Because choice is an important dependent variable in two studies presented in this thesis (Papers #1 and #2), attitudes should also be included to account for the “combined” importance of attitudes and the consideration set on choice, both directly and indirectly.

*Knowledge* is another very important construct for understanding the formation of the consideration set (Alba & Chattopadhyay, 1985). The concept of consumer knowledge is multidimensional, consisting of concepts such as product class knowledge, declarative knowledge, procedural knowledge, experience, expertise, familiarity, subjective knowledge, and objective knowledge (Aurier & Paul-Valentin, 1999; Brucks, 1986; Park, Mothersbaugh, & Feick, 1994; Raju, Lonial, & Mangold, 1995; Schaefer, 1997). Most of these concepts are related to the same general meaning, and can be divided into product class knowledge and procedural knowledge, which have a subjective component (perceived knowledge) and an objective component (factual knowledge). Because knowledge is multidimensional, an important purpose of this dissertation is to contribute to a more detailed understanding of how specific dimensions of knowledge might have an unequal effect on the formation of the consideration set. This kind of information may help practitioners concentrate their marketing efforts on the type of consumer knowledge that has the greatest influence on the formation of the consideration set.

Researchers argue that *convenience* is a multidimensional concept (Berry, Seiders, & Grewal, 2002). Convenience is seen as both a personal characteristic or individual difference variable such as convenience orientation (Candel, 2001), as well as a variable that describes category features such as the occasional/situational demand dimensions of time and effort. In this way, convenience can also be characterized as a goal-derived category (Ratneshwar et al., 2001). In this thesis, convenience is investigated both as a personal characteristics variable (convenience orientation) and a goal-derived category in a food context. As a whole, this thesis has the potential to

contribute to a better understanding of the relationship between the concept of convenience and several of the dimensions of the consideration set.

*The third objective* of this dissertation is to investigate how the presentation of alternatives or category presentation (Ross & Murphy, 1999) can moderate the relationship between convenience and the different dimensions of the consideration set (stability, variety, preference dispersion, and size). My research will hopefully contribute to the understanding of how a marketer's presentation of categories can affect the consumer's consideration set formation when different types of consumer goals are salient.

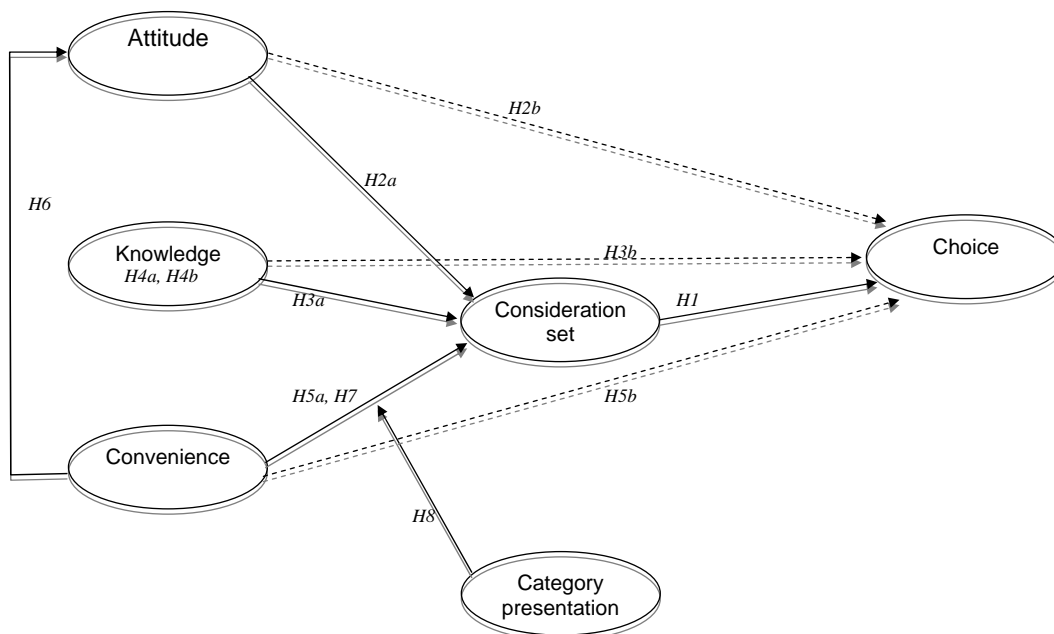
Researchers within this field argue that food can be divided into three types of categories: taxonomic, script, and ad hoc (Ross & Murphy, 1999). Taxonomic categorization divides food products into product classes, categories, and subcategories based on similarity (e.g., seafood, fish, and white fish). Script categorization defines the members based on the time or situation in which the food is eaten (e.g., breakfast, dinner). The ad hoc or goal-derived category is usually not activated by the presentation of the items but by situational, occasional, or personal settings (e.g., food that can be prepared in 20 minutes or food that can be eaten with a spoon) (Barsalou, 1983; Paulssen & Bagozzi, 2005).

A personal or situational goal such as convenience, if activated by the consumer, is defined as a goal-derived category (Ratneshwar et al., 2001). As previously stated, one of the objectives of this thesis is to investigate the relationship between convenience and the formation of the consideration set. Another very important objective is to show that the relationship between convenience and the consideration set is moderated by category presentation. When the category context convenience is salient, the consumer should be able to design "better" or more "appropriate" consideration sets if the alternatives are presented as a goal-derived category. This would be an important theoretical contribution that would also have many practical implications.

## 1.2. Conceptual framework

In this chapter, I discuss and define each concept presented in the conceptual model (Figure 1). The relationships between the concepts are placed in a theoretical framework and hypotheses related to each of the four different papers are addressed. In the papers constituting this dissertation, consideration set is examined as an outcome variable or as a mediator between different independent variables and choice. Overall, the formation of the consideration set and how it relates to behavior is the main purpose of this dissertation, so most of the discussion will focus on the consideration set. The figure also includes some direct relationships between the independent variables (attitude, knowledge, and convenience) and choice, which are not discussed in detail because they are not the main focus of this thesis. The relationships are included in the figure with dotted arrows for completeness.

**Figure 1**



### 1.2.1. The consideration set

The desirable effects of a consideration set on behavior differ between the marketer and the consumer. In addition, the positive effect of the consideration set is not always obvious within these groups. I will, however, discuss the different dimensions of the consideration set in relation to behavior and present hypotheses concerning some of the consideration set's dimensions and choice.

In this dissertation, the consideration set is defined as a set of alternatives brought to mind on a particular choice occasion (Nedungadi, 1990). It is suggested that the consideration set consists of four different dimensions: stability, variety, preference dispersion, and size (Desai & Hoyer, 2000). The definitions of these characteristics are in Desai and Hoyer's study (2000) linked to the situational research setting, and focus on how these characteristics can help consumers choose from the set as well as on understanding how products can enter or remain in the set. Desai and Hoyer's holistic view of the consideration set (2000) was an important contribution to this field of research. Their view gave a deeper and more complete understanding of the processes that may occur in the mind of the consumer as the consideration set is formed. However, in my review of the literature, other researchers have not used these descriptive in their research. I believe that the main reason for this is that Desai and Hoyer's operational definitions (2000) are difficult to translate into other research settings. Furthermore, in their conceptualization, it is unclear how these characteristics affect choice. With knowledge of these challenges, I have applied these characteristics in my research and adapted them to my research setting. I use the perspective of the consumer in my research. With the preceding caveats in mind, Desai and Hoyer's definitions (2000) of each of the consideration set characteristics: stability, variety, preference dispersion, and size are described below.

*Consideration set stability* refers to the extent to which the consideration set consists of identical products across similar situations. Desai and Hoyer (2000) tested the stability of the consideration set in dinner and brunch situations at different locations (hospital, hotel, museum, and stadium). Their operational definition of set stability is linked to the usage or consumption situation, and the consideration set stability is a measure of how stable the set is in relation to how the category is defined. Desai and



Hoyer (2000) investigate stability in relation to a script category (Ross & Murphy, 1999), which basically concerns how meals are defined as breakfast, lunch, dinner, and so on.

In a broader context, stability can also be measured with reference to taxonomic categories (e.g., representation of a given product category), consideration situation (e.g., in store, at home, on the Internet), consumer goals, availability of alternatives, and so on. However, it is unclear how stability affects choice, and a stable consideration set would probably have a different value to marketers than to consumers. The seller would always seek to be considered in as many situations as possible and would thereby benefit from high stability if their brand is present in the set, whereas low stability would be preferable for brands only occasionally represented in the set. By contrast, consumers would not necessarily benefit from high stability because it could be a result of either low availability of alternatives, low product knowledge (Alba & Chattopadhyay, 1985), or lack of imagination. In this dissertation, stability is defined as the extent to which the set alternatives comply with specifically activated consumer goals: time to prepare and effort to prepare.

*Consideration set variety* is defined by Desai and Hoyer (2000) as the extent to which the items in the set are distinct with regards to the situation in which they are used or the goals they are supposed to meet. In their study, they tested how participants sorted 180 different food products into distinct groups based on similarity of goals satisfied or of the situations in which they might be eaten. They argued for a greater variety in the consideration set for high frequency occasions and locations, based on the idea that consumers are more likely to engage in "variety seeking" in highly familiar situations. They were able to find only partial support for this hypothesis.

Whereas stability is linked to script categories, variety is measured by goal-derived categories (Ratneshwar, Pechmann, & Shocker, 1996). Stability and variety in Desai and Hoyer's study seem to be very closely related outcome variables that are just applied to different situations and categorization forms. The difference between stability and variety basically refers to the fact that stability is the "between" situational consideration sets stability, whereas variety is the "within" consideration

set (lack of) stability. In other words, variety could be described as the opposite of consideration set stability.

Consideration set variety can be measured in many ways (as variety in, for instance, goals, alternatives, attributes, expectations, product category, status, locations, and situations). However, the most interesting issues are: (1) does the variety have any value to the consumer? and (2) does it have any value to the store, supplier, producer, and so on? From a consumer's point of view, variety can be both positive and negative depending on the goal of the consumer. Imagine a consumer considering having a healthy snack. In the given situation, they can only retrieve or observe very few alternatives, which would constitute low variety. However, the number of unhealthy snack alternatives in the same situation is numerous, which makes the consumer consider alternatives from different product categories (and also alternatives that do not meet his or her primary goal), which would constitute high variety. Both these outcomes are of low value to the consumer; the high value outcome in this case would be high variety within the healthy snack category. In this dissertation, variety is defined as the extent to which the alternatives within the set vary with regard to the consumer goals: time to prepare and effort to prepare.

*Preference dispersion*, or how equal the preferences are toward the set products, is measured by the standard deviation of the preference scores among the considered alternatives. High preference dispersion means that some alternatives are preferred more than others, whereas low preference dispersion means that the alternatives are evaluated equally. Desai and Hoyer (2000) argued that consideration sets are more preference dispersed in high rather than low frequency occasions and locations. They claim that in highly familiar situations the consumer will have the experience and knowledge that will reduce preference dispersion among the alternatives. Furthermore, they also argue that there could be a distinction in preference dispersion between decisions of high versus low importance, where the decisions of low importance would have a higher preference dispersion (Posavac, Sanbonmatsu, & Fazio, 1997).

Preference dispersion can, like the other characteristics of the consideration set, be measured in many different ways depending on the setting of the study and what kind

of preferences are actually being investigated. In this dissertation, preference dispersion is defined as the gap between the least and the most preferred alternatives within the consideration set.

*Consideration set size*, or how large the set is, is probably the easiest characteristic of the consideration set to both define and measure. This is also probably the reason why most studies on the consideration set identify this characteristic. Size is also a dimension that could be regarded as both positive and negative for both buyer and supplier depending on the point of view. For example, if a consumer is considering alternatives prior to a decision that he or she regards as very important and, therefore, is anxious to maximize the accuracy of the decision, a large consideration set would be positive. By contrast, if he or she wants to minimize the cognitive effort associated with consideration and choice, a small set size would be preferred (Bettman, Luce, & Payne, 1998). Consideration set size has in previous research been shown to have a direct effect on behavior (Aurier et al., 2000; Paulssen & Bagozzi, 2005; Priester et al., 2004).

However, consideration set size provides little meaning in relation to choice or behavior if it has no reference point. In this dissertation, consideration set size is defined in two different ways using different reference points. First, the number of considered alternatives from a total of 40 available alternatives constitutes a measure of consideration set size (Paper #4). Second, the total number of considered alternatives within the product category of fish constitutes a measure of consideration set size (Papers #1, #2, and #3). This latter measure is tested in relation to choice in this dissertation.

### **The effect of consideration set size on choice**

The main assumption of this dissertation from a customer's point of view is that the more appropriate the consideration set is in relation to the goals of the consumer (e.g., convenience), the easier it will be for the consumer to make a good or appropriate decision. This assumption is not necessarily beneficial from a marketer's point of view. In this dissertation, the relationship between each of the four dimensions of the consideration set and choice is not hypothesized and not tested with the exception of consideration set size.

The consideration set is a precursor of choice (Roberts & Lattin, 1997), and previous studies have suggested that the relationship between consideration set size and choice is positive (Priester et al., 2004). Thus, the following hypothesis is proposed in this thesis:

H1: Consideration set size has a positive effect on choice.

In Papers #1 and #2, the empirical setting was the product category fish for dinner, and both consideration set size and choice were measured with reference to this category. The use of a product category instead of a brand as the measurement level is relatively unusual compared with other studies (Nedungadi, 1990; Priester et al., 2004; Paulssen & Bagozzi, 2005). Some researchers have, however, investigated consideration set size at a product category level (Aurier et al., 2000), but did not investigate the construct in relation to choice.

### **1.2.2. Attitude**

Attitude is one of the most important factors in explaining human behavior (Armitage & Conner, 2001; Eagly et al., 2001, Olsen, 2003). This thesis contributes to the knowledge of how attitude affects consideration set size. Attitude is defined as a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object (Fishbein & Ajzen, 1975).

In this thesis (Papers #1 and #2), attitudes are measured and tested as antecedents of consideration set size and choice. The intention of these studies is to contribute to a more detailed understanding of how the relationship between attitudes and choice is partially mediated through the concept of consideration set size. The mediating effect of consideration set is established in one previous study (Priester et al., 2004). Their study shows that the direct effect between attitude and choice is weakened when the consideration set is included as a mediator in the model. Furthermore, their study shows that there is a direct relationship between attitude and the consideration set, as well as a direct relationship between the consideration set and choice. However, I argue for consideration set size as a partial mediator in the relationship between

attitude and choice in a product category setting (fish for dinner). The general hypothesis of this relationship is stated as follows:

H2: Attitudes are positively related to a) consideration set size and b) choice.

Thus, c) consideration set size is a partial mediator between attitude and choice.

In my papers (Papers #1 and #2), this hypothesis is tested as the attitude towards fish and consumption frequency of fish. The consideration set size was tested as the size of the product category fish within the consideration set. The hypothesis was replicated in two different datasets.

### **1.2.3. Knowledge**

The concept of knowledge has been extensively studied within the field of marketing, especially within the field of consumer behavior (Alba & Hutchinson, 1987; Brucks, 1985; Cordell, 1997). Many other research disciplines have also investigated the concept of knowledge. The theories about learning and knowledge by Jean Piaget, based on the constructs of assimilation and accommodation, have perhaps been among the most influential within this field (Piaget & Inhelder, 1973).

People's values, attitudes, and behavior are affected by their memory and knowledge, and different types of memory and knowledge help us make adequate decisions (Alba & Hutchinson, 1987; Medin et al., 2005). Consumer knowledge is a multidimensional concept consisting of product class knowledge and procedural knowledge, which can be divided into subjective knowledge (perceived knowledge) and objective knowledge (factual knowledge). Product class knowledge is information stored in the memory about attributes, facts, terminology, goals, effects, or evaluation criteria associated with a product class (Pillai & Hofacker, 2007). Procedural knowledge, by contrast, is the expertise or skills within a product class that the consumer possesses (Aurier et al., 2000).

In this dissertation, procedural knowledge is defined as the consumer's ability to perform food-related tasks such as quality control and the preparation and composition of meals. Procedural knowledge can, therefore, be understood as action-

based knowledge that one performs to obtain a particular goal. Product class knowledge, by contrast, is the memory of everyday episodic or semantic life experiences (Medin et al., 2005; Wyer, 2008). In this dissertation product class knowledge is defined as the consumer's stored information within a product category.

Both product class knowledge and procedural knowledge can be divided into objective and subjective knowledge. Objective product class knowledge refers to the accurate information about a product or product class stored in the consumer's long-term memory, whereas subjective product class knowledge is the consumer's perception of what and how much he or she knows about a product or product class (Park et al., 1994).

Previous research has shown that knowledge within a given field or product category has a positive influence on the likelihood of an alternative from this particular field or product category being chosen (Axelson, Federline & Brinberg, 1985; Crites & Aikman, 2005; Jayantil & Burns, 1998; Morman and Matulich, 1993; Wardle, Parmenter, & Waller, 2000). Furthermore, the positive relationship between knowledge and the consideration set has also been established in previous research (Alba & Chattopadhyay, 1985). Knowledge is expected to have a positive effect on both consideration set size (Aurier et al., 2000; Johnson & Lehmann, 1997) and choice (Ajzen, 1991), and the general hypothesis of this relationship can, therefore, be expressed as follows:

H3: Knowledge is positively related to a) consideration set size and b) choice. Thus, c) consideration set size is a partial mediator between knowledge and choice.

The hypothesis was tested in Paper #1, where all three constructs were measured on a product category level (fish for dinner).

It has, however, been argued that subjective and objective knowledge have unequal effects on consideration set size (Wirtz & Mattila, 2003). Objective knowledge is believed to enhance the consumer's ability to develop more complex cognitive schemas and thereby develop more extensive consideration sets. Procedural knowledge and product class knowledge are also expected to have unequal or

different effects on the consideration set. Procedural knowledge is argued to be difficult to verbalize but is more accessible because it comes from practical experience (Medin et al., 2005). It is also believed to have a stronger effect on consideration and choice than product class knowledge (Bagozzi et al., 2002; Park et al., 1994; Pillai and Hofacker, 2007). The following hypotheses are, therefore, proposed (Paper #3):

H4a: The size of the consideration set is more positively related to objective product class knowledge than to subjective product class knowledge.

H4b: The size of the consideration set is more positively related to procedural knowledge than to objective product class knowledge.

#### **1.2.4. Convenience**

In this dissertation, convenience orientation is defined as the degree to which a consumer is inclined to save time and energy with regard to meal preparation (Candel, 2001). Two theoretical approaches have dominated explanations of the importance of convenience in food preparation: the household production approach and the convenience orientation approach (Scholderer & Grunert, 2005). The former considers convenience as a characteristic or property of the food itself (Stephoe, Pollard, & Wardle, 1995), whereas the latter addresses convenience in terms of aspects of the consumer (Candel, 2001). In this dissertation, convenience is defined in terms of both the aspects of a consumer's individual attitude or convenience orientation and his or her evaluation of the perceived time and effort associated with buying, using, or consuming the product (Olsen, Scholderer, Brunso, & Verbeke, 2007).

Previous research has shown that a person's convenience orientation affects his or her food choices (Costa, Schoolmeester, Dekker, & Jongen, 2007; Jaeger & Meiselman, 2004; Olsen et al., 2007; Scholderer & Grunert, 2005). Furthermore, Olsen et al. (2007) found that the relationship between convenience orientation and choice was mediated by perceived product inconvenience and attitude. In Paper #2, these relationships are tested in a structural equation model where consideration set size is also integrated as a mediator. These relationships are expressed in the following two hypotheses:

H5: Convenience orientation has a direct negative effect on a) consideration set size and b) choice.

H6: The relationship between convenience orientation and choice is partially mediated by a) attitude and b) perceived product inconvenience.

These hypotheses were also tested at a product category level (fish for dinner).

### **Convenience as a consumer goal: influences on dimensions of the consideration set**

The customer's perception of time and effort are the essential elements of convenience. These elements will, when salient, help form a goal-derived category in the consumer's cognitive category representation. Effort is associated with saving both physical and cognitive energy, whereas saving time actually means reallocating time across activities to achieve greater efficiency (Berry et al., 2002). The elements of convenience, time, and effort saving are context-dependent concepts that have no meaning if activated without context (Barsalou, 1982). It is when these concepts are presented in relation to cooking that they first activate the goal-derived category of *convenience food*. When personal or situational goals are salient, the consumer's category representation will follow a top-down perspective where the consumer defines the category structure (Ratneshwar et al., 2001). However, if personal or situational goals are not salient, the consumer's category representation will follow a traditional bottom-up view where products are divided into groups based on surface resemblance.

According to Bettman et al. (1998) consumers use different decision strategies to fulfill four different consumer goals depending on the situation. These four goals are: (1) maximizing accuracy, (2) minimizing cognitive effort, (3) minimizing negative feelings, and (4) maximizing ease of justification. The use of different decision strategies (with compensatory or non-compensatory rules) depends on which goals the consumer emphasizes most. When situational and personal goals such as time or effort (to prepare a dinner) are salient, the consumer's cognitive category representation will be goal-derived.



An important objective of this dissertation is to demonstrate how convenience (time and effort) is linked to the four different dimensions of the consideration set: stability, variety, preference dispersion, and size (Desai & Hoyer, 2000). In situations where time or effort is salient, I hypothesize that the consideration set will be more appropriate with regard to the choice situation. Furthermore, I hypothesize that when convenience is introduced as a salient goal, the consumer's categorization of alternatives will shift from a categorization based on product similarity to a categorization based on consumer goals (Ratneshwar et al., 2001). An extreme focus on the single attribute *convenience* will probably also result in a shift in consumer decision strategy from a compensatory to a non-compensatory one (Tversky, 1972). For example, the urge to save time (convenience) preparing a dinner can be given a cut-off value that cannot be compensated for by other product attributes. The focus on convenience as a salient goal will make the consumer more focused on which alternatives actually exceed the given cut-off level of the convenience attributes time or effort. Given my definition of the different dimensions of the consideration set, I expect the consideration set to be smaller, more stable, and have less variety when convenience is salient.

In relation to food, consumers are known to have ambivalent feelings in their choices (Olsen, Wilcox, & Olsson, 2005), and the consumption of convenience food is often perceived as a trade-off between sensory or health-related benefits and time or effort (Costa et al., 2007). Therefore, I suggest that when convenience is salient the alternatives within the consideration set would be more preference dispersed. Based on this discussion, the following hypothesis is presented (Paper #4):

H7: When convenience (time or effort) is a salient goal, consumers are more focused in their consideration of alternatives, resulting in smaller, more stable, less varying, and more preference-dispersed consideration sets.

In this study (Paper #4), the hypothesis is still at a category level. However, it has now moved from a product category level (fish) to a script category level (dinner) (Ross & Murphy, 1999).

### **1.2.5. Category presentation**

A consumer category is defined as “a set of products, services, brands, or other marketing entities, states, or events that appear, to the consumer, related in some way”, whereas categorical representation is defined as “information that becomes stored in the cognitive system for a consumer category, and that is later used to process it” (Loken, Barsalou, & Joiner, 2008, p. 133). From this definition, I understand categorical representation as the process of categorization and consumer categories as the cognitive structure.

There have been three basic views or theories of category representation in the literature: the prototype, exemplar, and connectionist approaches. The prototype view assumes that consumers establish their category representation based on a central tendency evaluation of all features of the categorical instance. A cognitive or imaginary prototype will represent the ultimate category member (Rosch & Mervis, 1975). The exemplar view, by contrast, assumes that the consumer’s category representation is based on an actual exemplar or set of exemplars (Medin & Schaffer, 1978). The connectionist approach assumes that consumers establish correlations between features and base their category representation on these correlations (McClelland & Rumelhart, 1985). These basic views of category representation are all based on the idea that category structures are stable structures where the category members have the most attributes and/or features in common. When products, services, or brands are categorized based on surface resemblance they are called by the generic term “taxonomic categories” (Ross & Murphy, 1999).

It is also argued that category structures are flexible when cognitive category representations are derived from personal or situational consumer goals (Barsalou, 1991; Felcher et al., 2001; Ratneshwar et al., 2001). “Goal-derived categories can include disparate products that share few, if any, features on the surface” (Ratneshwar et al., 2001, p. 148). Members of a goal-derived category are often also members of very different taxonomic categories. Examples of instances when consumers carry out goal-derived category representation are choosing presents to buy for a girlfriend, music to play at a party, food to eat while driving. When these kinds of consumer

goals are salient the cognitive category representation will map these goals (Sinha, 1994).

The way products are organized into categories can help consumers make more adequate choices. This is especially the case when the consumer's category representation is goal-derived because the presence of a category context has been shown to have greater effect on similarity judgment for alternatives belonging to goal-derived categories than for those belonging to taxonomic categories (Felcher et al., 2001). Therefore, I suggest that when the category context convenience is salient, the consumer should be able to design "better" or more "appropriate" consideration sets if the alternatives are organized as a goal-derived category. Based on this discussion, the following hypothesis is presented (Paper #4):

H8: The effects of convenience on consideration set, stability, variety, preference dispersion, and size (ref. H7) will be stronger when the available alternatives are organized along the goal-derived category convenience (time to prepare or effort to prepare) than when the alternatives are organized randomly.

### ***1.3. Research design and data***

The four papers of this dissertation are combined studies investigating the consideration set in relation to both antecedents and behavioral effects. An important issue with this dissertation is that different research designs, several data sources, and different analytical procedures have been used. In the following paragraphs, I provide a summary of the methods used in this dissertation.

#### ***1.3.1. Design***

The four papers in this dissertation have all used quantitative research methods as a general approach. Papers #1, #2, and #3 employed surveys, whereas Paper #4 used an experimental laboratory method. An advantage of using different approaches is that the three premises for causality – co-variation, isolation, and causal order – are addressed because experiments are usually strong on isolation and causal order, whereas surveys are strong on co-variation (Bollen, 1989).

Papers #1, #2, and #3 investigate how consideration set size is related to convenience, knowledge, attitude, and choice. Each of these constructs and their relationships, based on previous studies and relevant theory, are tested by structural equation modeling in this dissertation. Two of these studies (Papers #1 and #2) also investigate how consideration set size acts as a mediator in explaining consumer choice. The large randomized sample sizes of these studies increase external validity (Zikmund, 2000) and the ability to generalize results to different populations and across cultures. This can be regarded as an empirical contribution of this dissertation.

In contrast and differing from other studies investigating consideration sets, the contextual setting of these three papers (Papers #1, #2, and #3) used the product category fish (for dinner) as the level of investigation rather than the brand or product. Because the findings reported in these papers are at a product category level, the dissertation contributes to general managerial implications for generic marketing.

Paper #4 examines how convenience (the urge to save time or effort) as a salient goal affects the formation of the consideration set characteristics: stability, variety, preference dispersion, and size. Furthermore, a primary goal in this study (Paper #4) was to investigate how each of these relationships is moderated by category organization or the manner in which the food items are presented. Because these research questions are on an exploratory level and have not been the object of previous testing, experiments were regarded as the most appropriate design. The possibility of isolating two different factors at the same time makes experimental design superior for the testing of these kinds of hypotheses (Keppel & Wickens, 2004).

In Paper #4, the contextual setting is also at a category level. However, in this study (Paper #4), the script category dinner (c.f., Ross & Murphy, 1999) is the level of investigation.

### **1.3.2. Sample and procedure**

Papers #1 and #3 were based on data from a nationwide representative consumer survey in Denmark in 2004. Altogether, 1110 valid questionnaires from Danish households constituted the total dataset. In each household, the person mainly responsible for food preparation was asked to answer the questionnaire.

The sample used in Paper #2 consisted of 1630 representative Norwegian households, collected as a mail survey by a professional research agency. The person mainly responsible for food preparation was asked to answer the questionnaire.

Structural equation models were proposed in each of these three survey papers. Confirmatory factor analysis using maximum likelihood estimation in LISREL 8.5 (Jöreskog & Sörbom, 1995) was used to confirm the validity of each of the latent constructs. The next step in these papers was to test the fit between the structural models and observed variables. In structural equation model estimation, a unique advantage is that all relationships between constructs, factor loadings, and error terms are estimated simultaneously (Bollen, 1989). The statistical test of close fit has been argued to be appropriate for large sample sizes. The root mean square error of approximation (RMSEA) is such a test, and should have a value less than 0.05 to indicate a close fit or less than 0.08 to indicate a reasonable fit (Browne & Cudeck, 1992). The goodness-of-fit index (GFI) and comparative fit index (CFI) are other fit indices used. Acceptable model fits are indicated by GFI and CFI values above 0.90. All papers (Papers #1, #2, and #3) measure whether the RMSEA, GFI, and CFI constitute a good model fit.

In Paper #4, the relationships between convenience and the four characteristics of the consideration set were tested in two laboratory experiments. The first study was designed to investigate the time dimension of convenience, and the second study was designed to investigate the effort dimension of convenience. A total of 150 undergraduate students from a large Midwestern university participated in each of these studies. The participants were exposed to one of four combinations of stimuli, constituting a  $2 \times 2$  between-subject factorial design. Three different pretests were conducted to validate the appropriateness of the stimuli used in the two experiments.

### **1.3.3. Stimulus and measure**

In Papers #1, #2, and #3, all measures except consumption frequency, consideration set size, and objective knowledge were measured with two or three reflective items on a seven-point Likert scale or semantic differential scale. The factor loadings in the measurement model reflected the constructs as expected, which confirmed the convergent validity (Bagozzi, Li, & Phillips, 1991), and the measures showed a high reliability and discriminant validity (Fornell & Larcker, 1981). All reflective items used in these studies (Papers #1, #2, and #3) had been used in previous research in the field of consumer behavior and social psychology (e.g., Candel, 2001; Eagly & Chaiken, 1993; Olsen, 2001; Olsen et al., 2007).

Because consideration set size needs to be measured in relation to a situation or occasion (Desai & Hoyer, 2000; Nedungadi, 1990), the following sentence was used as a situational prime: “Thinking about buying and preparing a meal of fish on a usual day ... ”. Participants then had to indicate a number as a response to each of the following questions: “How many species (cod, salmon, etc.) would you usually consider?”, “How many conservation forms (fresh, frozen, salted dried, canned, etc.) would you usually consider?”, and “How many ways of preparing a meal (cooked, fried, oven-made, grilled, etc.) would you usually consider?”. Consumption frequency was measured with a single item on a nine-point scale ranging from “daily or almost every day” to “never” (Olsen, 2003; Verbeke & Vackier, 2005).

Objective product class knowledge was measured with four true/false statements about fish, where each correct answer was given the value 1 (Park et al., 1994). The correct answers were added together, and objective product class was identified as a single item variable with a scale ranging from 0 to 4.

In Paper #1, the factor convenience (urge to save time or effort) was primed with one of two stories that the participants had to read in each of the two experiments. To describe a credible situation, Belk’s approach for classifying situations (1975) was applied. After reading the story, participants were presented with a “consideration chart” consisting of 40 dishes, where they had to mark all the different dishes they

considered preparing in the situation described. These charts were then used to calculate the measurements of each of the four dimensions: stability, variety, preference dispersion, and size. The factor category organization was manipulated with regard to how the 40 dinner alternatives were presented to the participants. In the goal-derived category organization condition, primed and non-primed participants marked dinner alternatives from a consideration chart organized by preparation time or effort to prepare. In the control condition, primed and non-primed participants marked dinner alternatives from a randomly organized consideration chart.





## **PART II. MAIN FINDINGS AND CONTRIBUTION**

### ***2.1. Main findings and contribution***

The papers presented in this dissertation have shown that consideration set size is important for explaining a consumer's choice and consumption of food. The results show that consideration set size is influenced by individual variables such as attitude, knowledge, perceived inconvenience, and convenience orientation. In addition, the studies in this dissertation demonstrate how situational and occasional factors such as availability and the urge to save time or effort (convenience) can affect the consideration set (stability, variety, preference dispersion, and size). Importantly, the results also show how these relationships can be moderated by category presentation. The findings are in accordance with previous research within the field (Desai & Hoyer, 2000; Nedungadi, 1990; Roberts & Lattin, 1997). However, they also add new knowledge that has theoretical implications for future research, as well as practical implications that producers, marketers, and businesses can benefit from if taken into account in the development of their marketing strategies.

*The first objective* of this thesis was to establish the importance of the consideration set (stage) in relation to choice in a food context. The relationship was tested in two different countries where the consumption of seafood was the dependent variable. The findings revealed that consideration set size had a positive effect on choice. The effect of usage situation on the consideration set has been tested in a food context in two previous studies (Aurier et al., 2000; Desai & Hoyer, 2000). However, no previous studies, to my knowledge, have tested the relationship between consideration and choice in a food context.

These findings support previous research suggesting that choice can be predicted more accurately if the consideration stage is included in the choice model (Roberts & Lattin, 1997). This means that the number of alternatives considered within a taxonomic category (Ross & Murphy, 1999) has a significant impact on the probability of an alternative from this category being chosen. The findings in my studies reveal that the more fish alternatives the consumer considers in a choice

situation, the more likely it is that a fish alternative will be chosen. In most studies, consideration set and choice are investigated at a brand level (Hastak & Mitra, 1996; Nedungadi, 1990). The findings reported in this thesis, however, are at a product category level and, therefore, contribute to a better understanding of generic marketing issues; for example, for a marketer the probability of being chosen is greater if it is the supplier of two out of five alternatives in comparison with one out of four. A consumer faced with making dinner from a chicken fillet or a salmon fillet would probably not consider the two alternatives equally unless he or she considered the same numbers of recipes for each of these ingredients.

The findings of my studies support Hypothesis 1, which stated that consideration set size has a positive effect on the choice of a food category.

*The second objective* of this dissertation was to explore the formation of the consideration set, its characteristics, and how it is affected by attitude, knowledge, and convenience. Six general hypotheses (H2–H7), based on more specific hypotheses from all four papers, were presented in relation to this objective. Overall, the findings in the papers contribute to the general understanding of the formation of a consideration set.

The findings revealed a positive relationship between attitude and consideration set size, as stated in hypothesis 2 (Papers #1 and #2). This relationship has to my knowledge only been shown in one previous study (Priester et al., 2004). Their findings showed that preferred brands were considered more than disliked brands, and further that this effect was moderated by attitude strength. Although the study of Priester et al. (2004) was at a brand level, whereas my studies (Papers #1 and #2) are at a product category level, the effect of attitude on the consideration set is the same because in both cases they are linked to the magnitude of consideration. Furthermore, my findings show that attitude has a positive effect on choice, indicating that consideration set size is a partial mediator between attitude and choice (Baron & Kenny, 1986).

The third hypothesis, which stated a positive effect of knowledge on consideration set size and choice, was also supported. Both the relationships between knowledge and

consideration (Alba & Chattopadhyay, 1985; Aurier et. al., 2000) and between knowledge and food choices (Crites & Aikman, 2005) have previously been established. However, the results showing that consideration set size is also a partial mediator of this relationship are new to the field. This finding was shown in Paper #1 and confirms the assumption expressed in Hypothesis 3.

The fourth hypothesis argued that different dimensions of knowledge have unequal positive effects on consideration set size. More specifically, I argued that objective product class knowledge should have a stronger positive effect on consideration set size than subjective product class knowledge (Wirtz & Mattila, 2003). However, my findings indicated the opposite, probably because Wirtz & Mattila's study was performed in a credence setting whereas my study was performed in a search/experience setting (Mattila & Wirtz, 2002). Even though hypothesis 4a was not supported, the finding of a significant opposite effect is interesting and has implications for future research. One interesting possible explanation that could be further investigated is that consumers' confidence in their own perceived knowledge may be stronger in a search and experience setting than in a credence setting. This is because in a search or experience setting they are able to actually evaluate the product through information or usage, whereas in credence settings they have to obtain knowledge about a product on an abstract level, without actually experiencing any difference in state before and after purchase or usage (Darby & Karni, 1973).

Furthermore, the results showed that procedural knowledge had a stronger positive influence on the size of the consideration set than both subjective and objective product class knowledge (H4b). This means that the consumer's cooking skills have a stronger effect on the number of alternatives considered than the overall competence with regard to the actual product category. Combined with the previously mentioned findings stating the positive relationship between consideration set size and choice, the consumer's procedural knowledge is identified as an important antecedent of consideration and choice. This is an important contribution of this dissertation because it has major practical implications.

The relationship between convenience orientation and consideration set size has to my knowledge not been tested in previous studies. Paper #2 presented an integrated

structural model of how convenience orientation, perceived product inconvenience, and attitude were related to consideration set size and choice. The findings show that convenience orientation has a negative effect on consideration set size and choice, as proposed in hypothesis 5. The link between convenience orientation and choice has been shown in previous research (Olsen et al., 2007; Scholderer & Grunert, 2005), whereas the relationship between convenience orientation and consideration set size is a new contribution to this field or research.

Convenience orientation not only had a direct negative effect on consideration and choice, but also showed an indirect negative effect through the partial mediators attitude, consideration set size, and perceived product inconvenience (H6). The overall contribution of all the relationships shown in Paper #2 is that perceived product inconvenience has a key role in explaining the effects of convenience, because it mediates the effect of convenience orientation on attitude, consideration set size, and choice. The negative effect of convenience orientation is reinforced through perceived product inconvenience. Compared with a previous study (Olsen et al., 2007), the integration of consideration set size with perceived product inconvenience contributes to a more detailed understanding of how convenience orientation and perceived product inconvenience affect behavior.

Hypothesis 7 stated that with goal-derived category convenience (Ratneshwar et al., 2001), an increase in the urge to save time and effort would result in consideration sets that are smaller, more stable, less varying, and more preference-dispersed. These relationships were investigated in Paper #4. Because convenience was argued to consist of both a time and an effort dimension, two experiments were performed to test the hypotheses. Both experiments showed the main effects of time or effort on consideration set stability, variety, and size. This means that when convenience is a salient consumer goal, the consideration set will fit the activated goal-derived category. To my knowledge, this effect has not previously been shown in this context; however, the findings are similar to those where goal-derived categories or usage situations are investigated in relationship to the consideration set (e.g., Aurier et al., 2000; Desai & Hoyer, 2000; Ratneshwar et al., 1996, 2001). The relationship between convenience and the consideration set extends and supports the claims in previous research stating a strong relationship between goal-derived categories and

consideration set formation (Ratneshwar et al., 1996; Ratneshwar & Shocker, 1991; Sinha, 1994).

Preference dispersion was expected to provide interesting information about consideration and choice; however, Desai and Hoyer (2000) and my study (Paper #4) showed that it was not possible to identify any systematic variation in preference dispersion when it was measured as the general preferences towards a product. Food choices are often characterized by ambivalent or mixed feelings (Olsen et al., 2005), which means that a consumer could prefer the taste of a hamburger and a Coke, but prefer the calorie level of a salad and the healthfulness of a bottle of juice. General preferences towards food items or dishes can therefore be ineffective measures to capture ambivalence or preference dispersion. If the measure of preference was narrowed or specified to the preference towards one attribute that is believed to arouse ambivalent feelings, I believe that the urge to save time or effort could lead to more preference dispersed consideration sets. This should be investigated in future research.

*The third objective* of this dissertation was to investigate whether the presentation of alternatives or category presentation could moderate the relationship between convenience and the different dimensions of the consideration set. Category presentation constituted the second factor in each of the two experiments mentioned earlier. The results revealed that when participants were under time pressure and the alternatives were presented by preparation time, they were able to develop the most appropriate consideration sets with regard to stability, variety, and size. This suggests that category presentation has a moderating effect on the relationship between convenience and consideration set: stability, variety, and size. This finding is probably the most important contribution of this dissertation. Research has shown that categorization based on product similarity is the most accessible to the consumer when thinking about food (Ross & Murphy, 1999). Even so, this dissertation shows that the goal-derived organization of alternatives could achieve positive effects on consideration set formation. This finding has implications for many areas of marketing: categorization, communication, brand extension, and in-store organization.

However, no support for a similar effect on the consideration set was found when the urge to save effort was salient. This lack of support suggests that, in order for category presentation to moderate the relationship between a goal-derived category and consideration set formation, it needs to be a close match between the goal and the attribute that constitutes the presentation form. The strength of the consumer goal could also be an explanation, meaning that the time constraint manipulation in the experiment was able to activate a more salient consumer goal than the effort constraint manipulation. This interpretation is analogous to how attitude strength moderates the relationship between attitude and consideration (Priester et al., 2004), but must be considered speculative and as a possible direction for future research.

## ***2.2 Managerial implications***

The findings presented in this dissertation have several practical implications for marketers. First, the studies have shown that the size of the consideration set has a direct effect on choice probability, and thereby is critically important for the development of marketing strategies (Aurier et al., 2000). For a marketer or producer of food items this means that the probability of being chosen will rise if the marketer or producer is able to position the product in as many recipes as reasonable. Food items are in many ways special when compared with other products because they are often just ingredients purchased for home “production”. In reality, in many cases, consumers are purchasing the concept of the finished meal rather than just the ingredient. Producers and marketers must take this into account when developing marketing strategies for their products and seek to add their products into as many meals, situations, and occasions as possible. Food producers should advocate that consumers should consider preparing their products in as many ways and in as many combinations with side ingredients as possible (e.g., fresh, frozen, or canned cod fillet; boiled, grilled, or baked; with potatoes, rice, or pasta, etc.). In industries where category marketing or generic promotion is common (e.g., fish or meat), industry organizations should aim their generic food marketing efforts towards variety for consumer and thereby seek to increase their industry’s share of the food market.

These findings could be seen as an argument for the well-known growth strategy within marketing theory: an existing product in a new market (Bang and Joshi, 2008).

The “new market” in this case is, however, the generation of ideas or knowledge in the mind of the (existing) customer about how to use the product or ingredients. When employing an existing product in new areas of utilization, other marketing strategy questions such as reputation, price, and distribution must be taken into account.

The findings also revealed that knowledge had a strong impact on consideration set size and that different dimensions of knowledge contributed unequally to this effect. Because procedural knowledge seems to have the strongest effect on consideration set size, marketers of foods for home preparation should focus their communications on how to prepare their product in different ways, instead of promoting general product information such as health and quality claims. Furthermore, this indicates that marketers should focus on activities that enhance product experience through testing, trials, tasting, samples, and related activities.

Convenience orientation had a negative impact on fish consumption both directly and indirectly through perceived product inconvenience and attitude. Convenience orientation is a variable describing a personal characteristic, whereas perceived product inconvenience is a belief about or evaluation of a product. The beliefs about a product are from a marketer's point of view easier to change than a consumer's personal characteristics. This makes perceived product inconvenience especially interesting because the findings show that it has a negative influence on attitude, consideration, and consumption. Consequently, producers or marketers of food products should focus on developments that could reduce the consumer's perceived product inconvenience because they will have both a direct and an indirect positive effect on consumption. Examples of such developments could be convenient packaging, combinations of products, suggesting alternative recipes on packaging, in-store trials, communication of “how to ...”.

The findings indicate that the urge to save time or effort with regard to dinner preparation has a direct effect on the formation of consideration set stability, variety, and size. If marketers can identify cut-off values of salient attributes such as the time and effort spent on dinner preparation for a particular segment, they will have the ability to position products in accordance with these factors and thereby enhance the possibility of being considered. For example, if a segment is identified as extremely

convenience-oriented with regard to dinner preparation time and the cut-off value is identified to be a preparation time of 17 minutes, food producers and marketers can develop dishes/recipes that meet this cut-off value. Furthermore, this finding implies that food producers can enhance the chance of being part of the consideration set if they develop or position products to apply to different salient goal-derived categories.

The moderating effect of category presentation on the relationship between the urge to save time and consideration set (stability, variety, and size) has several practical implications for marketing issues such as advertising, placement in the retail store, shelf labeling, product development, and package labeling. The findings indicate that the traditional way of organizing stores (product similarity) does not necessarily apply to all consumer segments. If consumers have strong salient goals and are exposed to goal-derived category organization that matches their goals, they are able to create more appropriate or efficient consideration sets. This has practical implications for how types of assortments or categories should be communicated to customers. Marketers who apply these principles in their external communication and/or in-store organization can better satisfy goal-focused consumers. It has become a trend among many stores and supermarkets to organize areas of the store, some permanent and others occasional, with regard to consumer goals such as health, gifts, calendar holidays, travel, and so forth. The extent to which this focus on goal-derived categories is beneficial from a business point of view should be tested in future research.

### ***2.3. Limitations and suggestions for future research***

The findings and implications of this dissertation must be viewed in the light of various limitations. Each of the studies has limitations and suggestions for future research. In Papers #1, #2, and #3, the structural equation modeling methodology (LISREL) was applied using cross-sectional data. The direction of casual relationships proposed in such models is always uncertain because the data of all observed variables are gathered at the same time. In Paper #4, I used an experimental design where the directions of causality were regarded as one of its strengths, whereas co-variation is regarded as a limitation caused by the homogeneity of the sample. While the empirical results from experiments are difficult to generalize, the general



principles and thought processes might be generalized and provide insights for behavior in other situations.

The overall conceptual model presented in this summary has limitations that are not discussed in these papers. Using the three main objectives of this thesis as a guide, in the following sections I discuss the limitations of the conceptual model and suggest directions for future research.

A major limitation of this study is that the relationship between the consideration set and choice was only tested for one of the four dimensions of the consideration set. Another limitation is that the three studies using cross-sectional data investigate the consideration set at a taxonomic category level (fish), whereas the experimental design investigates the consideration set at a script category level (dinner). Future research should focus on the relationship between all the different dimensions of the consideration set (Desai & Hoyer, 2000) and choice, at both taxonomic and script category level.

A recent study showed that consideration set size had unequal effects on the likelihood of choice in hedonic versus utilitarian products (Suh, 2009). Future research should, therefore, also focus on how product characteristics such as involvement (high vs. low) and usage situation (private vs. public) affect the relationship between the consideration set and choice.

The findings of this dissertation cannot be generalized to other product categories outside the context of food. Therefore, the formation of the consideration set should also be tested in other product type settings. The hypotheses could be tested in other research contexts and at brand or product level. Additional measures of choice should also be applied.

Convenience was studied thoroughly in relation to the four dimensions of the consideration set, whereas attitude and knowledge were only investigated in relation to consideration set size. Because of the close relationship between knowledge and consideration set size shown in both my studies and others (Aurier et al., 2000; Paulssen & Bagozzi, 2005; Wirtz & Mattila, 2003), the relationship between

knowledge (e.g., objective, subjective, procedural, product class, etc.) and the consideration set (stability, variety, and preference dispersion) is an interesting issue for future research.

The moderating effect of category presentation is one of the major contributions of this dissertation, and should in future research be validated in similar and alternative empirical settings and designs.

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## **PART III. PAPERS**



**Paper 1. Rortveit, A. W. & Olsen, S. O. (2007).  
The role of consideration set size in  
explaining fish consumption. *Appetite*,  
49(1): 214–222.**



## APPENDIX – PAPER #1: DESCRIPTIVE STATISTICS

Constructs and indicators	Mean	Std. Dev.	Skewness	Kurtosis	N
<b>Attitude</b>					
Bad versus good	5.67	1.45	-1.11	0.99	1046
Unsatisfied versus satisfied	5.89	1.45	-1.56	2.30	1060
Unpleasant versus pleasant	5.93	1.49	-1.67	2.49	1069
<b>Knowledge</b>					
Compared to an average person, I know...	3.39	1.72	0.14	-0.80	1073
My friends consider me an expert on fish	2.64	1.74	0.64	-0.69	1076
... a lot of knowledge about how to prepare...	3.89	1.89	-0.07	-1.066	1085
<b>Consideration set size</b>					
How many species...	4.34	1.86	0.82	1.11	1084
How many conservation forms...	3.64	1.46	0.83	1.89	1078
How many ways of preparing....	4.04	1.62	1.12	2.71	1079
<b>Consumption frequency</b>					
How often fish at home	5.16	1.83	-0.08	-0.27	1087





**Paper 2. Rortveit, A. W. & Olsen, S. O. (2009)  
Combining the role of convenience and  
consideration set size in explaining fish  
consumption in Norway. *Appetite*, 52(2):  
313–317.**



## APPENDIX – PAPER #2: DESCRIPTIVE STATISTICS

Constructs and indicators	Mean	Std. Dev.	Skewness	Kurtosis	N
<b>Convenience orientation</b>					
I prefer meals that are easy to plan, buy (provide), prepare and cook	4.38	1.45	-0.32	-0.50	1453
The less thinking I need to plan, buy (provide), prepare and cook, the better	3.57	1.54	0.22	-0.75	1454
I prefer meals that are quick to plan, buy (provide), prepare and cook	3.88	1.58	0.00	-0.87	1451
<b>Perceived product inconvenience</b>					
To me, it takes very little effort to prepare fish for dinner (recoded)	3.41	1.61	0.43	-0.61	1453
To me, it takes a lot of time to prepare fish for dinner	3.40	1.54	0.27	-0.65	1452
Fish is a very quick and easy dinner to prepare (recoded)	3.33	1.43	0.35	-0.42	1453
<b>Attitude</b>					
I enjoy eating fish for dinner	5.83	1.51	-1.67	2.28	1453
Eating fish for dinner gives me a pleasant feeling	5.68	1.41	-1.41	1.89	1453
Fish is an exciting dinner	5.41	1.49	-1.12	0.94	1451
<b>Consideration set size</b>					
How many species ...	3.79	1.65	0.50	0.81	1453
How many conservation forms ...	2.91	1.36	0.72	1.87	1451
How many ways of preparing ...	3.06	1.29	1.00	2.98	1453
<b>Consumption frequency</b>					
Fish except processed fish	4.72	1.48	-0.22	0.22	1458
Fish dinners based on whole fish	3.42	1.55	0.18	-0.41	1436
Fish dinners based on filets	4.04	1.35	-0.28	0.20	1449



**Paper 3. Rortveit, A. W. & Olsen, S. O. The effects of consumer knowledge on consideration set size. Submitted to *Journal of Marketing Management*.**



**Paper 4. Rortveit, A. W., Haugtvedt, C. P., & Olsen, S. O. Goal-derived categories and convenience: Influences on consideration set formation. Submitted to *Journal of Consumer Behavior*.**









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