

Mag  
nn 08201  
1946

# Variety-seeking in product choice behavior Theory with applications in the food domain



Hans van Trijp

## STELLINGEN

1. Variatiezoekgedrag in produktkeuze wordt geïnstigeerd door de onderliggende psychologische processen van verveling, attribuut-verzadiging en nieuwsgierigheid.  
(dit proefschrift)
2. Variatiezoekgedrag van consumenten kan alleen betekenisvol bestudeerd worden indien dit type gedrag expliciet verbijzonderd wordt van andere vormen van variatie in het keuzegedrag.  
(dit proefschrift)
3. De manifestatie van variatiezoekgedrag in produktkeuze is een situatie-specifiek fenomeen wat afhangt van de interactie tussen persoonlijkheidskarakteristieken en kenmerken van de keuze-situatie. Cognitieve evaluatie theorie biedt een geschikt kader ter verklaring hiervan.  
(dit proefschrift)
4. Variatiegeneigdheid in produktkeuze is een secundaire dispositie ten opzichte van het algemenere psychologische concept Optimum Stimulatie Niveau.  
(dit proefschrift)
5. Het schrijven van een proefschrift over variatiezoekgedrag toont nadrukkelijk aan dat zelfs bij de meest intrigerende activiteiten na verloop van tijd verzadiging optreedt.  
(naar aanleiding van dit proefschrift)
6. De afnemende bereidheid van respondenten om deel te nemen aan marketingonderzoek, maakt de ontwikkeling van respondent-vriendelijke methoden en technieken van markt-onderzoek niet alleen moreel, maar ook praktisch gewenst.  
(J.E.B.M. Steenkamp en J.C.M. van Trijp, 1995, *Task experience and validity in perceptual mapping: a comparison of two consumer-adaptive techniques (onder revisie)*)
7. Het sensorisch onderzoek zou zijn "brugfunctie" tussen marketing en technische produktontwikkeling beter kunnen vervullen indien het de cognitieve invloeden op sensorische waarneming nadrukkelijker in de analyse zou betrekken.  
(J.C.M. van Trijp en H.N.J. Schifferstein, 1995, *Sensory analysis in marketing practice, Journal of Sensory Studies* 10(2): 127-147)

8. De toegenomen fragmentatie in keuze-overwegingen van consumenten heeft ertoe geleid dat het consumentengedrag in verzadigde Westerse markten minder eenvoudig te begrijpen is. De fatalistische verzuchting dat het consumentengedrag hiermee 'onvoorspelbaar' zou zijn geworden getuigt van onvoldoende kennis van en inzicht in het vakgebied van het consumentengedrag.
9. De huidige financiële situatie waarbij universiteiten dienen te bezuinigen en tegelijkertijd zelf voor de wachtgeldregeling zorg moeten dragen, maakt het vooral aantrekkelijk medewerkers af te laten vloeien die "goed in de markt liggen". Het is sterk de vraag of de kwaliteit van het wetenschappelijk onderzoek en onderwijs hierbij gebaat is.
10. Decentralisatie van bestuur kan alleen dan frustratieloos verlopen indien het centrale bestuur niet alleen in woord maar ook in daad terugtreedt.
11. De disproportionele aandacht in de media voor het klein-menselijk leed naar aanleiding van de bijna watersnood-ramp in Nederland moet vooral gezien worden als een indicatie voor het feit dat Nederland in de gelukzalige positie verkeert dat het zelden met echte rampen geconfronteerd wordt.

Stellingen behorende bij het proefschrift

*Variety-seeking in product choice behavior: theory with applications in the food domain*

Hans van Trijp

Wageningen, 9 juni 1995

# **VARIETY-SEEKING IN PRODUCT CHOICE BEHAVIOR**

Theory with applications in the food domain

31 MEI 1995

UB-CARDEX



40951

Promotoren: dr. ir. M.T.G. Meulenberg  
hoogleraar in de marktkunde en het marktonderzoek

dr. ir. J.E.B.M. Steenkamp  
bijzonder hoogleraar methoden en technieken van marktonderzoek met  
betrekking tot de Europese consument van agrarische producten

pno8201, 1946

# **VARIETY-SEEKING IN PRODUCT CHOICE BEHAVIOR**

Theory with applications in the food domain

Hans (J.C.M.) van Trijp

## **Proefschrift**

ter verkrijging van de graad van doctor  
in de landbouw- en milieuwetenschappen  
op gezag van de rector magnificus,  
dr. C.M. Karssen,  
in het openbaar te verdedigen  
op vrijdag 9 juni 1995  
des namiddags te vier uur in de Aula  
van de Landbouwuniversiteit Wageningen

68n=904787

This research was supported by a grant from ESR (formerly ECOZOEK), which is under the jurisdiction of the Dutch Organization for Scientific Research (NWO).

De handelseditie van dit proefschrift verschijnt als het eerste nummer in de reeks Mansholt Studies van het Mansholt Instituut (ISBN: 90-6754-391-8). Het Mansholt Instituut voor maatschappijwetenschappelijk onderzoek t.b.v. landbouw en milieu maakt onderdeel uit van de Landbouwwuniversiteit Wageningen.

## **CIP-DATA KONINKLIJKE BIBLIOTHEEK, DEN HAAG**

Trijp, Hans van

Variety-seeking in product choice behavior : theory with applications in the food domain / Hans (J.C.M) van Trijp ; [ill.: J.A. Bijkerk]. - [S.l. ; s.n.]. - Ill.

Thesis Landbouwwuniversiteit Wageningen. - With ref. -

With summary in Dutch

ISBN 90-5485-394-8

Subject headings: food ; variety-seeking / consumer behavior / marketing.

Cover design: Ernst van Cleef

© 1995 J.C.M. van Trijp. No part of this publications may be reproduced, stored in any retrieval system, or transmitted in any form by any means, electronical, mechanical, photocopying, recording, or otherwise, without permission of the authors, or when appropriate, of the publishers of the publication.

BIBLIOTHEEK  
LANDBOUWUNIVERSITEIT  
WAGENINGEN

Voor Frouwkje  
en mijn ouders



## CONTENTS

<b>1.</b>	<b>GENERAL INTRODUCTION</b>	
1.1.	Introduction	1
1.2.	Introduction of variety-seeking related concepts	5
1.3.	Terminology	7
1.3.1.	Variation in behavior	7
1.3.2.	Derived varied behavior	8
1.3.3.	Variety-seeking behavior	9
1.3.4.	Variety-seeking tendency	10
1.4.	Key issues with respect to variety-seeking behavior	11
1.5.	Outline of the book	12
<b>2.</b>	<b>PSYCHOLOGICAL THEORY ON VARIETY-SEEKING BEHAVIOR</b>	
2.1.	Introduction	15
2.2.	Intrinsic versus extrinsic motivation in human behavior	16
2.2.1.	Psychological theory	16
2.2.2.	Intrinsic and extrinsic motivation in the consumer context	18
2.2.3.	Implications for variety-seeking behavior	21
2.3.	Exploratory behavior	21
2.3.1.	Psychological theory	21
2.3.2.	Personality measures in relation to exploratory behavior	26
2.3.3.	Implications for variety-seeking behavior	28
2.4.	Effect of extrinsic motives on intrinsically motivated behaviors	30
2.4.1.	Psychological theory	30
2.4.2.	Implications for variety-seeking behavior	32
2.5.	Intrinsic motivation and affect	33
2.5.1.	Psychological theory	33
2.5.2.	Implications for variety-seeking behavior	36
2.6.	Conclusion on psychological theories	37
<b>3.</b>	<b>MARKETING APPROACHES TO VARIETY-SEEKING BEHAVIOR</b>	
3.1.	Introduction	39
3.2.	Studies on temporal variety-seeking behavior	41
3.3.	The implicit approach to temporal variety-seeking behavior	43
3.3.1.	Quantification of observed variation in behavior	44
3.3.2.	Variety-seeking at the product level	44
3.3.3.	Variety-seeking at the attribute level	48

3.3.4.	Variety-seeking behavior vs. derived varied behavior	52
3.3.5.	Conclusions on the implicit approach	54
3.4.	The explicit approach to temporal variety-seeking behavior	54
3.4.1.	Optimal Stimulation Level	55
3.4.2.	OSL in the consumer context	56
3.4.3.	Variety-seeking tendency	57
3.4.4.	Other determinants of variety-seeking behavior	58
3.4.5.	Conclusions on the explicit approach	59
3.5.	Structural variety-seeking behavior	60
3.6.	Discussion	63
4	<b>THE MODEL AND HYPOTHESES</b>	
4.1.	Introduction	67
4.2.	Basic equations	69
4.3.	Value derived from product-related characteristics	70
4.4.	Value changes due to feedback	73
4.4.1.	Changes in instrumental value	74
4.4.2.	Changes in hedonic value	75
4.4.2.1.	Boredom with the choice task	76
4.4.2.2.	Attribute satiation	77
4.4.2.3.	Curiosity	78
4.5.	Value derived from variety	81
4.6.	The variety-seeking model	88
4.6.1.	Extension to imperfect information	90
4.6.2.	Extension to more than two alternatives	93
4.7.	Classification of observed variation in behavior	95
4.8.	Model summary	97
4.9.	Hypotheses	99
4.9.1.	Person-related determinants of variety-seeking behavior	99
4.9.2.	Product related determinants of variety-seeking behavior	101
4.9.2.1.	Product-related determinants affecting variety value	104
4.9.2.2.	Product-related determinants affecting the difference in value derived from product-related characteristics	105
4.9.2.3.	Product-related determinants affecting both variety value and the difference in value derived from product-related characteristics	107
4.10.	Structure of empirical chapters	113

<b>5.</b>	<b>MEASURES FOR VARIATION IN CONSUMPTION: REVIEW AND VALIDITY ASSESSMENT</b>	
5.1.	Introduction	115
5.2.	Measures for variation in consumption	117
5.2.1.	Measures at the product level	118
5.2.2.	Measures at the attribute level	120
5.2.3.	Previous research on the convergent validity of measures for variation in consumption	124
5.3.	Methodology	125
5.3.1.	Data	125
5.3.2.	Computation of the measures	127
5.3.3.	Method of analysis	127
5.4.	Results	129
5.5.	Discussion	133
<b>6.</b>	<b>DEVELOPMENT AND APPLICATIONS OF THE VARSEEK-SCALE</b>	
6.1.	Introduction	135
6.2.	Domain specification and item generation	136
6.3.	Measurement purification	137
6.4.	Cross-validation	138
6.5.	Stability assessment	139
6.6.	Nomological validity	142
6.6.1.	VARSEEK in relation to general OSL measures	143
6.6.2.	VARSEEK in relation to consumer-specific OSL measures	145
6.6.3.	VARSEEK in relation to variation in behavior	146
6.6.4.	VARSEEK in relation to socio-demographics	151
6.7.	Hypothesis testing	152
6.8.	Conclusions and discussion	154
<b>7.</b>	<b>DETERMINANTS OF VARIETY-SEEKING BEHAVIOR</b>	
7.1.	Introduction	155
7.2.	Hypotheses for determinants	156
7.3.	Methodology	158
7.3.1.	Subjects and stimuli	158
7.3.2.	Procedure	159
7.3.3.	Measurement	159
7.3.4.	Data analysis	161
7.4.	Results	163
7.5.	Discussion	167

8.	<b>SUMMARY AND CONCLUSIONS</b>	171
	<b>REFERENCES</b>	183
	<b>SUMMARY IN DUTCH (SAMENVATTING)</b>	201
	<b>ACKNOWLEDGEMENTS (DANKWOORD)</b>	211

## CHAPTER ONE

### GENERAL INTRODUCTION

#### 1.1. Introduction

Consumers' decision making strategies and actual choice behavior to a large extent mirror the market conditions under which choice occurs. On the demand side, most affluent markets are characterized by high purchasing power and high spending. As a result, in many product categories consumption has reached a certain level of satiation, a situation which has important implications for consumers' decision making strategies and choice behavior. Assuming that consumers strive to maximize utility derived from consumption, the current "satiated" demand implies that increases in the quantity of consumption will hardly contribute to utility maximization. For many products, utility can more effectively be increased through "qualitative" rather than "quantitative" improvements in consumption behavior. As a result, product quality has come to the forefront as an important determinant of consumer choice behavior (e.g. Steenkamp 1989). In response to this consumer demand for high overall quality<sup>1</sup>, most organizations have realized the importance of delivering high overall quality products to the market. In most affluent markets it is hard to find products that do not meet the standard of at least adequate overall product quality.

The fact that product alternatives in the market place have become increasingly comparable in terms of overall perceived quality may affect consumers' decision making and choice behavior. The decreasing horizontal quality differentiation (Abbott 1955) has considerably reduced the overall quality risk associated with choices from a particular product category. Despite that overall perceived product quality is still one of the most important choice criteria, we believe that the fact that many products are available with comparable overall quality levels has diminished the role of overall product quality as a decisive criterion for consumer choice behavior. More and more, adequate overall perceived product quality has become a necessary rather than sufficient condition for market success.

We believe that the market conditions discussed above have allowed "secondary"<sup>2</sup> choice motivations to come to the forefront as determinant choice criteria. These secondary

---

<sup>1</sup> Short of a better term, "overall" quality is used here as an overall evaluative judgment. Perceived product quality is a multi-dimensional concept which finds its basis in product attributes deemed important by a particular consumer (e.g. Steenkamp 1989). As a result perceived product quality is considered a dynamic concept, as over time relative importance of attributes may change. What we mean here by overall product quality is an evaluative judgment on the basis of the most important attributes in an absolute sense ("primary" choice criteria). The primary choice criteria may differ among product categories. For foods they would include good taste and absence of dangerous substances.

<sup>2</sup> We refer to these choice criteria as 'secondary' to indicate that in an absolute sense they are probably not as important to the consumer as the attributes constituting overall product quality. They are hypothesized to be determinant in choice behavior as long as adequate or better overall quality is ensured.

choice criteria may be highly idiosyncratic in nature, and may concern convenience, environmental issues, health, and conspicuous consumption among other factors<sup>3</sup>, resulting in a considerable fragmentation of consumer demand. Product offerings, in turn, have been adjusted to this fragmentation, resulting in a proliferation of the number of new items. In 1991, over 16,000 new products were introduced into US supermarket channels compared to only about 1000 per year during the whole decade of the 1970's (McLaughlin and Fredericks 1994). Despite the fact that many of these new products fail in the market place, the new product introduction activity has largely increased consumers' choice opportunities. Consumers can now choose from a wider variety of product categories than ever before to satisfy their diversity in secondary consumption needs. Within product categories a wide assortment of different product types is available to provide segments of consumers with the means of satisfying their basic needs in line with their individualized product demand. Even within a particular product type the consumer usually may choose from a large number of different varieties in terms of flavors, sizes and packages.

As a result, most modern Western markets have evolved into buyer markets where for every single choice occasion, there is available a wide variety of product alternatives that are quite similar in the sense that they will all be capable of satisfying the existing need adequately. To the consumer this implies a high degree of freedom in choice behavior, relatively free from any risk of inadequate need satisfaction. Under such market conditions it has been suggested that "quality" of consumption may be increased by bringing about more variation in consumption, simply because value is inherent in the process of switching among alternatives per se. This type of behavior is known as *variety-seeking behavior*, the central issue of this book.

### **Variety-seeking behavior as an element of consumer choice behavior**

The basic idea that variety-seeking behavior may positively add to the utility derived from consumption isn't new. It was already recognized by the 19th century British economist Senior, whose "Law of Variety" stated that "It is obvious that our desires do not aim so much at quantity as diversity" (Jackson 1984: 8). A very similar idea was put forward by Scitovsky (1976) who argued that in economically advanced and affluent societies, little pleasure is derived from want satisfaction. Rather, pleasure in consumption is associated with stimulation in choice behavior. Diversity in choice may be a means to achieve this stimulation and challenge necessary to establish pleasure in consumption. Variety-seeking behavior has also received considerable attention in the psychological and marketing literature. However, most of these efforts have studied this behavior in isolation. Despite the fact that variety-seeking behavior is an intriguing phenomenon worth studying in its own right, it is important to

---

<sup>3</sup> Note that due to the purported dynamic nature of perceived product quality, these 'secondary' criteria will become part of the more general and analytical concept of perceived product quality (e.g. Steenkamp 1989).

recognize that in real-life situations this behavior does not occur in isolation. Therefore in the present approach, variety-seeking behavior is explicitly conceptualized as an integral part of consumer decision making and choice behavior. It is just one of the many consumer choice mechanisms that compete and interact in guiding consumers' choice behavior (Sheth and Raju 1974; McGuire 1976; Belk 1985; Sheth, Newman and Gross 1991). This broader context allows for more specific hypotheses about when, why and in which situations variety-seeking behavior is more likely to occur vis-à-vis other choice mechanisms.

The notion that variety-seeking in product choice is only one of many consumer choice mechanisms is reflected in the observation that consumers do not exploit their freedom in choice to its full extent. While some additional value may be derived from variety-seeking behavior, in many situations introducing variation in product choice is associated with at least some degree of additional effort on the part of the consumer. To many consumers, negative affect is associated with the time and effort involved in choice behavior (Alba and Hutchinson 1987) and there is consensus in the consumer behavior literature that consumers have a tendency to simplify their choice processes (e.g. Howard and Sheth 1969). The most straightforward means of achieving this simplification in choice behavior is to introduce an element of constancy. Repeat purchasing and brand loyalty in choice behavior are two strategies that are very efficient in terms of time and effort. Under such choice strategies consumers can go directly from problem recognition to product choice, without having to go through the more cumbersome process of deliberation. Also, these choice strategies can be highly efficient in terms of risk-reduction (Roselius 1971) as, based on positive product experience from the past, the consumer has a guarantee that the product under consideration will satisfy the identified need adequately. As a result, less risk will generally be associated with sticking to the same brand when compared to brand switching which involves at least some uncertainty about the brand's performance.

On the other hand, brand loyalty and repeat purchasing as simplification strategies in choice behavior come to the consumer at certain costs. In particular, it has been suggested that the choice process at some point in time may actually become too simple a situation to the consumer (Howard and Sheth 1969). As a result, the consumer may become bored with the monotony inherent in repetitive choice of the same brand or with the attributes repeatedly delivered by that brand; both are situations that stimulate brand switching (Howard 1989). In addition, repeatedly purchasing the same brand may also induce uncertainty about the other non-chosen alternatives, particularly when changes in the market occur (Keon 1980). In this sense a brand loyal consumer, although satisfied with the brand choice, may become uncertain about whether or not the best possible alternative (e.g. in terms of value for money) has actually been chosen. This uncertainty may stimulate curiosity for non-chosen alternatives that can be reduced through variety-seeking behavior.

**Managerial implications of variety-seeking behavior**

Consumers' desire for variety in choice behavior imposes both threats and opportunities to marketing management. Much marketing effort seeks to establish customer loyalty or at least repeat purchasing of the brand as it reduces marketing costs (Rosenberg and Czepiel 1983), provides trade leverage, contributes to brand awareness and brand image, and protects the firm against competitive moves (Aaker 1991). It is important for major brands to defend themselves against consumers switching away to satisfy their intrinsic desire for variety. One approach to accomplish this is to offer a product line that provides sufficient variation to the consumer (Wind 1977; Lattin and McAlister 1985). In such instances consumers can satisfy their intrinsic desire for variety but still be brand loyal. As consumers with a high need for variety become relatively quickly bored with current product offerings, a relatively short cycle of new product introductions would be required (Pessemier and Handelsman 1984). To minor brands, the consumer desire for variety in product choice behavior primarily offers a marketing opportunity. The desire for variety may be an important motivator that can be appealed to in an attempt to attract new customers, despite the fact that they will be hard for the brand to retain. For minor brands and new entrants in the market appealing to the desire for something new and different may be an effective means strategy in the market entry stage. Short term promotional activity such as coupons, deals and free samples may be an effective means to stimulate consumers with a high desire for variety to try the new product (Givon 1984) as such consumers have been shown to be quite responsive to this strategy (Kahn and Louie 1990).

Although the primary focus of this book is on variety-seeking in product choice behavior, it may be expected that the desire for variety generalizes to other marketing domains too. For example, consumers with a high desire for variety will not only get more quickly bored with the products they consume but also with advertisements to which they are exposed. To satisfy this desire for variety, firms will have to adopt a more rapid schedule of novel campaigns to prevent "wear out" (Hirschman and Wallendorf 1980), probably with several sales messages rotating in a campaign (Faison 1977).

**Confusion in terminology**

Consumers may switch between products for a wide variety of reasons. Two reasons were discussed previously: curiosity for non-chosen alternatives and boredom with the previously chosen product or specific attributes repeatedly delivered by it. A large number of other reasons for switching behavior may also be identified. Examples are abundant and include out-of-stock conditions of the previously chosen product, price induced switching behavior, switching in response to social or situational constraints on the choice task, etc. This notion that fundamentally different motivations may underlie observed switching behavior plays a crucial role in the analysis of variety-seeking behavior. Not all of the observed switching behavior is variety-seeking behavior in the true sense of the word (McAlister and Pessemier

1982; Kahn, Kalwani and Morrison 1986). For a full and in-depth analysis of true variety-seeking behavior, the distinction between variety-seeking behavior and other forms of observed variation in behavior is of paramount importance. Unfortunately, this distinction has not always been fully recognized in previous contributions to the area. Throughout the marketing and consumer behavior literature many of the key concepts with regard to variety-seeking behavior have been used rather "informally". This is particularly true for the concept of variety-seeking behavior itself. As a point of illustration, in their seminal article on the phenomenon McAlister and Pessemier (1982) decided to avoid the term altogether because it has been so poorly defined and so frequently misused.

To avoid this type of confusion in this book the terminology used in later chapters will be briefly introduced in this opening chapter. Each of the key concepts will be discussed and defined in more detail in later chapters. This chapter's definitions of the key concepts will also serve to structure the book as a whole. Section 1.2. gives a brief introduction on the important distinction between intrinsic and extrinsic motivation in human behavior, a more detailed discussion of which will follow in Chapter 2. Section 1.3. introduces the terminology of the key concepts in the analysis of variety-seeking behavior. Section 1.4. identifies the key issues with respect to variety-seeking behavior that have received inadequate attention in previous research on the phenomenon of variety-seeking behavior. These key issues will be addressed conceptually and empirically in later chapters of this book. As such, section 1.4. also provides the structure of the following chapters and their coherence.

## 1.2. Introduction of variety-seeking related concepts

The dynamic nature of consumer choice behavior over time can be dealt with at different levels of abstraction. At a general level it can be described in terms of the distinction between repeat purchasing of the alternative previously chosen versus the choice of any other alternative not chosen on the previous choice occasion<sup>4</sup> within that particular product category. The distinction between repeat purchasing and variation in behavior can be observed easily and objectively from consumption or purchase histories.

The important point to note, however, is that deviations from repeat purchasing do not necessarily form a homogeneous category. A wide variety of different consumer motivations may underlie observable variation in choice behavior. The identification of these underlying motivations is of key importance in the analysis of variety-seeking behavior. Whether or not any specific manifestation of observed variation is variety-seeking behavior in the true sense of the word critically depends on the underlying consumer motivation for switching behavior

---

<sup>4</sup> In line with the vast majority of the variety-seeking literature, we will treat variety-seeking behavior as a first-order feedback mechanism from previous consumption or purchase behavior. The argument might however be extended to feedback from consumption occasions previous to the most recent one.

over time. Building on the psychological literature on human motivation, an important distinction is made between intrinsic and extrinsic (cf. Koch 1956) motivations for switching behavior, depending on whether the value derived from switching behavior is intrinsic or extrinsic to the process of switching itself (Staw 1976).

In intrinsic motivation, the valued goal is internal to the process of doing, implying that these behaviors are valued for their own sake and may be self-sustained without any external inducement (Staw 1976). A basic characteristic of intrinsically motivated behaviors is "that they appear to be carried out for an appeal inherent in, or intrinsic to, the activity itself, or conversely appear to be avoided or terminated because of an aversiveness inherent in the activity" (McReynolds 1971a: 157). In terms of switching behavior, variation in behavior is intrinsically motivated if the consumer engages in this behavior for the value inherent in the process of brand switching *per se*. In those instances switching behavior can be said to be a goal in and of itself (cf. McAlister and Pessemier 1982).

Behavior is referred to as extrinsically motivated when the valued goal of behavior is extrinsic to the process of doing. For such behaviors, satisfaction is not inherent in engagement in the behavior *per se*, but rather is derived from the achievement of a goal that is external to the behavior itself, but which can be achieved by engaging in that behavior. For that reason, extrinsic motivation is also referred to as "instrumental" behavior (McReynolds 1971a: 158) or "a means to an end" (Deci 1975: 23). In terms of switching behavior, variation in behavior is extrinsically motivated if the consumer engages in it, not for the satisfaction inherent in variation *per se*, but rather for the consequences that result from brand switching. In these instances, variation in behavior is not a goal in and of itself, but it merely serves as an instrumental means in the attainment of some further goal(s). Consider, for example, the consumer who switches away from a previously chosen brand because another brand is on sale. It is likely that value to this consumer is not inherent in the process of brand switching *per se*, but rather is derived from the fact that brand switching is instrumental in the achievement of some further goal (e.g. satisfaction of a financial motive).

At the conceptual level, the distinction between intrinsically and extrinsically motivated variation in behavior is well established under such headings as direct versus derived varied behavior (McAlister and Pessemier 1982), exploratory versus instrumental brand switching (Raju 1984), variety drive versus other causes for purchase exploration (Hoyer and Ridgway 1984), and intrinsically versus extrinsically induced brand switching (Mazursky, LaBarbera and Aiello 1987). However, surprisingly few of the many empirical studies on variety-seeking behavior have considered this important distinction. An exception is found in a study by Van Trijp and Hoyer (1991) who identified consumers' self-stated motives for brand switching and classified them in terms of four choice mechanisms very similar to those suggested by Sheth and Raju (1974): habit-controlled, situational/normative-controlled, problem-solving-controlled and controlled by variety-seeking tendency (see also Chapter 7). Thus, in addition to true variety-seeking behavior as a result of the intrinsic need for variety instigated by

curiosity, boredom with the choice task and attribute satiation, these authors explicitly recognize that variation in behavior may also be extrinsically motivated by the expected consequences as a result of variation in behavior (see Figure 1.1).

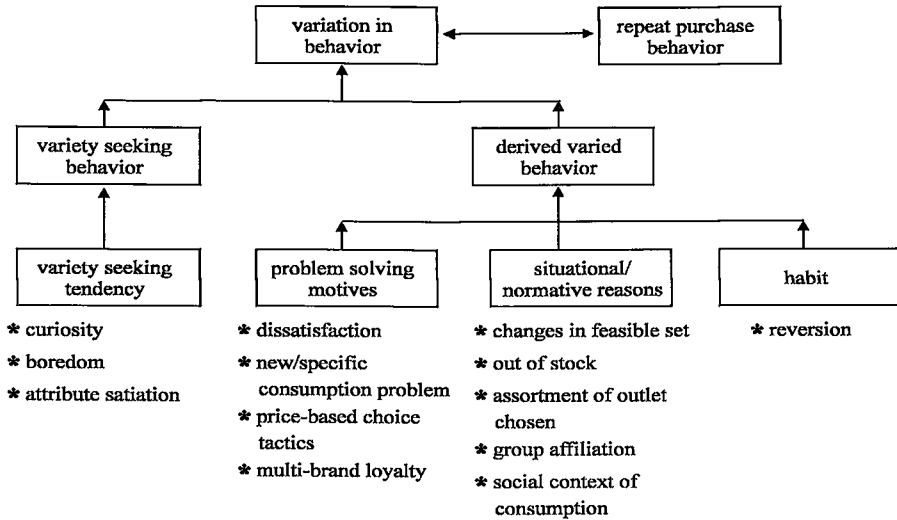


Figure 1.1. Van Trijp and Hoyer's (1991) taxonomy of consumer motivations for variation in behavior.

### 1.3. Terminology

Van Trijp and Hoyer's (1991) classification (see Figure 1.1) will be used to guide the definition of the key concepts of variation in behavior, derived varied behavior, variety-seeking behavior and variety-seeking tendency.

#### 1.3.1. Variation in behavior

The term 'variation in behavior' will be used to refer to observable variation in purchase or consumption behavior, without reference to the underlying motivation(s) that gave rise to it. In terms of temporal choice behavior, it thus forms the complement of repeat purchasing behavior. Variation by definition is a relative concept, in that it can only be assessed in relation to something else. A useful distinction can be made between structural and temporal variation in behavior. Structural variation considers the variation inherent in one particular consumption occasion, without the time dimension being considered. Structural variation is

thus defined relative to a set of items consumed simultaneously at one particular consumption occasion. This would, for example, reflect the situation that the structural variation inherent in a mixed bouquet of flowers is greater than that of an unmixed bouquet. Temporal variation considers variation over time and is defined relative to one or more previous consumptions within the same behavioral category. Temporal variation thus relates to the variation conveyed by a temporal sequence of objects drawn from a well defined universe (Pessemier 1985: 77).

Variation in choice behavior is a matter of degree for which several quantitative measures have been proposed in the marketing and economics literatures. The more sophisticated measures for the amount of variation in a consumption or purchase history capture both the temporal aspect and the structural variety among the products in the choice set. Measures for quantifying variation in behavior as well as their reliability and validity will be discussed in Chapter 5.

### 1.3.2. Derived varied behavior

The term 'derived varied behavior' denotes extrinsically motivated variation in behavior. In such instances, value is not inherent in variation per se, but rather is derived from the more or less delayed consequences that are a result of variation in behavior. Rather than being sought out for the appeal inherent or intrinsic to variety itself (variety as a goal in itself), derived varied behavior is engaged in as an instrumental means in the attainment or avoidance of a given end state or further away goal (cf McReynolds 1971a). Each of the three basic categories of derived motives for variation in behavior, identified in Figure 1.1. will be discussed in more detail.

The category of *situational/normative* motives captures external factors that influence consumer choice behavior. Situational factors relate to changes in the personal choice situation that may change the feasible set of product alternatives and subsequently result in variation in choice behavior. Examples would include (McAlister and Pessemier 1982) changes in constraints (wealth, free time), moving from one neighborhood, region, or country to another, and health related factors. Situational factors also relate to restrictions imposed by the supply side of the market such as out of stock conditions or the situation where the preferred product is not carried in the assortment of the outlet that is visited. Normative factors relate to the situation where choice behavior is governed by the influence of relevant others. Choice behavior may be guided by the social context of consumption. For example, one might purchase a different brand of beer than would be consumed in private in order to impress a particular guest. Social anxiety and the desire for group affiliation may guide choice behavior to follow the changing behavior of peers.

The *problem-solving* motives reflect the possibility that variation in choice behavior may be a well-considered choice from the consumer's problem-solving perspective. These

motives differ from situational motives in that variation in behavior is a more rational, considered choice, rather than a choice imposed by factors and constraints beyond the consumers' control. Problem-solving motives relate to brand switching induced by dissatisfaction with the previous brand but also to the need for a different product to solve a new or specific choice problem. The specific choice problem may relate to the consumption context. For example, one type of soup may be purchased when it is used as an ingredient for a casserole while another type of soup may be purchased when it is used as a course of a meal (McAlister and Pessemier 1982). Apart from these more elaborate belief-controlled choices, this category also captures the more simple price-based choice strategies (Hoyer 1984) such as "buy the cheapest" or "buy on coupon." This brand switching behavior would be a consistent process of buying the least expensive alternative at a particular moment in time. Also, consumers can be multi-brand loyal (Jacoby and Chestnut 1978) and this would lead to systematic brand switching over time.

*Habit* plays an important role in consumers' choice behavior with respect to low involvement decisions. Most of the habit-controlled choice behavior does not result in variation in behavior. One aspect of habit-controlled choice that is relevant in the context of observed variation in behavior is the reversion-motive (cf. Lawrence 1969). Reversion relates to switching back to the original brand after an incidental brand switch and may, for example, be due to dissatisfaction with the newly tried brand or to an incidental deal for the newly tried brand.

### 1.3.3. Variety-seeking behavior

The term 'variety-seeking behavior' will be reserved to denote variation in behavior that is engaged in as a goal in and of itself. More formally, and in the spirit of Jacoby and Chestnut's (1978) definition for brand loyalty, we propose the following definition for variety-seeking behavior:

*"the biased behavioral response by some decision making unit to a specific item relative to previous responses within the same behavioral category, or to a set of items consumed simultaneously, due to the utility inherent in variation per se, independent of the instrumental or functional value of the alternatives or items, and is a function of psychological processes".*

The important difference from derived varied behavior thus is the fact that the value derived from variety-seeking behavior is inherent in the act of switching itself, rather than being dependent on the consequences that result from switching behavior. Psychologically, variety-seeking behavior is positively valued by consumers for its contribution to the underlying processes of relief of boredom with the choice task, relief of attribute satiation and satisfaction of curiosity. Consumers differ in the extent to which they value variation in

behavior for its own sake, which is reflected in the concept of variety-seeking tendency. Satisfaction of this intrinsic desire for variety is the key motivator for variety-seeking behavior.

#### **1.3.4. Variety-seeking tendency**

Variety-seeking behavior is engaged in for its contribution in bringing the actual level of stimulation experienced in life into closer correspondence with the consumer's Optimal Stimulation Level (OSL). Consumers differ in the extent to which they engage in variety-seeking behavior, partly because they differ in preferred level of stimulation. Consumers' variety-seeking tendency refers to the personality characteristic that reflects the extent to which a particular consumer has an intrinsic tendency to engage in variety-seeking behavior in product choice as a means of regulating the actual level of stimulation into closer correspondence with his idiosyncratic OSL.

Variety-seeking tendency is conceptualized as a derivative of the more generalized personality trait of Optimal Stimulation Level. Whereas OSL is defined at a relatively high level of pervasiveness (exploratory tendencies in behavior in general), variety-seeking tendency specifically addresses the tendency of consumers to engage in one specific form of exploratory behavior, namely variety-seeking behavior in product consumption. For 'variety-seeking tendency' we propose the following formal definition:

*"the motivational factor that aims at providing variation in stimulation through varied product consumption, irrespective of the instrumental or functional value of the product alternatives"*

Chapter 6 will discuss the development of VARSEEK, a domain-specific personality measure for variety-seeking tendency with respect to foods.

#### **1.4. Key issues with respect to variety-seeking behavior**

Despite the fact that variety-seeking behavior has generated considerable research interest in the past, several key issues remain that deserve further investigation. In this work, we will emphasize the following issues:

1. Measurement of true variety-seeking behavior
2. Psychological processes underlying variety-seeking behavior
3. Person-related determinants of variety-seeking behavior
4. Product-related determinants of variety-seeking behavior and their interaction with variety-seeking tendency

Many of our basic ideas about variety-seeking behavior build on various streams of psychological theory. Chapter 2 summarizes the relevant psychological theory on each of these four issues and discusses implications for the study of variety-seeking behavior.

### *Measurement of true variety-seeking behavior*

A first important issue that has not always received adequate attention in previous research into the phenomenon concerns the measurement of variety-seeking behavior. Building on the psychological literature on intrinsic versus extrinsic human motivation (section 2.2), our approach emphasizes the importance of distinguishing true variety-seeking behavior from derived varied behavior. Chapter 3 reviews prior research on variety-seeking behavior in the marketing literature and discusses how previous research efforts have handled this measurement problem. The distinction between the two fundamentally different forms of observed variation in behavior, in terms of antecedents and consequences, forms the core of the variety-seeking model, developed in Chapter 4. Chapter 5 analyzes measures for variation in behavior, some of which may also be used for quantifying variety-seeking behavior intensity provided that the underlying motivations for switching behavior are known.

### *Psychological processes underlying variety-seeking behavior*

Once true variety-seeking behavior intensity has been identified, a second key issue concerns the understanding of the phenomenon. In other words: why does this type of behavior occur and in which situations is it likely to be an important determinant of consumer choice behavior? The variety-seeking model, developed in Chapter 4 identifies three underlying psychological processes for variety-seeking behavior in product consumption: boredom with the choice task, attribute satiation and curiosity. These three motives all relate to a discrepancy between the actual level of stimulation experienced in life and the consumer's Optimal Stimulation Level (OSL). Variety-seeking behavior in response to any of these three motives may serve as an important mechanism for bringing the actual level of stimulation into closer correspondence with the Optimal Level, a process associated with positive affect (section 2.5).

### *Person-related determinants of variety-seeking behavior*

Previous attempts to explain differences in variety-seeking behavior in product consumption and other exploratory tendencies in the consumer context have tended to emphasize personality characteristics as the key explanatory variable. Building on the psychological literature on exploratory behavior (section 2.3), many of these previous studies have focused on the general personality characteristic of OSL. Only recently have there been attempts to develop consumer-specific personality scales for exploratory tendencies in the consumer context. These measures may be expected to have higher predictive validity than general measures for OSL because of their closer measurement correspondence with the behavioral

phenomenon of interest (i.e. variety-seeking behavior), yet they still capture a relatively diverse set of exploratory behaviors in addition to the specific manifestation of variety-seeking behavior in product consumption. We suggest that the understanding of the phenomenon of variety-seeking behavior in product consumption may be further enriched by the consideration of personality characteristics that specifically tap the consumer tendency to use variety-seeking behavior in product consumption as a means of bringing the actual level of stimulation into closer correspondence with the consumer's idiosyncratic OSL. We refer to this specific personality characteristic as variety-seeking tendency and develop a domain-specific scale to quantify it. The development and performance of the VARSEEK-scale will be discussed in Chapter 6.

### *Product-related determinants of variety-seeking behavior*

Empirical studies that have compared consumers' variety-seeking behavior intensity across product categories reveal that consumers do not engage in variety-seeking behavior in all product categories to the same extent. Personality characteristics cannot fully account for these intra-individual differences in variety-seeking behavior. Thus it seems that characteristics of the choice context (including product-related variables) also help to explain when and why variety-seeking behavior is more likely to occur. These choice context influences have only recently begun to attract research attention in the consumer behavior literature. The variety-seeking model (Chapter 4) explicitly considers variety-seeking behavior in the broader context of consumer choice behavior. In addition to value derived from variety it also considers the long-term value derived from product-related characteristics of the alternatives switched to and from. Building on the psychological theory on the effect of extrinsic motives on intrinsically motivated behavior (section 2.4), specific hypotheses are derived for product-related characteristics that may hinder or facilitate the expression of variety-seeking tendency in true variety-seeking behavior. Several of these hypotheses will be empirically tested in Chapter 7. Building on the psychological literature on cognitive evaluation theory (section 2.4), the variety-seeking model considers these product-related determinants to act as controlling elements on choice behavior. It further suggests that consumers with a high variety-seeking tendency are more sensitive to these controlling factors than are consumers with a low variety-seeking tendency. Therefore, in addition to main effects of variety-seeking tendency and the product-related determinants of variety-seeking behavior, we hypothesize that the product-related determinants interact with variety-seeking tendency to determine when and why variety-seeking behavior is most likely to occur.

## **1.5. Outline of the book**

To a large extent, this book will be structured along the key issues discussed in the previous section. Chapter 2 summarizes the psychological theory relevant for the analysis of these

issues in variety-seeking behavior. Chapter 3 reviews the marketing literature on variety-seeking behavior. The theoretical model for variety-seeking behavior will be developed in Chapter 4. From this model, specific hypotheses will be developed with respect to person-related and product-related determinants of variety-seeking behavior and their interaction. Chapter 5, 6 and 7 represent the empirical part of this book. These empirical studies are conducted in the context of human food consumption. Chapter 5 represents an empirical investigation into the validity of measures for variation in consumption. Chapter 6 discusses the development and applications of the VARSEEK-scale, a domain-specific measure for tapping consumers' variety-seeking tendency with respect to foods. In this chapter specific hypotheses with respect to person-related determinants of variety-seeking behavior will be formally tested. Chapter 7 provides an empirical test of several of the key hypotheses derived from the variety-seeking model. In addition to person-related determinants, product-related determinants will be considered as well as their interaction with the person-related determinant of variety-seeking tendency. Chapter 8 summarizes the main conclusions and gives suggestions for future research.



## CHAPTER TWO

### PSYCHOLOGICAL THEORY ON VARIETY-SEEKING BEHAVIOR

#### 2.1. Introduction

The previous chapter introduced the key concepts and key issues in the analysis of variety-seeking behavior. Most analyses of variety-seeking behavior build on psychological theories and our work is no exception. We will use several psychological concepts and theories to develop and support our basic ideas. This chapter will introduce and discuss psychological theories on variety-seeking behavior and related behavioral phenomena that underlie the variety-seeking model. More specifically, we will discuss four streams of psychological thinking that have particular relevance to the key issues in variety-seeking behavior discussed in the previous chapter.

*Variety-seeking behavior versus derived varied behavior.* As discussed in the previous chapter, the analysis of variety-seeking behavior critically depends on the distinction between intrinsic and extrinsic motivation in switching behavior. A first stream of psychological literature with high relevance for the analysis of variety-seeking behavior is that on human motivation, in particular the distinction between intrinsic and extrinsic motivation in behavior. Psychological theorizing on this issue will be discussed in section 2.2.

*Psychological theories on the mechanisms underlying variety-seeking behavior.* Much of the (earlier) work on variety-seeking behavior has explicitly built on psychological theories on exploratory behavior. These theories have emphasized individual difference variables to account for the phenomenon. This stream of research will be discussed in section 2.3.

*The effect of choice context on variety-seeking behavior.* Psychological theory on intrinsic versus extrinsic motivation has evolved in a direction that focuses on the combination and interaction of intrinsic and extrinsic motivations in human behavior. This stream of research, the so-called cognitive evaluation theory, is highly relevant in the context of variety-seeking behavior as it may provide insight into the extent to which variety-seeking behavior intensity is influenced by the extrinsic motivations in the choice context. Psychological theorizing on the combination and interaction of intrinsic and extrinsic motivations in behavior will be discussed in section 2.4.

*Affect associated with variety-seeking behavior.* One of the basic assumptions in theorizing on variety-seeking behavior is that this behavior is engaged in for the value inherent in the act of variation per se. Psychological theory on affect in relation to variety-seeking behavior and other intrinsically motivated behaviors will be discussed in section 2.5.

## **2.2. Intrinsic versus extrinsic motivation in human behavior**

### **2.2.1. Psychological theory**

Motivation concerns the energization and direction of behavior. As it directly relates to the question of "what causes people to behave in the way they do?", motivation is a central concept in most comprehensive theories of consumer behavior. Insight into consumer motivation is particularly important to the understanding of the processes underlying market choice behavior as well as to efforts aimed at shaping that behavior (Sheth, Newman and Gross 1991). Motivation is assumed to be an energizing and directing force underlying human behavior that can be used in the explanation of observed behavior (MacFadyan 1986). Unfortunately, motivation itself cannot be directly observed. It is an unobservable construct that is hypothesized to intervene between one observable event and another and has to be inferred either from what an individual does or says.

Many different motives have been proposed in the literature to explain different aspects of human behavior. Attempts have been undertaken to classify this multitude of motivations into a smaller number of meaningful basic categories (see MacFadyan 1986 for an overview and comparison), both within the domain of psychology (e.g. Murray 1938; Maslow 1954) and within the domain of consumer behavior (e.g. Sheth 1975; Fennell 1975; 1978; McGuire 1976; Hanna 1980; Rossiter and Percy 1987; Sheth, Newman and Gross 1991).

For the present discussion it is particularly instructive to categorize motivations into two broad categories: intrinsic and extrinsic (Koch 1956). The fundamental difference between these two classes of motivation is whether the value derived from behavior is internal or external to the process of "doing" (Staw 1976). Extrinsically motivated behaviors are those for which the process of doing is instrumental in the attainment or avoidance of a given end state or goal (McReynolds 1971a). For such behaviors, satisfaction is not derived from engaging in the behavior per se, but rather from goal achievement to which the behavior is instrumental. For that reason, extrinsically motivated behavior is also referred to as "instrumental behavior" (McReynolds 1971a) or "a means to an end" (Deci 1975). Extrinsically motivated behaviors are the primary concern in the well known expectancy-value theory of motivation, which specifies that motivation is a product of the utility or valence of a particular goal and the probability that the desired outcome will be achieved by performing a particular behavior (Staw 1976).

Not all behaviors are goal directed in the sense outlined above. Organisms engage in a wide variety of behaviors for which no apparent extrinsic reward can be identified. Such behaviors are not instrumental in the achievement of a given end state, but rather appear to be an end in themselves (Deci 1975). These behaviors are valued for their own sake, and they may be self-sustained without any external inducement (Staw 1976). McReynolds (1971a) defined these intrinsically motivated behaviors as those that "appear to be carried out for an

appeal inherent in, or intrinsic to, the activity itself, or conversely appear to be avoided or terminated because of an aversiveness inherent in the activity". Several authors have suggested mechanisms underlying the internal consequences that are experienced as internally rewarding. These mechanisms will be addressed later in this chapter.

The distinction between intrinsic and extrinsic motivation is a matter of degree. Any behavior can be described in terms of the intrinsic appeal (or aversiveness) inherent in the activity itself and the more delayed consequences brought about by engaging in that behavior. Consumers may value these two elements of an activity differently. Therefore, the distinction between intrinsic and extrinsic motivation critically depends on the actor's motivational state at the moment of the behavioral choice. If a particular behavior is primarily engaged in for its intrinsic appeal it is referred to as intrinsically motivated behavior. On the other hand, if it is primarily engaged in for the consequences that arise from it, it may be referred to as extrinsically motivated. Figure 2.1. provides a conceptual overview of intrinsic and extrinsic sources of value derived from the consumption experience.

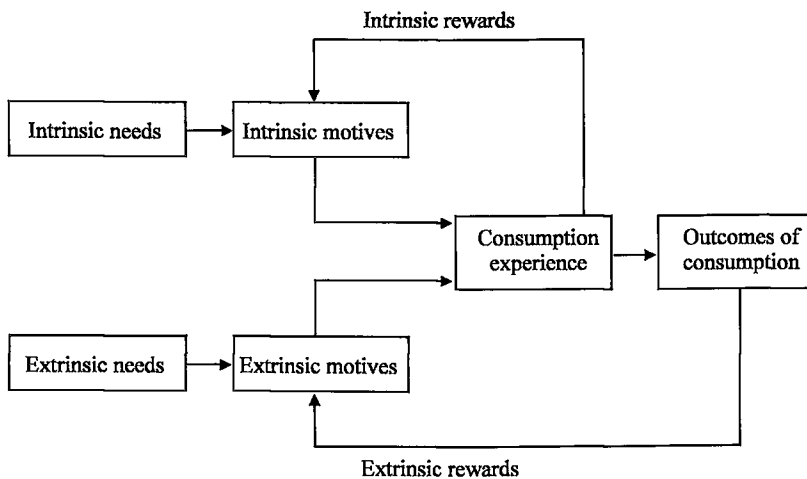


Figure 2.1. Intrinsic and extrinsic sources of value derived from the consumption experience.

Intrinsic and extrinsic motivation differ in a number of relevant aspects. As illustrated in Figure 2.1, the rewards associated with intrinsically motivated behaviors are inherent in the process of engaging in the consumption behavior per se, rather than in the more or less delayed consequences of behavior. In line with Holbrook and Hirschman (1982) we will refer to these intrinsic rewards as the value inherent in the consumption experience per se. Extrinsic rewards, associated with extrinsic motivation, do not arise from the consumption experience per se, but rather from the more or less delayed consequences that result from engaging in the particular consumption experience. In terms of extrinsic rewards, the

consumption experience is merely a means for bringing about the relevant consequences, rather than a goal in and of itself.

The distinction between intrinsic and extrinsic rewards has direct implications for the consumer's evaluation of alternative courses of action. A consumer who is intrinsically motivated will evaluate alternative courses of action in terms of their intrinsic appeal, whereas a consumer who is extrinsically motivated will evaluate them in terms of their respective consequences. The evaluation processes in relation to extrinsic motivations have received considerable attention. Two prominent examples are Fishbein's (1967) and Rosenberg's (1956) attitude models. Fishbein operationalized direction of behavior in an expectancy value format. Attitude toward alternative courses of action is hypothesized to be determined by the expected salient consequences of performing the act multiplied by their respective evaluation. Rosenberg's (1956) attitude model defines attitudes toward an object in terms of the perceived instrumentality of the behavior in obtaining value  $i$ , times the importance of value  $i$ . Obviously, these models are formulated in a means-end format, in that they suggest that alternative courses of action are evaluated in terms of the extent to which the consequences that result from engaging in a behavior contribute to the achievement of relevant goals.

### **2.2.2. Intrinsic and extrinsic motivation in the consumer context**

In recent years, the distinction between intrinsic and extrinsic motivation has gained increasing acceptance in the consumer behavior literature. Building on insights from cognitive psychology, early models in the consumer behavior literature tended to emphasize extrinsic motivation. The basic assumption of these models within the so-called information processing approach (e.g. Bettman 1979) was that consumer behavior is directed at problem solving to achieve goals (Holbrook and Hirschman 1982). Much emphasis was given to information processing: the way consumers receive and store information and how this information is used in assessment of the 'value' of alternative courses of action. The benefits providing value were largely defined in terms of functionality of objective features (Holbrook and Hirschman 1982), thus stressing extrinsic motivation. Holbrook (1986) has characterized this paradigm as C-A-B (cognition-affect-behavior), emphasizing that cognitive elements form the basis, that affect is narrowly conceptualized to result from cognitions (e.g. liking or preference in multiattribute attitude models), and that behavior is determined by a rational assessment of the utility expectations (defined as overall affect) associated with each alternative course of action.

The increasing interest among consumer behavior researchers in the intrinsically motivated aspects of consumer behavior was largely initiated by the influential work of Holbrook and Hirschman (Holbrook and Hirschman 1982; Hirschman and Holbrook 1982) and the earlier work of Alderson (1957). Alderson (1957) was probably one of the first to

distinguish between extrinsically ('instrumental') and intrinsically ('congenial') motivated consumption behaviors. He defined congenial consumption behavior as "all activity, whether collective or solitary, which is expected to yield direct satisfaction and hence is pursued as an end in itself" (Alderson 1957: 169). Alderson asserted that an individual will attempt to occupy as much time as possible with congenial behavior, either through direct experience or through symbolic experience (reading, artistic consumption etc).

In the consumer behavior literature on intrinsic motivation, the work by Holbrook and Hirschman (Holbrook and Hirschman 1982; Hirschman and Holbrook 1982) stands out. They maintain that the information processing perspective is inadequate to account for intrinsically motivated consumer behaviors such as leisure activities, consumer esthetics and variety-seeking. Sheth (1981) referred to these behaviors as "non-purposeful" in the sense that they are usually not instrumental in the achievement of some further goal, but rather are valued for their own sake. Because the satisfaction derived from these behaviors is inherent in the activity itself, attention shifted from the pre-choice decision making processes to the consumption experience itself. Rather than a well considered rational process, consumption began to be seen as "involving a steady flow of fantasies, feelings, and fun" (Holbrook and Hirschman 1982: 132). Hirschman and Holbrook (1982: 92) gave a central role to the "multi-sensory, fantasy and emotive aspects of one's experience with products" in the satisfaction derived from the consumption experience. This approach to consumer behavior, which focuses on the subjective, non-rational aspects of the consumption experience, is sometimes referred to as the experiential perspective.

Although initial efforts focused on the consumption experience in its own right, there is now growing recognition in the consumer behavior literature that intrinsic and extrinsic rewards can be discerned in almost all consumption phenomena (Holbrook 1986) and that anticipation of the consumption experience may influence consumers' buying decisions (Holbrook, Lehmann and O'Shaughnessy 1986). These combined intrinsic and extrinsic rewards of consumption behaviors have been studied in relation to various stages of the consumer decision process. For example, Bloch, Sherell and Ridgway (1986) distinguished between intrinsic and extrinsic motivation in ongoing information search behavior, asserting that search may occur for the fun and pleasure inherent in the activity itself (intrinsic appeal) in addition to its extrinsic function of providing a bank of product information potentially useful in future decision making. Several authors have considered the intrinsic appeal inherent in shopping behavior in addition to its instrumental function in obtaining goods. This intrinsic appeal of the shopping experience per se has been shown to be related to the diversion of daily routine, self-gratification and sensory stimulation (Tauber 1972), but also the enjoyment of the store environment, browsing and exploring the store's offerings, talking to sales personnel and even the intrinsic value of spending money (Donovan and Rossiter 1982). Acknowledging the fact that consumers may differ in their characteristic shopping orientations, shopping typologies have included intrinsically motivated consumers under such

headings as 'recreational' shoppers (Stephenson and Willet 1969; Bellenger and Korgaonkar 1980) and 'shoppers motivated by stimulation' (Westbrook and Black 1985). Others have considered the intrinsic-extrinsic distinction at the 'evaluation of alternatives' stage of consumer decision making. For example, Von Wright (1963) explicitly distinguished between intrinsic and extrinsic preferences: whereas extrinsic preferences are based on a "judgment of betterness," intrinsic preferences are based on sheer liking: the consumer does not think the product is better for him in terms of goodness for some purpose, he simply likes the product better (Von Wright 1963: 14). O'Shaughnessy (1987:70) adopted this distinction in defining extrinsic preferences as those that are "based on reasons that are objectively seen as instrumental in meeting some function". They thus entail conscious reasons based on means-ends relations that justify a particular choice. Intrinsic preferences on the other hand simply reflect liking or taste where no reason beyond anticipated pleasure can be given (Holbrook, Lehmann and O'Shaughnessy 1986: 52). Batra and Ahtola (1990) extended this basic idea to attitude measurement, suggesting that it is a two dimensional construct with a hedonic and a utilitarian component (Millar and Tesser 1986).

Acceptance of the basic idea that any consumption experience may have intrinsic and extrinsic value has important implications for the delineation of behavior as intrinsically versus extrinsically motivated. As discussed before, whether a certain consumer is intrinsically or extrinsically motivated to engage in a particular consumption behavior depends on the consumer's motivational state at the moment of choice, which cannot be observed directly but has to be inferred. Although individual consumers may differ in whether they are intrinsically or extrinsically motivated to engage in any particular consumption behavior, at the aggregate level behavioral activities may be broadly classified as to whether intrinsic or extrinsic motivations are likely to dominate. Examples of behaviors that "on the average" are primarily engaged in for their intrinsic appeal would include leisure (Unger and Kernan 1983), play (Holbrook et al. 1984) and aesthetic consumption (Holbrook and Zirlin 1985).

Whether a particular behavior is intrinsically or extrinsically motivated depends not only on the importance of intrinsic versus extrinsic rewards, but also on their determinance (Myers and Alpert 1968; Alpert 1971). Consider for example a consumer who primarily engages in a particular consumption behavior for the extrinsic rewards associated with it. In other words, to this consumer, the extrinsic rewards are more important than the intrinsic rewards from the consumption experience. However, when this consumer has the choice from among several behavioral alternatives, each with a similar effectiveness in terms of extrinsic rewards, extrinsic rewards will probably not be decisive in choice behavior. In such instances, the consumer's choice is more likely to be determined by the intrinsic appeal of the acceptable options. Thus, despite the fact that the extrinsic rewards may be more important in the consumer's choice process, the intrinsic rewards are actually determinant in final choice behavior.

### **2.2.3. Implications for variety-seeking behavior**

Whereas previous work on intrinsic versus extrinsic motivations has largely focused on behavioral activities in isolation, the distinction can easily be extended to variation in choice behavior (see Chapter 1). The distinction now depends on whether a particular consumer engages in variation in behavior for the intrinsic or the extrinsic rewards. If value is inherent in the act of switching per se, the behavior is referred to as intrinsically motivated or true variety-seeking behavior. On the other hand, if variation is engaged in for its instrumentality in bringing about desired consequences (i.e. variation as a means rather than as a goal in and of itself), it is referred to as extrinsically motivated or derived variation in behavior.

The consequences arising from the distinction between intrinsic and extrinsic motivations discussed in the previous section equally extend to variation in behavior. Intrinsic and extrinsic motivation for variation in behavior is a matter of degree as intrinsic and extrinsic rewards may be distinguished in any switching activity. Further, whether a particular switching activity is intrinsically or extrinsically motivated depends not only on the importance of intrinsic versus extrinsic rewards but more importantly on their determinance in final choice behavior.

## **2.3. Exploratory behavior**

### **2.3.1. Psychological theory**

Much of the psychological theorizing on intrinsic motivation was inspired by early psychological theories on exploratory behavior. Psychological theories of exploratory behavior are concerned with one specific form of intrinsically motivated behavior, namely the response to novelty and change in the direct stimulus environment. Much of this research on novelty and change was instigated by the observation that laboratory rats would engage in spontaneous activity even when their primary drives appeared to be well satisfied. These analyses revealed that organisms explore novel objects or spaces in the absence of any known drives and that, in the absence of environmental stimulation, animals actually introduce stimulation through the manipulation of objects. It became obvious that the existing drive theories could not account for this spontaneous activity. Subsequently, several theories have been put forward to account for the seemingly discrepant finding that behavior sometimes seems to be directed toward arousal reduction, and at other times toward arousal increase. This section will discuss psychological explanations for exploratory behavior, including variety-seeking behavior. Only the mainstream will be discussed. The reader is referred to the available reviews of these theories (e.g. Zuckerman 1979; Deci 1975; Deci and Ryan 1985) for a more elaborate and detailed discussion.

### Drive theories

Within classical drive theory, drives relate to non-nervous-system tissue deficits. These drives activate consummatory behaviors that have previously been successful in reducing drives. Thus, according to drive theories, drives provide energy for behavior, and associative bonds that develop between drive stimuli and behaviors through the process of drive reduction provide the direction for behavior (Deci and Ryan 1985). Drive theories take a "mechanistic" view of human motivation in that they view the human organism as passive and as being pushed around by the interaction of physiological drives and environmental stimuli.

Empirical drive theory asserts that all behavior is based on four primary drives: hunger, thirst, sex and avoidance of pain. These drives may operate directly, or indirectly through the process of secondary reinforcement. Secondary reinforcement implies that a stimulus, which in itself does not add to drive reduction, may acquire reinforcing properties from having been paired previously with a drive reducing stimulus. As a result of this pairing process, the drive reducing properties are generalized to the initially neutral stimulus.

Quite early it became clear that exploratory behavioral activity could not easily be accounted for by the four basic drives, nor by the process of secondary reinforcement. Anxiety reduction fell short as an adequate explanation, as exploratory behaviors are typically accompanied by interest and enjoyment rather than fear and anxiety and because flight or avoidance would be a more logical behavioral response to novelty if it induces anxiety (White 1959). Explanation in terms of secondary reinforcement would require that exploration has been paired with the reduction of one of the primary needs and that it has to be paired again with the primary drive from time to time to hold its reinforcing value. Both assumptions appeared not to be necessary in the case of exploration. Exploratory behavior originates very early in life before the process of secondary reinforcement has been developed, and it does not require repeated pairing with primary drives (White 1959; Berlyne 1966).

When none of the four primary drives could adequately account for exploration, elaborations on classical drive theory were proposed. This approach involved the specification of additional drives. Examples include the exploratory drive (Montgomery 1954; 1955), the drive for visual exploration (Butler 1953), the boredom drive (Myers and Miller 1954; Zimbardo and Miller 1958), and the sensory drive (Isaac 1962). This drive naming approach has been severely criticized. For example, Hunt (1965) argued that naming a phenomenon is something very different from explaining it. White (1959), in a comparison of the functional properties of exploratory behavior with the functional properties of the established drives, concluded that exploratory behavior tendency cannot reasonably be conceived of as a drive.

Koch (1956) and White (1959) were among the first to suggest that a radically different approach to human motivation was needed to account for behaviors, such as exploration, that could not be adequately explained from drive theory. White (1959) proposed the concept of effectance motivation, as an innate, intrinsic energy source that motivates behaviors that

contribute to the organism's ability to interact effectively with the environment. Since then, theoretical accounts for exploratory behavior take a more organismic view, in that they tend to view the organism as being volitional and able to initiate behaviors.

### **Optimal level theories**

Optimal level theories contend that organisms function most effectively in situations that provide a moderate level of stimulation and that they seek out these situations. Levels of stimulation that are too high provide negative affect and stimulate avoidance behavior. Studies in sensory deprivation have shown that levels of stimulation that are too low may also result in negative affect. Humans and other organisms become very uncomfortable during prolonged periods of stimulus deprivation, even when their primary drives are well satisfied. Optimal level theories build on this idea that some intermediate optimal level exists, although they differ in their definition of what exactly should be at an optimal level. The optimal level theories can be classified into two broad categories: those that focus on physiological arousal and those that focus on cognitive structures.

#### *Optimal arousal theories*

Optimal arousal theories focus on the physiological arousal level and largely build on work by Hebb (1955) and Leuba (1955), who independently suggested the need for an optimal level of physiological arousal. These theories suggest that responses that lead the organism toward the optimum level of arousal will be strengthened. Fiske and Maddi (1961) expanded this work in their theory of exploratory behavior. These authors suggested that there is a characteristic level of arousal that organisms seek to maintain and under which they function most effectively. They posited that the optimal level of arousal is not stationary, but varies with the stage of the organism's sleep-wakefulness cycle. Arousal may result from different types of stimulation: activity associated with internal tissue needs (interoceptive sources of stimulation), activity from cerebral sources (such as day-dreaming, ideas, and thoughts) and activity associated with external stimuli (exteroceptive sources). They further asserted that intrinsically motivated behaviors, such as exploration and manipulation, are most likely to occur in the case of sub-optimal arousal levels. In other words, they contend that these behaviors are more likely to occur when the primary tissue needs, such as food and sex, are satisfied.

#### *Cognitive theories*

To account for the seemingly discrepant finding that humans sometimes behave to reduce incongruity and uncertainty and sometimes behave to increase it, several authors have proposed that people are attracted to stimuli that provide an optimal level of psychological incongruity. Formulations of optimal stimulation theories primarily differ in their definition of the standard against which incongruity is defined.

McClelland et al. (1953) argued that a person will have developed an adaptation level in relation to perceptual inputs. Incongruity is defined relative to that adaptation level. Modest deviations (optimal incongruity) cause an affectively positive response, whereas large discrepancies from adaptation level cause negative affect (their butterfly-model). Optimal incongruity causes a primary emotional response, and cues that have been paired with that affective state become capable of re-activating that state. Thus, optimal incongruity does not have to be present at the time an activity is being motivated. Rather, a cue need only re-activate the affective state that was initially aroused by the discrepancy.

Dember and Earl (1957) took expectations as the standard against which incongruity is defined. A person encounters a stimulus with certain expectations about the relevant dimensions. Complexity is defined as the discrepancy between these expectations and the actual level of the stimulus value. Stimuli with optimal complexity ('pacer' stimuli) will be approached (cf. Walker 1964). Mandler (1982) took a similar position arguing that the congruity between an event (evidence from the environment) and the activated schema (representing the expectations) serves as the underlying process. Mandler argued that schema congruity leads to the experience of familiarity and acceptability, positive emotions but of low intensity. Moderate schema incongruity that can easily be assimilated in an existing schema results in positive affect of higher intensity. For severe schema incongruity, the affective response depends on whether the incongruity can be resolved through schema switching (positive affect of relatively high intensity) or accommodation (if successful even higher intensity positive affect; if unsuccessful very high negative affect).

Hunt (1965) emphasized the motivation inherent in information processing. To Hunt, behavior is instigated by incongruity between the input (sensory data, information) and an internal norm or standard, from which emotional arousal results. Behavior is directed toward or away from the object or situation depending upon the hedonic value (positiveness or negativeness) of the emotional arousal.

Berlyne's (1960; 1963) optimal stimulation theory took collative motivation as a central concept. Stimulus variables such as novelty, surprisingness, change, ambiguity, incongruity, and blurredness are termed collative, since "...in order to evaluate them it is necessary to examine the similarities and differences, compatibilities and incompatibilities between elements -between a present stimulus and stimuli that have been experienced previously (novelty and change), between simultaneously aroused responses (conflict), between stimuli and expectations (surprisingness) or between simultaneously aroused expectations (uncertainty)" (Berlyne 1960: 44). The collative variables share the property that they have arousal potential. In Berlyne's (1963) formulation both low levels and high levels of arousal potential are associated with heightened arousal which is conceived of as an unpleasant state. Thus Berlyne (1963) assumed a U-shape relationship between arousal potential and arousal and a linearly decreasing relationship between arousal and attractiveness. This conception illustrates that Berlyne's (1960; 1963) early work took essentially a consistency, or drive

reduction position, although its formulation was in terms of optimal level of arousal potential (Zuckerman 1979: 32). In his later work, Berlyne (1967; 1971) shifted to a 'complexity' position, acknowledging that both increases and decreases in arousal could be pleasurable.

### **Two-factor theories**

In their explanation of approach and avoidance behavior in response to novelty and change, most optimal level theories postulate a single motivational process operating with a threshold (i.e. a monophasic perspective), below which exploration and above which withdrawal is more likely (Russell 1983). Most of the optimal level theories attribute exploration to small to moderate increases in arousal and withdrawal to large increases. Similarly, some monophasic theories take fear as the underlying motivation for exploration (e.g. Halliday 1966; Lester 1967; 1968).

Two-factor theories attempt to explain the optimal level of stimulation from a biphasic perspective. Two separate but interacting motivational systems are postulated with the optimal level of stimulation as the net result of the opposing effects of the two systems. For example, in his later work, Berlyne (1967) explained the optimal level of stimulation from primary reward and avoidance systems in the brain.

In explaining exploratory behavior, two-factor theories suggest that behavior elicited by environmental change is the net outcome of the competing curiosity-motivated tendency to explore and the fear-motivated tendency to withdraw (Montgomery 1955). It is assumed that small environmental changes are likely to elicit little fear and thus exploration is likely to occur. The biphasic theories have begun to attract more attention in animal research since the mid-1960's (Voss and Keller 1983: 139). McReynolds (1971b) suggested that behavior is determined by the tendencies to keep anxiety at a minimum and to maintain a given level of innovation. Rozin (1976) discussed these two opposing tendencies in the context of food choice behavior, stressing the adaptive significance of the two tendencies. Particularly for omnivores, the co-existence of exploratory tendency (neophilia) and fear for novelty (neophobia) in food choice can be of paramount importance for survival. Neophobia is important as the consumption of unfamiliar foods always carries the real danger of poisoning. Exploratory behavior, on the other hand, is important from an adaptive perspective in that finding new resources in case of necessity may be crucial to survival and because variety in the diet is needed to provide all necessary nutrients. Actual food choice behavior is hypothesized to be a compromise between these two opposing tendencies.

Zuckerman's (1976; 1991) two-factor theory took risk expectation as a central concept. With increasing levels of perceived risk, the sensation seeking state will increase along with the anxiety state. At some point, depending on the strength of the individual's sensation-seeking trait and factors in the immediate situation, sensation seeking state will begin to diminish in strength while anxiety will continue to increase. The person will tend to approach or enter into the situation until the point where the anxiety state starts to dominate the

sensation seeking state. After this point, withdrawal tendencies will predominate (Zuckerman 1976: 166). According to Zuckerman (1976), situations can be meaningfully classified according to their novelty and the degree of threat or risk they evoke. Situations that are not novel but risky or threatening would be predictable from the anxiety state measures and not from sensation seeking measures. Situations that are highly arousing with minimum risk (e.g. riding roller coasters) would be best predictable from sensation seeking state measures.

Spielberger, Peters and Frain (1981) built on Berlyne's (1960) work. Their 'Optimal Stimulation/Dual Process Theory of Curiosity and Exploratory Behavior' asserts that arousal potential relates to both a curiosity drive and an anxiety drive, that the arousal threshold for the curiosity drive is lower than for the anxiety drive, and that the asymptotic level of the anxiety drive exceeds that of the curiosity drive. The resulting curve illustrating the relationship between arousal potential and hedonic tone (reward/aversion) takes the form of a Wundt curve. At lower levels of arousal potential, behavioral response is dominated by the curiosity drive and diversive exploration is likely to occur. At intermediate levels of arousal potential, the encountered stimulus activates both the curiosity and the anxiety drive. Specific exploration is likely to occur in this situation of uncertainty. As higher levels of arousal potential, the anxiety drive dominates the curiosity drive, and withdrawal is likely to occur.

### **2.3.2. Personality measures in relation to exploratory behavior**

Central to the optimal level theories on exploratory behavior is the assumption that individuals differ in the level of arousal or stimulation that is optimal to them. This optimal stimulation level (OSL) is recognized as a personality characteristic and much research has been directed toward the measurement of this trait (see Steenkamp and Baumgartner 1992 for an overview). The measurement instruments for OSL differ in their level of specificity. Some measurement efforts assume that arousal/stimulation can be conceived of as a unidimensional construct and use a unidimensional scale. Other measurement efforts assert that individuals may not only differ in the overall level of arousal/stimulation that is optimal for them, but also in the characteristic mode of stimulation/arousal seeking. These efforts use multidimensional scales.

General personality scales for OSL can be meaningfully categorized along several dimensions. The first dimension concerns whether the scale specifically focuses on the desire for variety and change or on more general behavioral patterns that may deliver stimulation (e.g. Zuckerman's (1979) Sensation Seeking Scale). A second relevant dimension is whether internal and external sources of novelty/variety and change are recognized. A third relevant dimension concerns the distinction between sensations and cognitions as sources of stimulation.

*Unidimensional operationalizations*

Garlington and Shimota developed the Change Seeking Index, a one-dimensional 95-item self report measure for " .. the need for variation in one's stimulus input in order to maintain optimum functioning" (Garlington and Shimota 1964: 919). Change Seeking is defined by the authors as "an habitual, consistent pattern of behavior which acts to control the amount and kind of stimulus input a given organism receives. Stimulus input includes stimuli from both internal (ideational, cognitive) and external sources" (p. 920). The Change Seeking Index thus emphasizes change in stimuli. Garlington and Russell (1983) provide an overview of applications of the Change Seeking Index.

Maddi, Propst and Feldinger (1965) distinguished between active and passive expressions of the need for variety: the tendency to change one's responses from one moment to the other (active exteroceptive), the tendency to produce novelty (active interoceptive), the tendency to have curiosity (active exteroceptive), and the tendency to feel the desire for novelty (passive). Pearson and Maddi (1966) built on this work and developed a structured measure for the active, interoceptive form of the tendency toward variety. The Similes Preference Inventory consists of 54 items. Each of these items represents the beginning of a common simile, with five alternative endings, differing in degree of novelty. The respondent's task is to select the ending that he or she likes the best.

Penney and Reinehr (1966) developed the Stimulus Variation Seeking Scale (SVSS) that purportedly measures exteroceptive stimulus-variation seeking, although the authors acknowledge that "variation seeking may involve interoceptive stimulation as well" (p. 631). An exteroceptive stimulus-variation seeker is defined as "one who approaches and explores (1) relatively new stimulus situations, (2) incongruous and complex stimuli and (3) one who responds so as to vary stimulation in the presence of frequently experienced stimulation". The Stimulus Variation Seeking Scale is a 100 item true-false scale. Pearson (1970) developed a 10-item desire-for-novelty scale, "expressing the wish for new experience and acknowledgment of the boring nature of the status quo" (p. 201).

*Multi-dimensional operationalizations*

Pearson (1970) developed the novelty experiencing scale (NES) that explicitly distinguishes between different sources of stimulation (internal versus external) and types of subjective experience (sensation versus cognition). This results in four subscales: External Sensation, "a tendency to like active, physical participation in thrilling activities", Internal Sensation: "a tendency to like the experience of unusual dreams, fantasy, or feelings which are internally generated", External Cognitive, "the tendency to like finding out facts, how things work, and learning how to do new things", and Internal Cognitive, "a tendency to like unusual cognitive processes which are focused on explanatory principles and cognitive schemes" (Pearson 1970: 201). The resulting four dimensional Novelty Experiencing Scale (NES) consists of 80 items dichotomously scored as like/dislike.

Mehrabian and Russell (1973), working in the discipline of environmental psychology developed an individual difference measure of arousal seeking tendency. In addition to variation seeking, it "encompasses other facets of arousal seeking tendency such as preferences for novel, complex, or intense stimulation" (p. 317). The 40-item Arousal Seeking Tendency-measure (AST-I) consists of five subscales measuring arousal from change, from unusual stimuli, from risk, from sensuality and from new environments. A revised version of the scale (AST-II; Mehrabian 1978) consists of 32 items, in which no subscales are distinguished.

Zuckerman et al. (1964) developed the Sensation Seeking Scale as an operational measure of the Optimal Level of Stimulation. This scale (SSS) measures an individual's "need for varied, novel, and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experiences" (Zuckerman 1979: 10). In its latest version (SSS-V; Zuckerman, Eysenck and Eysenck 1978), the scale consists of 40 items that tap four basic dimensions. The Thrill and Adventure (TAS) dimension of SSS expresses a desire to engage in sports or other activities involving speed and danger. The Experience Seeking (ES) dimension taps the seeking of experience through the mind and senses, travel and a non-conforming life-style. The Disinhibition (DIS) subscale represents the desire for social and sexual disinhibition as expressed in social drinking, partying and variety in sexual partners. The fourth factor, Boredom Susceptibility (BS), represents an aversion to repetition, routine and dull people, and restlessness when things are unchanging.

### 2.3.3. Implications for variety-seeking behavior

Psychological theories on exploratory behavior have had a profound impact on the marketing approaches to variety-seeking behavior (see e.g. Venkatesan 1973; Faison 1977; Rogers 1979; Raju and Venkatesan 1980; Raju 1981 for reviews of the marketing relevance of these theories). Further, the psychological measurement instruments for quantifying OSL have been widely adopted in marketing (see Steenkamp and Baumgartner 1992 for an overview). In this section we will focus on the relevance of the personality measures for the study of variety-seeking in product choice behavior.

Although the conceptual definitions of the personality measures discussed in the previous section differ in their level of specificity, they all purportedly measure Optimal Level of Stimulation (McReynolds 1971a). Steenkamp and Baumgartner (1992) compared the performance and convergent validity of AST-II, CSI, SSS-V, and NES and confirmed that these scales have sufficient convergent validity to be regarded as alternative measures for OSL. Measures for OSL have been used in the consumer context to explain a wide diversity of other exploratory behaviors in addition to variety-seeking behavior in product choice (see Steenkamp and Baumgartner 1992 for an overview). A consensus finding in this research is that OSL is positively related to exploratory behaviors in the consumer context. However,

they generally have limited predictive validity particularly when the purpose is to predict actual manifestation of these behaviors, rather than self-report measures (Otis 1984; Steenkamp and Baumgartner 1992)

Steenkamp and Baumgartner (1992) related a composite measure of OSL scales to specific manifestations of variety-seeking behavior and found a significant correlation between OSL and variety in food consumption ( $r=0.18$ ;  $p<.05$ ). Part of the explanation of this limited predictive validity might be found in the fact that OSL theoretically relates to a wide diversity of human behaviors of which consumption behaviors comprise only a small part. The individual's stimulation needs need not necessarily generalize to all behavioral categories to the same degree. For example, a consumer may satisfy his stimulation needs by engaging in wild parties, rather than in exploratory consumption behaviors. In the psychological literature, this discrepancy in the level of abstraction in the measurement of the explanatory variables (e.g. personality characteristic) and the behavior purportedly being predicted is referred to as lack of measurement correspondence (Ajzen and Fishbein 1980) or measurement compatibility (Ajzen 1987). One way to increase this measurement correspondence in relation to consumption behaviors is the use of consumer-specific personality measures rather than general personality scales (Kassarjian and Scheffet 1991).

Raju (1977) developed a self-report measure for exploratory consumption behaviors (Raju 1980), and suggested that this scale might serve as a starting point for the development of a consumer specific personality scale for the tendency to engage in exploratory consumption behavior (Raju 1977: 172). Baumgartner and Steenkamp (1994) used Raju's items along with other sources of input in the development of the EBBT (Exploratory Buying Behavior Tendency)-scale, a consumer specific measure for the tendency to engage in exploratory consumption behaviors (Baumgartner and Steenkamp 1994). Baumgartner and Steenkamp's (1991) results lend support for the higher predictive validity of consumer specific scales as they find a product moment correlation of .27 ( $p<.01$ ) between Raju's scale and variety in food consumption, as compared to .18 ( $p<.05$ ) for the composite scale for OSL (Steenkamp and Baumgartner 1992).

However, despite their predictive advantage over general psychological scales, the consumer-specific scales for OSL relate to a general class of exploratory consumption behaviors rather than to specific variety-seeking behaviors. Variety-seeking in product choice behavior is only one of the forms of exploration in the consumer context that may contribute to the stimulation level experienced in life (Raju 1980). Therefore, predictive validity with respect to variety-seeking behavior in product choice may benefit from personality characteristics that conform better to the principle of measurement correspondence. According to Ajzen and Fishbein (1977), measurement correspondence should be achieved in terms of comparable generality or specificity in the measurement of four elements of behavior: the action involved, the target at which the action is directed, the context in which it occurs and the time of its occurrence. In chapter 1, temporal variety-seeking product choice

behavior was defined as: "the biased behavioral response by some decision making unit to a specific item relative to previous responses within the same behavioral category due to the utility inherent in the variation per se, independent of the instrumental or functional value of the alternatives or items and is a function of psychological processes". Measurement correspondence could thus be improved by the development of a personality measure that conforms in terms of action (variation in behavior), the target (products in a specific product category) and the context (for the stimulation it provides, irrespective of the instrumental or functional value of the choice alternatives). The VARSEEK-scale which was developed for this purpose will be discussed in Chapter 6.

## **2.4. Effect of extrinsic motives on intrinsically motivated behaviors**

### **2.4.1. Psychological theory**

Most motivational theories emphasize extrinsic motivation in human behavior. Few attempts have been made to integrate intrinsic and extrinsic motivation into one comprehensive theory for human motivation. One stream of research that is particularly relevant for the analysis of variety-seeking behavior is that on the interaction between intrinsic and extrinsic motivation in behavior. This stream of research will be discussed in this section. It has evolved from Deci's (1975) work on intrinsic motivation and is known as cognitive evaluation theory (Deci and Ryan 1985).

Cognitive evaluation theory (Deci and Ryan 1985) is concerned with the effect of extrinsic rewards on the initiation and maintenance of intrinsically motivated behaviors. It gives a central role to humans' needs for self-determination (or autonomy) and competence as underlying mechanisms for intrinsic motivation. The need for competence "encompasses people's strivings to control outcomes and to experience effectance; in other words to understand the instrumentalities that lead to desired outcomes and to be able to reliably effect those instrumentalities" (Deci and Ryan 1990: 243). The need for self-determination "encompasses people's strivings to be agentic, to feel like the origin of their actions and to have a voice or input in determining their own behavior" (Deci and Ryan 1990: 243).

Deci and Ryan (1985) summarized cognitive evaluation theory in three propositions. The first proposition relates to the intrinsic need to be self-determining. It states that events that promote a more external perceived locus of causality will undermine intrinsic motivation, whereas those that promote a more internal perceived locus of causality will enhance intrinsic motivation. The second proposition relates to the intrinsic need to be competent and to master optimal challenges. It states that events that promote greater perceived competence will enhance intrinsic motivation, whereas those that diminish perceived competence will decrease intrinsic motivation. The third proposition relates to subjects' interpretation of cues in the choice context in relation to their perceived locus of causality and personal competence. The

theory contends that consumers give psychological meaning ("functional significance") to cues in the choice context and that this attached meaning is the critical element in determination of behavior (Deci and Ryan 1987)<sup>1</sup>. This is formalized in the third proposition of cognitive evaluation theory, which states that events relevant for the initiation and regulation of behavior have three potential aspects, each with functional significance. The informational aspect provides effectance-relevant feedback in the context of choice and facilitates an internal perceived locus of causality and perceived competence, thus enhancing intrinsic motivation. The controlling aspect signals the extent to which the decision to engage in the behavior is controlled by others or the situation. It facilitates an external perceived locus of causality, thus undermining intrinsic motivation and promoting extrinsic compliance or defiance. The amotivating aspect signifies that effectance cannot be attained. It facilitates perceived incompetence, thus undermining intrinsic motivation and promoting amotivation. It is the relative salience of these three aspects to a particular person in a particular situation that determines the functional significance of an event.

Although subjects may differ in terms of the psychological meaning attached to choice contexts, contextual factors may be categorized according to whether they are generally interpreted as "controlling" or "autonomy- supportive." Autonomy-supportive contexts are those that allow choice free of unnecessary pressure. These contexts increase an internal locus of causality in that people experience themselves as the origin of behavior, freely selecting the desired outcomes and choice in how to achieve them, and are likely to enhance intrinsic motivation. Controlling contexts are those that are experienced as pressure to think, feel or behave in specified ways. The experience of such pressure facilitates an external locus of causality and so hinders intrinsic motivation (Deci and Ryan 1985). Deci and Ryan (1987) provided an extensive review of previous research on the effect of contextual factors on intrinsic motivation and categorized them as autonomy-supportive or controlling. Those factors considered most relevant for the present context will be discussed briefly here. The reader is referred to the original source for a more elaborate discussion.

External events that are interpreted as controlling and thus have been found to decrease intrinsic motivation include deadlines imposed on a task, threats that can be avoided by performing the behavior, surveillance of the task and evaluation of the activity. Rewards such as monetary rewards, prizes and awards have a more complicated effect. Task-contingent rewards have generally been found to decrease intrinsic motivation. This effect is less likely to occur when the rewards are task-noncontingent. Performance-contingent rewards carry both a competence-feedback and a controlling aspect. The net effect on intrinsic motivation depends on the salience of the controlling and informational aspects of the reward. The same

---

<sup>1</sup> People may differ in the psychological meaning they give to contextual factors. Some people are hypothesized to attend more strongly to certain aspects of the situation. Deci and Ryan (1985) distinguish between three such causality orientations: the autonomy orientation, the control orientation and the impersonal orientation.

applies to positive feedback. Positive feedback increases intrinsic motivation when the informational aspect is most salient, and decreases intrinsic motivation when the controlling aspect is more salient. The provision of choice, i.e. the opportunity to choose what to do, has been found to enhance intrinsic motivation. Apart from specific events the general ambience in interpersonal contexts can also be interpreted in terms of autonomy-supportive versus controlling. For example teachers' orientation toward supporting children's autonomy versus controlling children's behavior has been found to influence children's intrinsic motivation with the school task. In addition, an autonomy-supportive context tends to favor the interpretation of rewards as autonomy-supportive.

#### **2.4.2. Implications for variety-seeking behavior**

Cognitive evaluation theory (Deci and Ryan 1985; 1987; 1990) has important implications for the study of variety-seeking behavior. As variety-seeking behavior is defined as an intrinsically motivated behavior, cognitive evaluation theory suggests that this behavior is not likely to be initiated and maintained to the same extent in all choice contexts. In particular, variety-seeking behavior is more likely to occur in choice situations that are perceived as autonomy-supportive rather than controlling. In other words, in choice situations that allow choice and freedom from pressure to think, feel or behave in specified ways. Such autonomy-supportive choice contexts enhance feelings of self-determination rather than pressuring choice toward particular outcomes. Or as deCharms (1968) expressed it, autonomy-supportive contexts guard against the feeling of being "the pawn" to desired outcomes, even though one intends to achieve those outcomes.

Several aspects of the consumer choice context may contribute to the perceived pressure to behave in specified ways and thus may influence the degree of variety-seeking behavior. When extrinsic motivations compete with the consumers' intrinsic desire for variety in choice behavior, they are likely to function as a controlling aspect in choice. Consider, for example, the consumer who has two alternatives (e.g. two detergents) from which to choose and strongly prefers one over the other (e.g. on the basis of past cleaning performance). The consumer is now faced with a dilemma: to seek variety (i.e. to choose the less preferred alternative) at the expense of fulfilling extrinsic motivations for product choice, or to satisfy extrinsic motivation (i.e. choose the high performance alternative) at the expense of the intrinsic desire for variety. It is hypothesized that the perceived difference in cleaning performance will function as a controlling factor in product choice and that variety-seeking behavior is not likely to occur in this choice situation. Now consider a similar choice situation, where three alternatives (two high preference and one low preference) are available to the consumer. In this situation, we would hypothesize that the consumer has a choice relatively free from pressure, at least among the two high preference alternatives. In this situation we would expect that the consumer will satisfy his intrinsic desire for variety by

switching among the two high preference alternatives. From the variety-seeking model, developed in chapter 4, specific hypotheses will be derived concerning these autonomy-supportive versus controlling aspects of consumers' choice situations.

## **2.5. Intrinsic motivation and affect**

### **2.5.1. Psychological theory**

A basic assumption in psychological theories on exploratory behavior and other intrinsically motivated behaviors is that these behaviors are engaged in for the affect inherent in these behaviors per se. Although the optimal level theories differ in terms of what exactly should be at its optimum (see section 2.3), they agree that (larger) deviations from the optimum are generally associated with negative affect. As a result, many of these approaches emphasize cognitive comparison processes and consider emotions and affect to be a derivative of these processes. This assumption is also inherent in cognitive evaluation theory (section 2.4.1), which assumes that affect is a consequence of the needs of self-determination and competence (Deci 1987).

Rather than considering affect as a result of cognitive comparison processes, a different stream of research on intrinsic motivation has put more emphasis on the role of emotions and affect per se in intrinsically motivated behaviors (e.g. Reeve and Cole 1987). These authors (e.g. Reeve, Cole and Olson 1986; Reeve and Cole 1987; Reeve 1989) follow Zajonc (1984) in maintaining that emotions can function independently of cognitive evaluations. In the context of intrinsic motivation, these authors contend that emotions such as excitement can occur independently of cognitive processing and that excitement has the autonomous capacity to produce intrinsically motivated behavior (Reeve and Cole 1987: 280/281). The assumption underlying this approach is that: "the phenomenological experiential states of excitement, affiliativeness, competence and self-determination serve as maintaining stimuli and intrinsic rewards to increase the persistence and future probability of free-choice behavior characterized by the interest, enjoyment, and willingness to continue" (Reeve and Cole 1987: 285).

The affect-oriented approaches to intrinsic motivation emphasize the different emotional responses during the initiation and maintenance of intrinsically motivated behaviors. For example, Izard (1977) gave a central role to the emotions of interest and excitement with a secondary role for enjoyment. She suggested that interest is the emotion underlying curiosity, attention, stimulus selection, investigatory activity, and exploration. Enjoyment, on the other hand, is a separate emotion underlying satisfaction. Performance satisfaction that leads to feelings of mastery, efficacy and competence relates enjoyment to intrinsic motivation, whereas satisfaction of a drive state or the receipt of tangible rewards relates enjoyment to extrinsic motivation (Reeve 1989: 100). Izard (1977) proposed that interest and enjoyment

complement one another to produce intrinsic motivation. Interest occurs first, and the individual begins to attend selectively to a particular stimulus. The selective attention produces exploration, and the individual investigates and manipulates the stimulus. Following satisfactory consequences of such manipulations, joy emerges and attenuates, masks, and inhibits the interest emotion. Hence, a satisfaction-based joy follows an exploration-based interest (Reeve 1989: 100). A similar line of reasoning is followed by Mandler (1982) who suggested that schema incongruity produces interest and successful schema matching activity which results in schema congruity produces enjoyment. Csikzentmihalyi (1975) placed even greater emphasis on enjoyment. To him intrinsically motivated activities are the ones characterized by enjoyment, those for which the reward is the ongoing experience of enjoying the activity. True enjoyment accompanies the experience of flow, "that peculiar, dynamic, holistic sensation of total involvement with the activity itself" (Deci and Ryan 1985: 29).

Reeve (1989: 101) summarized intrinsic motivation as a two-step event. In the first step, various activities are explored, investigated and manipulated. The emotion of interest is likely to play a dominant role at this stage. If a particular activity promises challenge or provides the individual with competence feedback, then the activity is likely to become intrinsically motivating for that person (step 2; based on enjoyment). If the activity does not provide competence feedback or loses its novelty, then its initial appeal (interest) declines and the person explores and manipulates other activities that seem worthy of investigation. This idea of multidimensionality of intrinsic motivation is supported by McReynolds (1971a) who distinguished between two types of intrinsically motivated behaviors: innovative behavior and commitment behaviors. Innovative behaviors refer to "those activities of a person, both overt and covert, than can plausibly be conceived to lead to relatively immediate alterations in the person's internal representation of his overall stimulus environment" (McReynolds 1971a: 161). Innovative behavior thus specifically relates to the initiation and direction of exploratory behavior, and the collative variables (such as novelty) play an important role in this respect (Berlyne 1963). Commitment behavior, on the other hand, refers to behavior that "carries its own motivation," it "appears to encompass more than the novelty-complexity-uncertainty aspect of behavior..... One of the more conspicuous features of much intrinsic behavior is the degree of personal involvement and dedication that the individual invests in the activity" (McReynolds 1971a: 163).

Acknowledging that intrinsic and extrinsic motivation may combine in choice behavior, three types of emotions are involved: interest, which instigates intrinsically motivated behavior, enjoyment from the satisfaction of the intrinsic motives, and enjoyment associated with satisfaction of the extrinsic motives in choice behavior. The emotions can be portrayed in a multi dimensional representation of affect. Although Mehrabian and Russell (1974) originally identified three dimensions of affect, pleasure, arousal and dominance, there is now consensus that the majority of the variance in emotional reactions can be captured by the first two dimensions (Russell, Weiss and Mendelsohn 1989).

Russell (1980) suggested pleasure (unpleasant/pleasant) and arousal (low/high) as the two important underlying dimensions of affect. Figure 2.2. (solid lines) represents Russell's circumplex model of affect.

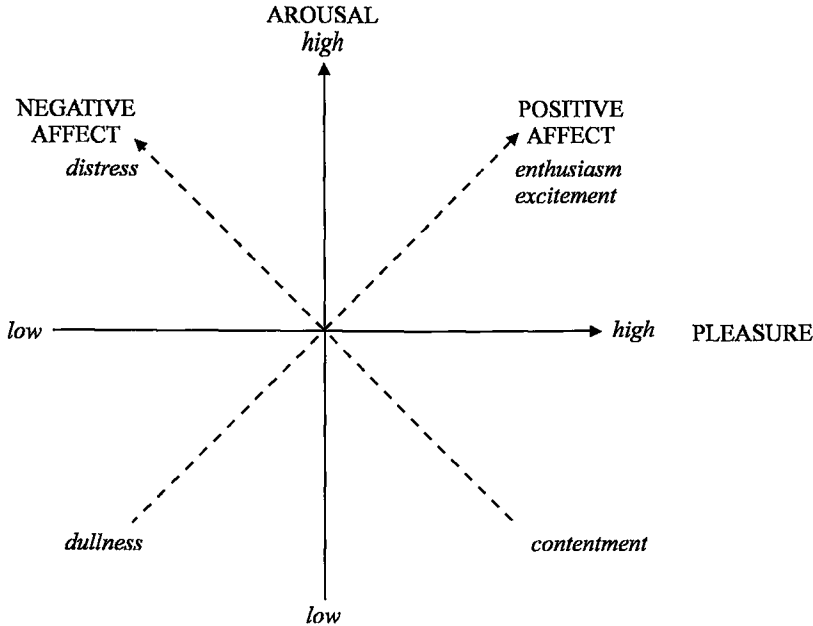


Figure 2.2. The two factor structure of affect (Sources: solid lines: Russell (1980); dotted lines: Watson and Tellegen (1985), slightly adapted).

Watson and Tellegen (1985), observing that many affect terms fall midway between these two dimensions (see also Reisenzein 1994), suggested rotating the axes 45° to obtain basic dimensions that they refer to as "positive" and "negative" affect (dotted lines in Figure 2.2). Arousal or activation is positively associated with both "positive" and "negative" affect in their scheme; the affect valence depends on whether the high level of arousal is interpreted as pleasant (high positive affect) or unpleasant (high negative affect). Watson and Tellegen (1985: 221) assert that positive affect (representing "the extent to which a person avows a zest for life") and negative affect ("the extent to which a person reports feeling upset or unpleasantly aroused") can be conceived of as second-order dimensions underlying the primary emotions. High positive affect is characterized by a broad range of pleasurable and typically high engaged or aroused states such as enthusiasm, interest and excitement. The lower end of the positive affect dimension, on the other hand, is represented by a variety of unpleasant low arousal states, such as dullness and boredom. High negative affect is represented by unpleasant high arousal states such as distress, fear and nervousness, whereas

the low end of this dimension is represented by pleasant low-arousal states, best characterized as relaxed, at ease and calm.

Matsumoto and Saunders (1988) compared subjects' emotional experiences during and after intrinsically versus extrinsically motivated tasks. They found significant differences in the happiness and interest patterns (but not for anger, disgust, fear or sadness) between the two types of tasks. These emotional patterns are displayed in Figure 2.3.

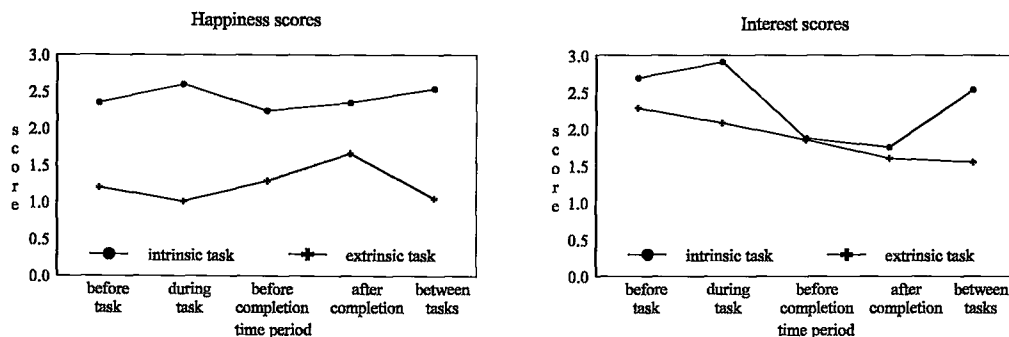


Figure 2.3. Emotional experiences during intrinsically and extrinsically motivated tasks (Matsumoto and Saunders 1988)

The Matsumoto and Saunders (1988) study reveals interesting differences between intrinsically and extrinsically motivated tasks. For the intrinsically motivated task, happiness increases during task engagement, decreases right before completion and then remains the same throughout the interim between tasks. For the extrinsically motivated task, happiness doesn't change during task engagement, but increases right before completion and then decreases during the interim between tasks. For intrinsic tasks, interest increases during task engagement, decreases just before task completion, remains the same after completion, and then increases again during the interim between tasks. For extrinsic tasks, interest doesn't change during task engagement, decreases right before task completion, decreases even more after completion and then remains low with no change during the interim between tasks.

The results of this study illustrate that for intrinsically motivated tasks, happiness and interest are associated with the task per se, signalling satisfaction with and novelty inherent in the task. For extrinsically motivated tasks, happiness is primarily associated with completion of the task, illustrating the outcome dependence of these tasks.

### 2.5.2. Implications for variety-seeking behavior

The two-dimensional view on affect has received some attention in the consumer behavior literature in the context of television ads (e.g. Holbrook and Batra 1987; Mano 1991; Olney,

Holbrook and Batra 1991), product-consumption elicited experiences (Oliver 1992; Mano and Oliver 1993; Westbrook 1987), shopping behavior (Ridgway, Dawson and Bloch 1989), and consumer satisfaction (Oliver 1993). Interestingly, Rossiter and Percy (1987) used the positive and negative affect dimensions to relate them to positive (transformational) and negative (informational) consumer motivations. They argued that the informational motives (problem removal, problem avoidance, incomplete satisfaction, mixed approach-avoidance and normal depletion) can be described along the negative affect dimension. This implies that satisfaction of informational motives follows the general emotional path from distress (high negative affect i.e. an unpleasant high arousal state) to relaxation (low negative affect i.e. a pleasant low arousal state). Satisfaction of transformational motives (sensory gratification, intellectual stimulation and social approval) can be portrayed along the positive affect dimension. It follows a different emotional path from dullness (low positive affect, i.e. an unpleasant low arousal state) to excitement (high positive affect, i.e. a pleasant high arousal state).

The emotions of interest and enjoyment associated with variety-seeking behavior suggest that this type of behavior typically appeals to the positive affect dimension (Watson, Clark and Tellegen 1988; Mano and Oliver 1993; Oliver 1993). Variety-seeking behavior has the capacity of relieving dullness and boredom and injecting excitement and enthusiasm. This is in line with Rossiter and Percy's (1987) conceptualization of the desire for variety as a transformational motivation. In this respect, value derived from variety-seeking behavior is different from value derived from the extrinsic motivations in consumer choice behavior that are informational in nature. Lack of satisfaction of these motivations is associated with distress and disappointment (i.e. negative affect), whereas satisfaction of these extrinsic motives leads to feelings of contentment, a low intensity affective state.

These are important implications for the study of variety-seeking behavior. They suggest that satisfaction of the desire for variety in product choices has the capacity to bring extra spice to life (Jung 1978), rather than reducing distress as satisfaction of the extrinsic motivations would imply. This conceptualization is fully in line with Scitovsky (1976) who argued that in affluent societies, little pleasure is derived from want satisfaction (i.e. the absence of negative affect). Pleasure is primarily associated with stimulation and challenge (high positive affect) which may be accomplished through variety-seeking in product choice behavior. In Herzberg's (e.g. Herzberg, Mausner and Snyderman 1959) terminology, extrinsic motivations would be said to operate primarily as dissatisfiers, whereas variety-seeking behavior would primarily operate as a satisfier.

## **2.6. Conclusion on psychological theories**

This chapter has discussed some of the relevant psychological theories for the analysis of variety-seeking behavior, structured along the four key issues that will be emphasized in the

subsequent chapters. In the remainder of this book, we will build on these psychological theories and elaborate on their relevance for variety-seeking behavior in the context of consumer choice.

## CHAPTER THREE

### MARKETING APPROACHES TO VARIETY-SEEKING BEHAVIOR

#### 3.1. Introduction

The previous chapters have emphasized the importance of distinguishing between intrinsically and extrinsically motivated variation in behavior, arguing that variety-seeking behavior only refers to intrinsically motivated variation in behavior. In spirit with Jacoby and Chestnut (1978) and their definition of brand loyalty, variety-seeking behavior has been formally defined as (see Chapter 1): *(1) the biased behavioral response, (2) by some decision making unit to (3a) a specific item relative to previous responses within the same behavioral category, or to (3b) a set of items consumed simultaneously (4) due to the utility inherent in the variation per se, independent of the instrumental or functional value of the alternatives or items, (5) and is a function of psychological processes.* Thus, we conceptualize variety-seeking behavior as a non-random behavioral response by some decision making unit (either purchaser or user) which is biased due to temporal feedback from previous consumption behavior (3a) or due to the influence of items consumed simultaneously (3b). This aspect of the definition acknowledges that both temporal and structural aspects of the present choice context may contribute to the biased behavioral response. The bias in behavioral response (1) will manifest itself in the fact that at the moment of purchase or consumption (2) certain choice alternatives will become relatively more or less attractive than would be expected on the basis of unconditional preferences for these alternatives. The fourth component of the definition acknowledges that many aspects of the present choice context may result in a biased response, but that variety-seeking behavior should be restricted to those aspects of variation in behavior that are motivated by the utility inherent in the (temporal or structural) variation per se, independent of the instrumental or functional value of the choice alternatives or items. Thus, when the bias is due to other aspects than variation per se, it should not be referred to as variety-seeking behavior. For example, in price-induced switching, utility is derived from consequences of switching behavior (saving money) rather than from variation per se. The fifth component of the formal definition emphasizes that variety-seeking behavior is conceptualized as the result of decision making and evaluative processes. That is, we conceptualize variety-seeking behavior as an integral part of consumer decision making, including possible trade-offs between utility derived from variation per se and other choice criteria. These issues will be elaborated in Chapter 4.

Variety-seeking behavior has received considerable attention in the marketing literature, at the conceptual level as well as at the empirical level. At the conceptual level, several authors made reference to the phenomenon of variety-seeking behavior early in the development of consumer behavior models. For example, Howard and Sheth (1969) discussed

variety-seeking behavior in relation to "the psychology of complication", suggesting boredom as the underlying mechanism. Hansen (1972) explicitly defined variety-seeking behavior as a form of exploration rather than as a deliberate choice activity. Hirschman and Holbrook (1982) and Sheth (1981) similarly argued that variety-seeking behavior cannot be adequately accounted for by the 'traditional' information processing approach that emphasizes deliberation rather than exploration. Faison (1977) stressed the importance of incorporating the notion of variety-seeking behavior into models of consumer behavior as a means of accounting for those facets of consumer behavior that have lacked adequate explanation when approached from a cognitive consistency perspective. Raju (1980) specifically focused on exploration in the consumer context, identifying different classes of consumer behaviors that are exploratory rather than goal-directed.

These conceptual analyses have stimulated research into the phenomenon of variety-seeking behavior, and the purpose of this chapter is to review and discuss these research efforts from the marketing literature. At this point it is important to note that we will incorporate studies in our review that *purportedly* address the phenomenon of variety-seeking behavior, even though they do not necessarily conform to our formal definition. In line with our formal definition, we will distinguish between studies that focus on temporal variety-seeking behavior and those that focus on structural variety-seeking behavior. The major difference between these two variety-seeking behaviors is whether time is considered a relevant dimension. Studies on temporal variety give a central role to time in their analysis of variety-seeking behavior, and the implicit assumption is that consumers achieve variety by making different choices at different occasions over time. On the other hand, consumers may also satisfy their desire for variety by choosing a variety of items at any specific consumption occasion. In this type of variety-seeking behavior, the time dimension plays a less prominent role. The implicit assumption is that consumers may be motivated to choose a bundle of different items at any particular moment in time, rather than a single item. Examples would include the choice between an unmixed bouquet of flowers versus a mixed bouquet and the choice between a varied lunch and a lunch which provides no (or less) variation. A limited number of studies have focused on this phenomenon of 'structural' variety and they will be discussed in section 3.5.

In this chapter, each of several approaches to variety-seeking behavior will be discussed and evaluated in relation to our formal definition of variety-seeking behavior. As all these studies focus on biases in behavior responses and may in principle be applied at the level of consumption and purchase behavior, the first two elements of our definition need not be incorporated in the comparison of different approaches. From the other elements of the formal definition of variety-seeking behavior, three important evaluative criteria arise:

1. *Consideration of the choice context in which variety-seeking behavior occurs*, i.e. the extent to which the choice context is taken into account, either in terms of (a) one or more

previous responses within the same behavioral category, or (b) the other items consumed simultaneously

2. *Adequacy of measurement of variety-seeking behavior*, i.e. whether or not true variety-seeking behavior, which is intrinsically motivated by the utility inherent in variation per se, is explicitly distinguished from other forms of varied behavior that are extrinsically rather than intrinsically motivated.

3. *Richness of the explanation in terms of underlying processes*, i.e. the assumptions made about the psychological processes that underlie variety-seeking behavior as well as the phenomenon's relationships with other choice considerations.

The structure of this chapter is as follows. Sections 3.2. to 3.4. discuss studies on temporal variety-seeking behavior. Section 3.2. discusses the classification adopted in the review of the literature and suggests that two lines of prior research can meaningfully be distinguished: those that follow an implicit approach and those that follow an explicit approach to the phenomenon. Studies within the implicit approach will be discussed in section 3.3, and section 3.4. reviews studies within the explicit approach. Section 3.5. reviews marketing studies that have specifically focused on structural variety in consumer choice behavior. Section 3.6. contains a concluding discussion on prior research on variety-seeking behavior in the marketing context.

### 3.2. Studies on temporal variety-seeking behavior

Most of the work on temporal variety-seeking behavior in the consumer context can directly or indirectly be traced back to an early study by Bass, Pessemier and Lehmann (1972) on the relationships between attitudes, brand preference and choice. The authors concluded that although the multi-attribute attitude model provides a fairly good prediction of the preference order of brands and both the attitude and preference order measures relate significantly to the choice probabilities of the brands, actual brand choice behavior is difficult to predict. According to these authors, instead of specifying that the most preferred brand should always be chosen, a more realistic theory of choice would be that: "The probability of choosing the most preferred brand is greatest, but there is a stochastic component of choice which arises because of variety-seeking" (Bass, Pessemier and Lehmann 1972: 538). Note that these authors were not very optimistic about the explanation of variety-seeking behavior, reflected in their conclusion that: "This switching will occur at random intervals and is therefore very difficult to predict. We can examine however the extent and nature of variety-seeking behavior" (Bass, Pessemier and Lehmann 1972: 539).

The early work by Bass, Pessemier and Lehmann (1972) stimulated subsequent research on variety-seeking behavior from two different lines of approach (cf. Kahn, Kalwani and Morrison 1988). A first prominent stream of research, which we will refer to as the *implicit*

approach, has taken observed purchase or consumption sequences as its point of departure. In the spirit of Bass, Pessemier and Lehmann's (1972) assertion, these studies examine the extent and nature of variety-seeking behavior, and also attempt to find regularities and to develop models that may account for these regularities. Models within this implicit approach have become increasingly sophisticated through the incorporation of additional parameters that reflect individual differences in variety-seeking behavior and/or underlying explanations for observed behavior. Despite their differences, however, these models have in common the fact that they take observed behavior as a starting point of their analysis with an emphasis on modelling observed variation in behavior (including true variety-seeking behavior) in contrast to repeat purchase behavior.

A second stream of research on temporal variety-seeking behavior has taken psychological explanations of the phenomenon as the starting point of their attempts to explain variety-seeking behavior. Specific hypotheses are developed concerning characteristics of the consumer and/or the choice context that may affect the frequency of occurrence of variety-seeking behavior. We refer to this approach as the *explicit* approach to temporal variety-seeking behavior. Studies within this approach can further be classified according to the type of explanations they consider (person-related characteristics versus context related characteristics) and the specificity of the person-related determinants involved (see section 3.4.).

Figure 3.1. structures previous approaches and specific marketing studies within these approaches into a comprehensive framework. Central to Figure 3.1. is the behavioral phenomenon of interest, i.e. variety-seeking behavior, which has been approached from the two different perspectives discussed above. The important point is that although the two approaches aim at providing more insight into the same behavioral phenomenon of variety-seeking behavior, they attempt to do so from different points of view and with different methodologies. Each approach has its specific strengths and weaknesses. Ideally, the two approaches would fully converge. However, although they gradually have become more integrated, at the present state of affairs the convergence is far from perfect. Specific limitations of the approaches that may account for this imperfect convergence will be discussed. Figure 3.1. only contains marketing studies that purportedly relate to temporal variety-seeking behavior. Studies that have focused on underlying psychological constructs at a more abstract level (i.e. not relating to actual variety-seeking behavior) are not included, but have been discussed in Chapter 2.

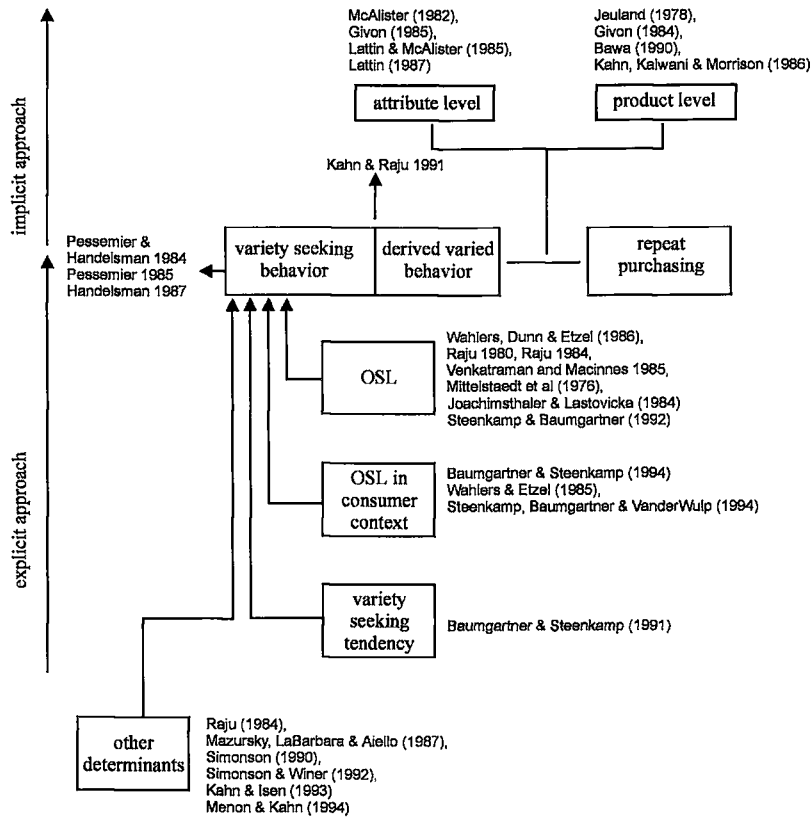


Figure 3.1. Classification of marketing studies *purportedly* relating to temporal variety-seeking behavior

### 3.3. The implicit approach to temporal variety-seeking behavior

As reflected in Figure 3.1. studies within the implicit approach may be classified as to whether they distinguish between variety-seeking behavior and derived varied behavior and as to whether they operationalize variety-seeking behavior at the product level or at the attribute level. Also discussed within the implicit approach are those studies that do not attempt to model variety-seeking behavior, but rather focused on development of measures for quantifying observed variation in purchase or consumption histories. The latter studies will be only briefly discussed here as a more elaborate discussion will follow in Chapter 5.

### 3.3.1. Quantification of observed variation in behavior

Pessemier and Handelsman (1984; see also Pessemier 1985) developed the Index of Temporal Variety (ITV) as a sophisticated measure for quantifying variation in observed consumption or purchase histories. ITV is an extension of previous product-level measures for observed variation in behavior that considers perceived realized dissimilarity in terms of attribute composition of the chosen products in addition to entropy and degree of bunching in product choices (see Chapter 5). Handelsman (1987) developed the Varied Behavior Measures (VBM) as an alternative to ITV. The VBM-measure is more dynamic than the ITV-measure in that it quantifies the realized variation at each separate consumption occasion rather than summarizing it across the consumption or purchase history as a whole.

These measures do not purport to measure variety-seeking behavior. As such they are purely descriptive in nature and serve as a means to quantify observed variation in behavior without distinguishing between true variety-seeking behavior and derived varied behavior.

### 3.3.2. Variety-seeking at the product level

Jeuland (1978) was one of the first to comment on the Bass, Pessemier and Lehmann (1972) study. In particular, Jeuland (1978) questioned the (fully) stochastic nature of the phenomenon of variety-seeking behavior arguing that if variety-seeking behavior reflects feedback from the purchase or consumption history, almost by definition, it cannot be a random process. Jeuland (1978) developed a partially deterministic model for variety-seeking behavior that states that after consumption of item  $i$ , the conditional preference (Jeuland's concept of 'preference-now') for that item may be lower than its unconditional preference due to "item-satiation" resulting from prior consumption. This satiation effect may render the conditional preference for item  $i$  lower than the (un-)conditional preference for an initially less liked option with no or less recent experience, resulting in brand switching behavior. Jeuland (1978) developed a mathematical formulation for this effect of satiation with items.

Givon (1984) incorporated the notion of variety-seeking into the Markov-model. His model is an extension of Jeuland's (1979) Inertia Model to account for variety-seeking behavior in addition to, and as an opposite of, inert behaviors. The basic assumption underlying this approach is that variety-seeking and inertial tendencies represent feedback mechanisms from previous consumption that will distract choice behavior from being a zero-order process (i.e. choice independence). Givon (1984) attempted to account for these dependencies in observed choice behavior through the incorporation of a subject-specific variety-seeking parameter (VS) into the Markov-model. The variety-seeking parameter (VS) ranges from  $-1$  to  $+1$ , where negative values reflect inertia behavior, positive values reflect variety-seeking behavior and  $VS=0$  reflects zero-order behavior. Givon also showed that his variety-seeking model can easily be extended to the  $n$ -brand case. If  $u_j$  is the non-negative

utility associated with consumption of brand  $j$ , and preference for brand  $j$  ( $\theta_j$ ) is expressed in relative terms, i.e.  $\theta_j = u_j / \sum_{i=1, \dots, n} u_i$ . Givon suggested the following formal representation of choice probabilities:

$$(3.1) \quad P(j|j) = (|VS| - VS)/2 + (1 - |VS|) \theta_j$$

$$(3.2) \quad P(j|i) = ((|VS| + VS) / 2(n-1)) + (1 - |VS|) \theta_j$$

Maximum likelihood estimates for the model parameters  $VS$  and  $\theta_j$ 's can be obtained at the level of individual purchase or consumption histories. Parameter estimates for  $VS$  allow for the classification of individuals or households as to whether their choice behavior in a particular product category would be of the variety-seeking, inertia or zero-order type.

Simple substitution of different values of  $VS$  into equations (3.1) and (3.2) reveals that, according to Givon's model, consumers who are indifferent to variety ( $VS=0$ ) follow a zero-order choice process and choose according to their long-term preferences:  $P(j|j)=\theta_j$  and  $P(j|i)=\theta_j$ . For variety-seeking ( $VS>0$ ) consumers  $P(j|j) = (1-VS)\theta_j < \theta_j$  and  $P(j|i)=VS/(n-1) + (1-VS)\theta_j$ , which implies that  $P(j|j) < P(j|i)$ . For inert ( $VS<0$ ) consumers  $P(j|j)= |VS| + (1 -|VS|) \theta_j$ , and  $P(j|i)=(1-|VS|)\theta_j$ , so for these consumers  $P(j|j) > P(j|i)$ . Givon thus showed that for variety seekers, the probability of switching to a brand is reduced from its relative preference  $\theta_j$  towards a more even distribution of the probability across all brands that were not purchased in the last purchase occasion. The effect of variety-seeking is to lower the probability of switching to a high preference brand and to increase that for a low preference brand, whereas the effect of avoiding variety ( $VS<0$ ) is always to lower the probability of switching to another brand as compared with the variety seekers ( $VS>0$ ) or variety indifferent consumers ( $VS=0$ ). A second important implication of Givon's extension to the  $n$ -brand case is that the choice probabilities of variety avoiders ( $VS<0$ ) do not depend on the number of brands in the market, while for variety seekers ( $VS>0$ ), the choice probabilities are dependent on the number of brands in the market.

Kahn, Kalwani and Morrison (1986) used Jeuland's (1979) and Givon's (1984) models to form a taxonomy of stochastic models for classifying various types of reinforcement and variety-seeking behaviors. Based on Bayes' Theorem, they developed an attractively simple test for discrimination between seven possible variety-seeking/reinforcement models, ranging from the zero-order to second-order mixed variety-seeking/reinforcement models. The proposed sign-discrimination test depends on the comparison of selected empirical conditional choice probabilities. These conditional choice probabilities are empirically derived from the choice behavior of subjects with a specific consumption history. The sign of three such comparisons allows for the classification of observed choice behavior into one of the seven possible variety-seeking/reinforcement models. Unfortunately, the sign test only unequivocally discriminates between different model formulations under the assumption that all subjects have identical variety-seeking and inertial tendencies reflected in the variety-seeking ( $V$ ) and reinforcement parameters ( $R$ ). Therefore, the suggested test seems particularly appropriate for identifying product categories or even brands within product

categories that on average are characterized by a higher of lower level of variety-seeking and reinforcement behavior respectively.

Kahn, Kalwani and Morrison (1988) extended the notion that some brands within a product category may be classified as variety-seeking ('change-of-pace') brands, whereas other elicit reinforcement behavior. Ehrenberg (1969; 1972) asserted that, generally, the average amount bought per buyer times the proportion of non-buyers equals a constant (" $w_i(1-b_i)=c$ ") across brands within a product class. Rather than emphasizing the regularity across brands in the product class, Kahn, Kalwani and Morrison (1988) argued that deviations from this law may provide interesting information as they may be used to infer the positioning of low-share brands as either niche or change-of-pace brands. They contended that for niche brands, characterized by a small group (low value for penetration  $b_i$ ) of loyal consumers (high purchase frequency  $w_i$ ) " $w_i(1-b_i)$ " would be relatively high. For change-of-pace brands, penetration would be relatively high but purchase frequency would be relatively low, resulting in relatively low values for " $w_i(1-b_i)$ ". Using the average value of  $w_i(1-b_i)$  in the product category as a bench-mark, the authors suggested that deviations of more than an arbitrary 10% of the average value in the product category might serve as an indication for the positioning of the brand as either a niche or a change-of-pace brand. Note that this test is conducted at the aggregate level, providing information about brands in the product category rather than about how individual consumers see and use the brands in the product category.

Bawa (1990) extended on the previously discussed models by developing a model that accounts for within-subject differences in variety-seeking and reinforcement behavior in addition to the between-subject differences in these tendencies. Bawa (1990: 264) argued that "a consumer exhibits inertia and variety-seeking tendencies at different times depending on his/her choice history". He developed a model for this "hybrid" behavior of which pure variety-seeking, pure reinforcement behavior and zero-order behavior are special cases. As these forms are nested within the model, they can be identified through model testing. Bawa's model is an individual-level (disaggregate) model based on observed runs (i.e. consecutive choices of the same brand) in the purchase history. The model states that the perceived utility for brand  $i$  on the  $(r+1)$ th purchase occasion, given  $r_i$  sequential purchases of  $i$ , is given by:

$$(3.3) \quad U(i | r_i) = a_i + br_i + c(r_i)^2$$

while the perceived utility for brand  $j$  ( $j \neq i$ ), given  $r_i$  sequential purchases of brand  $i$ , is given by:

$$(3.4) \quad U(j | r_i) = a_j \quad (j \neq i)$$

where:

$a_i$  and  $a_j$  brand-specific constants for brands  $i$  and  $j$

$r_i$  number of consecutive choices of brand  $i$  made after the last switch

$a_i, a_j, b, c$  parameters to be estimated from the data, with  $i, j = 1, \dots, K$  in a  $K$ -brand market.

Bawa's model thus implies that the conditional preference for brand  $i$  is distracted from its unconditional or long-term value if that brand has been consumed previously. However, as soon as the consumption sequence of brand  $i$  is interrupted by the choice of another brand, the conditional preference for brand  $i$  returns to its long-term preference value.

Parameter estimates can be obtained with conditional logit at the level of individual consumption histories. However, given the large number of parameters to be estimated ( $K+1$ , in a  $K$ -brand market) it requires very lengthy purchase or consumption histories. Parameter estimates allow for classification of an individual's behavior as zero order ( $b=0$  and  $c=0$ ), variety-seeking behavior ( $b \leq 0$  and  $c \leq 0$  and at least one of the inequalities is strict), inertia behavior ( $b \geq 0$  and  $c \geq 0$  and at least one of the inequalities is strict), or hybrid behavior ( $b < 0$  and  $c > 0$  or  $b > 0$  and  $c < 0$ ). Hybrid behavior is a unique characteristic of Bawa's model, and implies that an individual consumer exhibits both inertia and variety-seeking tendencies in choice behavior depending on the choice history. This hybrid formulation allows for a choice patterns where inertia tendencies dominate with relative short run lengths up to a point where variety-seeking tendencies start to dominate. In hybrid behavior, the first-order derivative of equation (3.3),  $r^* = -b/2c$  reflects the run-length where inertia changes into variety-seeking or variety-seeking changes into inertia. Averaged across individuals or households who exhibit hybrid choice behavior,  $r^*$  reflects the relative strength of the inertia and variety-seeking tendency in the product class for those households. Although Bawa's model is versatile in that it provides more in-depth insight into the underlying processes for observed variation in behavior, its predictive validity for market shares was not found to be higher than the simpler operationalizations of first-order (Markov) and zero-order (Bernoulli) model specifications.

### **Evaluation of product-level models**

In terms of the three evaluative criteria for attempts to model variety-seeking behavior discussed in section 3.1, the models discussed so far primarily fall short in their adequacy of measurement of variety-seeking behavior per se. As a consequence, the variety-seeking parameters obtained from these models reflect a tendency to stick with the same brand (inertia behavior) versus a tendency to switch away from the brand ('variety-seeking'), either for the sake of variety or any other underlying motivation. As such, the variety-seeking parameters obtained from these models do not reflect true variety-seeking behavior, as we have defined it in section 3.1. True variety-seeking behavior would reflect only those observations of varied behavior that are motivated by the desire for variety per se. In addition, the models that purportedly quantify variety-seeking behavior at the product level implicitly assume that the variety gained by switching among items does not depend on the characteristics of the products or brands involved. As such they are primarily descriptive in nature; they fail to meet the evaluative criterion of richness of the explanation of variety-seeking behavior in terms of the processes underlying this behavioral phenomenon.

The latter shortcoming is addressed in marketing studies that model variety-seeking behavior as an attribute-specific phenomenon, recognizing that consumers seek variety in the attribute levels implied by the items rather than in the items per se. These attribute-based models will be discussed in the next section.

### 3.3.3. Variety-seeking at the attribute level

McAlister (1982) proposed her Dynamic Attribute Satiation (DAS) model, a deterministic model of attribute satiation, building on the notion that consumers form inventories of attributes and have ideal levels for those attributes. Attribute satiation rather than item satiation is posited as the underlying mechanism. She argued that preference for an alternative depends on the extent to which the attribute levels implied by that alternative contribute to bringing the inventory levels for attributes closer to the ideal levels. In other words, she argued that preference for item  $k$  at moment  $T$  ( $DAS_{Tk}$ ) depends on the preference for the attribute levels ( $j=1, \dots, J$ ) implied by item  $k$  were it consumed at moment  $T$  ( $P_{Tkj}$ ):  $DAS_{Tk} = \sum_j P_{Tkj}$ . These momentary preferences for attribute levels ( $P_{Tkj}$ ), in turn, depend on the extent to which the amount of attribute  $j$  in item  $k$  ( $X_{kj}$ ) adds to that attribute's inventory at moment  $T$  ( $I_{Tj}$ ) in bringing it into correspondence with that attribute's ideal level ( $\hat{X}_j$ ). Thus:

$$(3.5) \quad P_{Tkj} = w_j [(I_{Tj} + X_{kj}) - \hat{X}_j]^2 (-1)$$

With respect to the attribute inventories, McAlister suggested that attribute  $j$ 's level in item  $k$  consumed at the current consumption occasion fully contributes to attribute  $j$ 's inventory but then dwindles continuously over time (e.g. due to forgetting and physiological processing) at a speed which is an inverse function of the attribute's inventory retention factor  $\lambda_j$ . More specifically, McAlister proposed the following functional form for this process:

$$(3.6) \quad I_{Tj} = \sum_{t=1}^T \lambda_j^{T-t} X_{ktj}$$

Although McAlister's (1982) model is not very manageable in terms of estimation procedure (e.g. LINMAP), it specifically addresses attribute satiation as an underlying process for variety-seeking behavior.

Givon (1985) extended his original model (see section 3.3.2) to the attribute level by assuming that consumers partition the brands in a product category according to some key attributes and satisfy their need for variety by switching among partitions. In addition to the variety need, brand choice behavior is also guided by the relative preferences for the different brands. Givon (1985) assumed that if the consumer has a non-negative utility  $u_i$  associated with the consumption of brand  $i$  and if there are  $n$  brands in the consumer's evoked set for the product class, then his/her preference for brand  $i$  is  $\theta_i = u_i / \sum_n u_j$ . The preference for any partitioning  $k$  is defined as the sum of the preferences for all the brands in partitioning  $k$ :  $\Pi_k = \sum_{i \in k} \theta_i$ , with  $\sum_{i=1, \dots, n} \theta_i = 1$  by definition.

Consumers who do not care about variety along the prespecified partition will consider basic preferences alone, and thus will weigh each brand against all others:  $\theta_j / \sum_{i=1, \dots, n} \theta_i$ . The force of variety-seeking on the partitioning attribute will lead consumers who chose brand  $i$  from partitioning  $k$  in the previous purchase to look for a brand  $j$  in another partition ( $j \notin k$ ). Their choice from any brand  $j$  not in partitioning  $k$  will then be governed by their preference for  $j$  relative to all other brands not in partitioning  $k$ , i.e.  $\theta_j / (1 - \Pi_k)$ .

If  $VP$  ( $-1 \leq VP \leq +1$ ) reflects the consumer's tendency to seek variety among the prespecified partition, in line with equation (3.2), Givon suggests that the consumer's probability of switching from brand  $i$  in partition  $k$  ( $i \in k$ ) to brand  $j$  not in partition  $k$  ( $j \notin k$ ) can be modelled as:

$$(3.7) \quad P_{j|i} = \frac{(|VP| + VP)\theta_j}{2(1 - \Pi_k)} + (1 - |VP|)\theta_j$$

Similarly, the probability of switching within the prespecified partition ( $i$  and  $j \in k$ ) can be derived. In this case, the consumer will weight any brand  $j$  in partition  $k$  against all other brands in partition  $k$ :  $\theta_j / \Pi_k$ .

$$(3.8) \quad P_{j|i} = \frac{(|VP| - VP)\theta_j}{2\Pi_k} + (1 - |VP|)\theta_j$$

Simple substitution of alternative values for  $VP$  into equations (3.7) and (3.8) reveals that the choice probabilities of a consumer who is indifferent to variety ( $VP=0$ ) do not depend on the prespecified partition and are guided by preferences alone:  $\theta_j / \sum_{i=1, \dots, n} \theta_i$ . For a consumer who seeks variety ( $0 < VP \leq 1$ ), the probability of switching to brand  $j$  in another partition ( $j \notin k$ ) becomes  $P_{j|i} = VP(\theta_j / (1 - \Pi_k)) + (1 - VP)\theta_j$ , which is higher than that consumer's probability of switching to another brand  $j$  in the same partitioning ( $j \in k$ ):  $P_{j|i} = (1 - |VP|)\theta_j$ . For a consumer who doesn't like variety ( $-1 \leq VP < 0$ ), the probability of switching to brand  $j$  in another partition becomes  $P_{j|i} = (1 - |VP|)\theta_j$  which is smaller than the probability of switching to another brand in the same partitioning:  $P_{j|i} = |VP|(\theta_j / \Pi_k) + (1 - |VP|)\theta_j$ . The model also shows that compared to consumers who tend to avoid variety ( $-1 \leq VP < 0$ ), consumers who seek variety ( $0 < VP \leq 1$ ) are more likely to switch to a brand in another partition and less likely to switch to a brand in the same partition.

Givon's (1985) model is estimated at the individual level for different partitions (e.g. cola vs noncola and diet vs regular) so that the individual's key attributes on which variety is sought can be identified. In this sense, Givon's (1985) model is an attribute-level model, although attributes are considered indirectly (i.e. based on hierarchical market partitioning) and selectively. Nevertheless it incorporates the notion that variety-seeking is attribute specific and reveals that consumers may differ in terms of the attributes on which they seek variety.

Lattin and McAlister (1985) incorporated attribute composition of the product alternatives more directly into a variety-seeking model. Basic to their model is the assumption

that the consumption of a particular feature will depress the value of that feature on the subsequent choice occasion. It is assumed that the unconditional preference for alternative  $j$  ( $\pi_j$ ) can be thought of as containing two components: one due to alternative  $j$ 's unique features ( $U_j$ ) and another due to alternative  $j$ 's features shared with the other alternatives  $k$  in consumer  $c$ 's choice set  $E^c$  ( $S_{kj}$ ), reflected in  $\pi_j = U_j + \sum_{k \neq j} S_{kj}$ . After previous consumption of product  $i$ , the conditional probability of choosing product  $j$  by consumer  $c$  ( $\rho_{j|i}^c$ ) depends on the relative conditional preference for product  $j$  vis-à-vis the conditional preference for all other products  $k$  in the consumer's choice set  $E^c$ , i.e.  $\rho_{j|i}^c / \sum_{k \in E^c} \rho_{k|i}^c$ . These conditional preferences in turn depend on the unconditional preferences for those items ( $\pi_i$ ) discounted by the product's similarity with product  $i$  in terms of want satisfying features ( $S_{ji}$ ). Now assume that the size of the discounting effect due to product similarity depends on the consumer's variety-seeking intensity  $V^c$  ( $0 \leq V^c \leq 1$ ) and that unconditional preferences are scaled so that  $\sum_{k \in E^c} \pi_k = 1$ . The transition probability  $P_{j|i}$ , reflecting the conditional preference for alternative  $j$ , can be expressed as the conditional preference for  $j$  ( $\rho_{j|i}^c$ ) relative to the conditional preference for all other alternatives  $k$  in consumer  $c$ 's choice set  $E^c$ . Substituting  $\rho_{j|i}^c = \pi_j^c - V^c S_{ji}$ , this is expressed as:

$$(3.9) \quad P_{j|i}^c = \frac{(\pi_j^c - V^c S_{ji})}{\sum_{k \in E^c} (\pi_k^c - V^c S_{ki})} = \frac{\pi_j^c - V^c S_{ji}}{1 - V^c \sum_{k \in E^c} S_{ki}}$$

From their model, Lattin and McAlister (1985) developed the cross-consumption response, which is a measure for substitute and complementary relationships among competing products. This measure is defined as  $P_{i|j}^c - \pi_i^c$ , reflecting the influence of prior consumption of  $j$  on the preference for alternative  $i$ . If this measure is positive, prior consumption of  $j$  increases the probability of choosing product  $i$ , reflecting a complementary relationship between  $i$  and  $j$ . A negative value would imply a supplementary relationship among  $i$  and  $j$ . The Lattin and McAlister (1985) model is specified at the individual level, thus allowing for assessment of each individual's variety-seeking tendency. Further, it goes beyond the level of items to explicitly incorporate product similarity in terms of attributes. Aggregated across consumers, the model allows for the identification of product competition among brands in the product class. Feinberg, Kahn and McAlister (1992) solved the model for steady state probabilities, allowing examination of specific hypotheses concerning the effect on market share of managerial efforts to influence the three model parameters: variety-seeking tendency ( $V$ ), brand preferences ( $\pi$ ), and product positioning ( $S_{ij}$  and  $U_i$ ).

Lattin (1987) developed an attribute-based variety-seeking model building on three premises: (1) an individual  $h$  chooses that item  $i$  which maximizes his or her utility at a given choice occasion  $c$ , (2) the utility of an item ( $U_{ic}^h$ ) is given by the sum of the utilities ( $u_{pc}^h$ ) that individual  $h$  at consumption moment  $c$  attaches to the constituent attributes  $p$  of the item ( $x_{pi}$ ), and may be expressed as  $U_{ic}^h = \sum_p u_{pc}^h x_{pi}$ , (3) the utility that an individual  $h$  attaches to a product attribute  $p$  at a certain consumption moment  $c$  depends upon the attribute's prominent

or salient quality in the memory of the consumer, where salience refers to the lingering or residual impact of a characteristic following its recent consumption. Salience of characteristic  $p$  to consumer  $h$  on choice occasion  $c$  ( $s_{pc}^h$ ) is represented as a weighted average of past consumption, with the most recent consumption event weighted most heavily:

$$(3.10) \quad s_{pc}^h = \lambda^h s_{pc-1}^h + (1 - \lambda^h) \sum_{j \in A^h} \delta_{jc-1}^h x_{pj}$$

where  $A^h$  is the acceptable set of items to consumer  $h$ ,  $\delta_{jc-1}^h$  is the Kronecker  $\delta$ , indicating which brand was consumed by consumer  $h$  at choice moment  $c-1$ , and  $\lambda^h$  is a variable in the range  $[0,1)$  reflecting the relative impact of salience at  $c-1$  on salience at  $c$ .

Thus, through the exponential smoothing representation, Lattin's model assumes that previous consumption of a particular attribute  $p$  impacts the saliency of attribute  $p$  in the current choice situation, but that this impact lingers over time (i.e. most recent consumption weighted most heavily). Lattin now assumes that the relative attribute utilities offered by each available alternative are weighted in light of the impact of past consumption (i.e. by the saliences), where  $v_p^h$  reflects the size and direction of the impact of a unit change in salience on the utility of attribute  $p$ . If  $v_p^h < 0$  (previous consumption of attribute  $p$  reduces its salience at the present consumption occasion), the individual is said to seek variety on attribute  $p$ . If  $v_p^h > 0$ , individual  $h$  exhibits loyalty to characteristic  $p$ . If  $w_p^h$  reflects the utility of attribute  $p$  at zero salience, then the utility of item  $i$  for individual  $h$  on consumption occasion  $c$  is:

$$(3.11) \quad U_{ic}^h = \sum_p (w_p^h + v_p^h s_{pc}^h) x_{pi}$$

Extension of the model to incorporate intangible characteristics unique to a specific item (e.g. brand image) as a source of utility in addition to the utility derived from product characteristics that are common to all items yields:

$$(3.12) \quad U_{ic}^h = (W_i^h + V^h S_{ic}^h) + \sum_p (w_p^h + v_p^h s_{pc}^h) x_{pi}$$

where  $w_p^h$  and  $W_i^h$  are intercept terms for shared and unique characteristics respectively, reflecting the utility attached to these characteristics at zero salience.  $V^h$  and  $v_p^h$  are slope terms reflecting the impact of a unit change in salience on the utility of unique and shared characteristics respectively. The model parameters are estimated through multinomial logit.

Variety-seeking in Lattin's model is thus reflected in the slope terms  $v_p^h$  and  $V^h$ . If these terms are less than zero, the consumer seeks variety on characteristic  $p$  and the image characteristic respectively. If these terms are greater than zero, the consumer exhibits loyalty with respect to this characteristic. The important feature from Lattin's model is that it allows consumers to seek variety on some attributes but exhibit loyalty with respect to others. In terms of psychological processes underlying variety-seeking behavior,  $v_p^h < 0$  might be interpreted as reflecting attribute satiation, and  $V^h < 0$  as boredom with choosing the same product again.

### Evaluation of attribute-level models

In terms of the evaluative criteria for model evaluation, the attribute-level models have a clear advantage over the product-level models in that they attempt to provide an explanation for observed switching behavior among products in terms of the attributes delivered by these products. As such these models are richer in terms of explanation, despite the fact that they only address selected underlying processes. However, these models are largely based on observed consumption or purchase histories that do not allow for unequivocal distinction between true variety-seeking switches and derived switches, a situation that threatens the validity of the 'variety-seeking' parameters obtained. This problem may be mitigated through the use of experimental choice data, as seen in McAlister's (1982) and Givon's (1985) approaches. As such studies are characterized by fewer extrinsic constraints on consumption and choice, they may provide a better representation of true variety-seeking behavior.

So far, there has only been one study within the implicit approach that has attempted to explicitly distinguish between true variety-seeking behavior and derived varied behavior. This study by Kahn and Raju (1991) will be discussed in the next section.

#### 3.3.4. Variety-seeking behavior vs derived varied behavior

Kahn, Kalwani and Morrison (1986) warned that inferring variety-seeking parameters from observed switching behavior might result in biased parameter estimates, as the variety-seeking parameters are confounded with derived switches (i.e. switches that are not induced by the desire for change per se, but rather are extrinsically motivated). Kahn and Raju (1991) extended the Kahn, Kalwani and Morrison (1986) model specification in an attempt to separate from the variety-seeking parameters the influences of price promotions in the market. In the two brand case (brands 0 and 1), Kahn and Raju (1991) assumed that the effect of price promotion of brand 1 on the choice probability of that brand depends on the probability of buying brand 0. In other words, if the probability of buying brand 0 was initially small (large), the effect of brand 1's price discount on the choice probability of brand 1 is assumed to be small (large). In their formal operationalization, they assume that the probability of purchasing brand 1 when it is on promotion increases linearly with the probability of purchasing brand 0:  $p_{11} = a_{11} + h_1 [1 - a_{11}]$  and  $p_{00} = a_{00} - h_1 a_{00}$ , where  $a_{11}$  and  $a_{00}$  are the probability of repurchasing brand 1 and 0 respectively, in the absence of a price discount, and  $h_1$  is a measure for the magnitude of discount offered by brand 1. If the frequency with which brand 1 offers price discounts is reflected in  $\lambda_1$ , the probability that brand 1 is on discount in any particular time period, then the overall choice probabilities can be determined by 'mixing' the transition matrices for 'no brand on promotion' and 'brand 1 on promotion'. Kahn and Raju (1991) showed that the long-run probability of buying brand 1 when brand 1 offers price discounts of a certain magnitude  $h_1$  ( $\in [0,1]$ ) and with a frequency  $\lambda_1$ , can be expressed as:

$$(3.13) \quad P(1) = \frac{1 - a_{00}(1 - h_1 \lambda_1)}{[1 + (1 - a_{11} - a_{00})(1 - h_1 \lambda_1)]}$$

If it is further assumed that the extent of variety-seeking (V) independently determines the magnitude of reduction in the repurchase probabilities relative to the unconditional preferences  $p$  according to:  $a_{11} = (p - Vp)$ , and  $a_{00} = (1-p) - V(1-p)$ , then substitution of  $a_{00}$  and  $a_{11}$  into (3.13) yields the long-run probability of buying brand 1 for the variety-seeking segment:

$$(3.14) \quad P_v(1) = \frac{1 - (1 - h_1 \lambda_1)(1 - p)(1 - V)}{1 + V(1 - h_1 \lambda_1)}$$

Similarly, if it is assumed that for the reinforcement segment the extent of reinforcement (R) influences the repurchase probabilities according to:  $a_{11} = p + R(1-p)$ , and  $a_{00} = (1-p) + Rp$ , then substitution of these values for  $a_{00}$  and  $a_{11}$  into (3.13) yields the long-run probability of buying brand 1 for the reinforcement segment.

$$(3.15) \quad P_r(1) = \frac{1 - (1 - h_1 \lambda_1)[1 - p + Rp]}{1 - R(1 - h_1 \lambda_1)}$$

An advantage of the Kahn and Raju (1991) model formulation, as reflected in equations (3.14) and (3.15), over the original Kahn, Kalwani and Morrison (1986) model is that it separates from the variety-seeking and reinforcement parameters promotional influences that may also lead to variation in behavior. Kahn and Raju (1991) showed that this extended model-specification has a descriptive and predictive advantage over the original specification in relation to market shares. The model further allows for specific hypotheses concerning the market response to two important aspects of price promotions (amount and frequency) among variety-seeking and reinforcement consumers. For example, based on equations (3.14) and (3.15), Kahn and Raju (1991) simulated the effect of increases in the frequency of price promotions (holding the effect of size of discount constant) on the long-run probability of choosing brand 1 for both variety-seeking and reinforcement consumers. They found the implications of the model were supported by empirical studies that showed that under low promotion conditions, minor (major) brands obtain more of their market share coming from variety-seeking (reinforcement) consumers than from reinforcement (variety-seeking) consumers. Further, for a minor (major) brand, the main benefit of price promotions comes from reinforcement (variety-seeking) consumers than from variety-seeking (reinforcement) consumers. In a similar vein, Kahn and Louie (1990) investigated the differential responses of variety-seeking and reinforcement consumers to the retraction of price promotions, although in this study the variety-seeking and reinforcement behaviors were experimentally induced rather than naturally occurring. They found that variety-seeking consumers are more likely to

switch to the promoted brand and are less sensitive to a post-promotional decrease in brand share once the promotion is retracted.

### **3.3.5. Conclusions on the implicit approach**

The models suggested within the implicit approach to variety-seeking behavior are rapidly becoming more sophisticated. Two fundamental problems were noted with respect to early models in this research stream. The problem of measurement of variety-seeking that arises from the failure of these early models to distinguish between derived varied behavior and true variety-seeking behavior was addressed by Kahn and Raju (1991). Their model represents an important first step in isolating derived varied behavior (e.g. switching due to price promotions) from variety-seeking behavior. Although in the current state of affairs this model only accounts for one selected extrinsic motivation (price discounts) in brand switching behavior, in the long run this may represent a viable approach to handling the measurement problem more thoroughly.

The second problem concerned the lack of insight provided by some of these models into the underlying processes of variety-seeking behavior. The attribute-based modeling approaches make an important contribution in that they make explicit assumptions about the underlying processes responsible for variety-seeking behavior. However, this improvement is somewhat overshadowed by the fact that in their current formulations, these models inadequately handle the measurement problem noted above.

In summary, recent developments in the implicit approach to variety-seeking behavior point in the direction of discriminating derived varied behavior from true variety-seeking behavior and acknowledging underlying, psychological processes of variety-seeking behavior, although these two problems have not yet been addressed simultaneously. Further development along these lines may be expected to lead to a greater overlap with the explicit approaches, which address the same behavioral phenomenon of variety-seeking behavior from a different point of view. These explicit approaches will be discussed in the next section.

### **3.4. The explicit approach to temporal variety-seeking behavior**

Studies that use the explicit approach to examine variety-seeking behavior focus on the underlying, psychological processes that give rise to variety-seeking behavior. Rather than attempting to derive insight into variety-seeking behavior from observed variation in behavior, these approaches take selected explanatory variables as a starting point in their analyses in an attempt to explain when and why variety-seeking behavior is likely to occur. Most of the studies within the explicit approach build on the psychological complexity theories (McGuire 1976) discussed in Chapter 2 and emphasize characteristics of the individual as explanations for observed differences in variety-seeking behavior intensity. Only

recently have characteristics of the choice context received more attention as potential explanations of when and why variety-seeking behavior will occur.

Studies within the explicit approach to variety-seeking behavior will be classified according to whether they focus on personality characteristics or on aspects of the choice context. Studies that focus on personality characteristics as an explanation of variety-seeking behavior will further be classified according to the degree of measurement correspondence between the personality characteristic and variety-seeking behavior. A first group of studies focuses on the general personality characteristic of Optimal Stimulation Level in relation to variety-seeking behavior (section 3.4.1). A second group of studies has used more specific personality scales that focus on exploratory behavioral tendencies in relation to the consumer behavior domain. These consumer-specific scales of exploratory behavior in the consumer context and their relation to variety-seeking behavior will be discussed in section 3.4.2. Acknowledging that variety-seeking behavior is a specific manifestation of exploratory behavior in the consumer context, studies might be distinguished that specifically operationalize the personality characteristic of variety-seeking tendency (section 3.4.3) as a specific form of exploratory behavior tendencies in the consumer context. Finally, studies addressing non-personality characteristics as determinants of variety-seeking behavior will be discussed in section 3.4.4.

### **3.4.1. Optimal Stimulation Level**

The concept of Optimal Level of Stimulation is generally recognized as the underlying personality characteristic for variety-seeking behavior and many other exploratory behaviors both within and outside the direct consumption context. Mittelstaedt et al (1976) provided an early empirical test of Optimal Stimulation Level as an explanation of individual differences in the adoption process. They showed that high OSL consumers are more likely to engage in actual trial of a new product or service, which may be considered a form of variety-seeking behavior.

Several studies have related generalized personality scales for OSL to self-report measures for exploratory behavior tendencies in the consumer context. Not all of these self-reported tendencies relate directly to variety-seeking behavior, but tendencies that do so include innovativeness, repetitive behavior proneness and brand switching. Only these relevant aspects of exploratory consumer behavior will be discussed here.

Raju (1980) related OSL as operationalized through Arousal Seeking Tendency (AST) to consumer self-reports of exploratory behaviors in the consumer context. He distinguished between seven dimensions of consumption-specific exploration, including repetitive behavior proneness, brand switching and innovativeness. Raju's (1980) work revealed significant and substantial correlations between OSL and these exploratory dimensions ranging from 0.36 to 0.51. Research by Joachimsthaler and Lastovicka (1984) suggested that OSL serves a central

disposition underlying consumer exploratory tendencies (secondary dispositions), including self-reported innovativeness: the tendency to try new products. Wahlers, Dunn and Etzel (1986) investigated the congruence of alternative OSL measures with consumers' self-stated exploratory behavior tendencies. The authors found statistically significant correlations ranging from 0.30 to 0.51 for the relationships of innovativeness, repetitive behavior proneness and brand switching with AST, which they consider the preferable scale for measuring OSL. Raju (1984) related OSL (operationalized through AST) to self-reported exploratory brand switching frequency and found mixed support.

In line with Hirschman (1984), Venkatraman and MacInnis (1985) investigated variety-seeking and innovativeness with respect to functional and aesthetic products. Consumers were classified as having a dominant cognitive orientation (operationalized through Swanson's (1978) Cognition Seeking Scale), a dominant hedonic orientation (operationalized through the Sensation Seeking Scale), being high in both orientations ('experience seekers') or low in both ('avoiders'). The authors found few differences between these generalized scales and self-report measures for variety-seeking behavior with respect to functional and aesthetic products. More substantial differences were found for innovativeness with respect to functional and aesthetic products.

Steenkamp and Baumgartner (1992) related a composite of the four OSL-scales to (simulated) actual rather than self-reported manifestations of exploratory tendencies in the consumer context, including variety-seeking behavior. They found a significant but modest ( $r=0.18$ ;  $p<.05$ ) correlation between consumers' OSL and variation in simulated choice behavior for fast food restaurant.

### **3.4.2. OSL in the consumer context**

At the theoretical level, OSL is hypothesized to relate to diverse exploratory behaviors, many of which are not or only distantly related to the product consumption context. Recent attempts have been made to develop scales for OSL in the consumer context. To a large extent, the efforts build on Raju's (1980) self-report measure for exploratory tendencies in the consumer context. Raju (1977) already emphasized the need for a consumer-specific personality scale and suggested that some of the items of his behavioral measure might serve as input for such a scale. Raju's (1980) suggested three basic motivations underlying exploratory behavior in the consumer context: variety seeking, risk-taking and curiosity. Several authors have suggested alternative categorizations of these basic dimensions, particularly the distinction between exploratory information seeking and exploratory purchase behavior (e.g. Hirschman 1980; Price and Ridgway 1982; Joachimsthaler and Lastovicka 1984; Venkatraman and MacInnis 1985). Baumgartner and Steenkamp (1994) used Raju's items among other sources of input in the development and refinement of their Exploratory Buying Behavior Tendency (EBBT)-scale. The EBBT-scale has two sub-dimensions reflecting Exploratory Acquisition of

Products (EAP) and Exploratory Information Seeking (EIS). These two dimensions were shown to have adequate discriminant validity and relate meaningfully to personality scales, including OSL-measures and other personality indices reflecting the underlying motivations of sensory stimulation seeking and cognitive stimulation seeking (curiosity). In a series of experiments, Baumgartner and Steenkamp (1994) found support for the predictive validity of the EBBT-scale, as well as for the discriminant validity of its subscales, where the purpose was to predict simulated actual exploratory consumer behaviors including variety-seeking behavior.

Few studies have recognized that it is not the consumer's OSL per se that motivates exploratory behaviors in the consumer context, but rather the discrepancy between the OSL and the actual level of stimulation experienced at the moment of choice. Wahlers and Etzel (1985) explicitly incorporated this notion in their study examining consumers' vacation preferences. They operationalized the level of stimulation an individual perceives to exist in his/her normal environment using the Lifestyle Stimulation Scale (LSS) and showed that the discrepancy between OSL and LSS predicts the choice of a vacation better than either of the terms individually. Whereas Wahlers and Etzel (1985) used the difference between two trait-measures to predict vacation preferences, Steenkamp, Baumgartner and Van der Wulp (1994) used a Need for Stimulation measures (NST) operationalized as the difference score between Optimal Level of Stimulation (CSI-scale) and actual level of stimulation as measured by Zuckerman's State-Sensation Seeking Scale. They showed that NST moderates the relationship between arousal potential and arousal as well as the relationship between arousal and attractiveness.

Although the latter two studies focus on a more general class of exploratory consumer behaviors than just variety-seeking in product choice, they make an important contribution in positing that individual difference characteristics of the consumer as well as characteristics of the choice context will determine whether exploratory consumer behavior occurs. This implies that explanations for variety-seeking behavior might be enriched when, in addition to individual difference characteristics, characteristics of the choice context are also taken into account (see also section 3.4.4).

### **3.4.3. Variety-seeking tendency**

The studies discussed so far tried to account for variety-seeking behavior using scales that tap consumers' tendency to engage in exploratory behaviors in general. These generalized tendencies are broader than just variety-seeking in product choice behavior, and even may be reflected in vicarious exploration rather than observable variety-seeking behavior. Thus, in the context of research on variety-seeking in product choice behavior, there seems to be a need for personality scales that specifically tap the consumer's intrinsic desire for variety-

seeking in product choice as a means of satisfying the need for stimulation. Raju's subscales for repetitive behavior proneness and brand switching might serve this purpose, although the scales were originally designed as self-report measures for behavior and the dimensional structure suggested by Raju (1980) has been questioned (Wahlers, Dunn and Etzel 1986; Baumgartner and Steenkamp 1991). The variety-seeking sub-dimension from Raju's (1980) three-dimensional operationalization of exploratory tendencies in the consumer context might also be used for this purpose. Unfortunately, this subscale appeared not to be very strongly related ( $r=0.17$ ;  $p<.05$ ) to variation in fast food restaurant choice behavior (Baumgartner and Steenkamp 1991).

#### 3.4.4. Other determinants of variety-seeking behavior

Studies in this category have specifically focused on variables other than personality measures as explanations for variety-seeking behavior intensity. Only one study (Raju 1984) conducted so far has actually included non-personality determinants in addition to personality variables in an empirical study of variety-seeking behavior.

*Brand awareness and monetary deal.* Raju (1984) explicitly distinguished between exploratory and instrumental brand switching and in addition to OSL incorporated brand awareness, monetary deal and product class as determinants of exploratory brand switching. Raju (1984) found consistent support across product classes and consumer populations (homemakers and students) for his hypotheses that brand awareness and monetary deal stimulate exploratory brand switching, but support for the role of OSL was mixed. In addition, he found some support for interactive effects between the personality variable OSL and the non-personality variables monetary deal and brand awareness.

*Product satisfaction.* Mazursky, LaBarbera and Aiello (1987) also distinguished between intrinsically and extrinsically motivated brand switching and investigated the effect of product satisfaction. They found that extrinsic incentives (e.g. price discount) may induce consumers to switch despite high levels of satisfaction, but that this brand switch is not likely to lead to repeat purchasing of the brand switched to. Intrinsic incentives (e.g. desire to try the new brand) may stimulate brand switching at lower levels of satisfaction with the previously consumed brand and result in higher intentions to repurchase the newly chosen brands. This difference is magnified by the extent of prior experience with the last purchased brand.

*Purchase strategy.* Simonson (1990) incorporated purchase strategy as a determinant of variety-seeking behavior. His results revealed that a simultaneous choice strategy (i.e. buy several items at a shopping trip for consecutive future consumption) is more likely to lead to variety-seeking behavior than a sequential choice strategy (i.e. buy a new item if the previous one has been consumed). Simonson attributed this effect to consumers' uncertainty about future preferences, rendering the selection of a variety of items an efficient risk reduction

strategy and an efficient choice heuristic. Simonson and Winer (1992) confirmed the effect of purchase strategy on variety-seeking behavior in scanner data, and in addition showed that the nature of variety in choice behavior (different brands vs. different flavors) depends on the product-display format in the supermarket.

*Mood.* Kahn and Isen (1993) suggested consumers' mood as a determinant of variety-seeking behavior. They showed that positive mood increases variety-seeking behavior among safe and enjoyable products. However, in choice situations that suggest potential negative outcomes of consumption (e.g. the possibility that a product would taste bad), variety-seeking intensity appears insensitive to the consumer's mood. Kahn and Isen (1993) attributed this effect to the facilitating role of positive affect in the access to positive material from memory, which generally is more extensive and diverse than neutral and negative material (Boucher and Osgood 1969; Isen 1984). Thus consumers in a positive mood would perceive greater variety among choice alternatives. The fact that consumers in a positive mood tend to be more risk averse and have greater negative utility for potential losses (Isen 1987) should account for the fact that mood does not influence variety-seeking behavior in situations where negative features of the choice alternatives are made salient to the consumer.

*Context variation.* Menon and Kahn (1994) suggested that variation in the context in which choice occurs may influence variety-seeking behavior intensity. These authors experimentally manipulated variation in choice context over time (choice of snacks) and investigated variety-seeking behavior intensity with respect to soft drink choices to go with this snack. They found support for the hypothesis that variation in snack consumption may be 'compensated' for by lower levels of variety-seeking behavior in soft drink choices and that this compensation effect is greater the higher the stimulation from variation in the choice context.

### **3.4.5. Conclusions on the explicit approach**

Research within the explicit approach to variety-seeking behavior has historically emphasized individual differences in personality characteristics to account for observed between-consumer differences in exploratory behavior in general and variety-seeking behavior in particular. To a large extent, relatively general personality characteristics have been used for this purpose. These personality measures may be hypothesized to relate to the more general class of exploratory (consumer) behaviors, rather than specifically to variety-seeking behavior. As is evident from Figure 3.1, personality scales specifically tapping consumers' variety-seeking tendency have received only minor attention so far. The development of a more specific instrument for assessing consumers' variety-seeking tendency might contribute to a richer explanation of the phenomenon.

A second shortcoming in previous research within the explicit approach is the strong emphasis on personality characteristics as a determinant of variety-seeking behavior.

Although personality variables may explain part of the between-individual differences in variety-seeking behavior, they cannot account for within-individual differences in the phenomenon. Yet, studies that have compared variety-seeking behavior across different product categories (e.g. Givon 1984; Raju 1984; Kahn, Kalwani and Morrison 1986; Mazursky, LaBarbera and Aiello 1987; Bawa 1990; Van Trijp and Hoyer 1991) have consistently found such within-individual differences. It thus seems that variety-seeking behavior is at least in part a product-specific phenomenon, the explanation of which depends on both individual difference characteristics and characteristics of the choice context (including product-related characteristics).

An approach that would provide a richer explanation of the observed differences in the phenomenon of variety-seeking behavior would be one that incorporates specific personality characteristics such as variety-seeking tendency *and* contextual factors (both product characteristics and ambient factors) that may interact to determine when and why variety-seeking behavior will occur (cf. Hoyer and Ridgway 1984). Incorporation of characteristics of the choice context is likely to result in greater overlap with the studies in the implicit approach to variety-seeking behavior. As these implicit approaches tend to model variety-seeking behavior from real-life purchase or consumption data, they implicitly incorporate both the personality characteristics of the subjects involved and the characteristics of the context in which choice occurred. Studies within the explicit approach could make an important contribution in identifying these consumer and context characteristics that are handled only indirectly by the implicit approach.

### 3.5. Structural variety-seeking behavior

Variety-seeking behavior not only reflects itself in choice behavior over time (temporal variety) but also in situations where multiple items are consumed simultaneously (structural variety). Whereas some consumers might prefer homogeneity in the item collections, others might actively search for diversity in the items being consumed together. An example would be the choice of a menu consisting of an entree, a potato product, a vegetable and a salad consumed together, or variety within a sandwich lunch.

Green and his co-workers (e.g. Green, Wind and Jain 1972; Green and DeVita 1974; Green and DeVita 1975) conducted early work on structural variety by showing how deviations from the main effects only conjoint model can be used to provide insight into the dependence among menu components in terms of consumer preferences. Structural variety among menu components (e.g. entrees and desserts) is likely to be one of the factors responsible for such interactions.

Farquhar and Rao (1976) argued that consumers attempt to find an optimal balance in the attribute levels implied by the products consumed simultaneously. Different attributes may contribute differently to the perceived balance across products in the set. Some attributes

(non-essential) do not contribute to balance in the set, whereas others do (essential attributes). Essential attributes are further classified according to whether summated attribute levels across items in the set linearly relate to balance (non-balancing attributes) or whether balance depends on the dispersion in attribute levels across items (balancing attributes). Attributes may be non-balancing either because the summated attribute value across items is minimized (undesirable attributes) or maximized (desirable attributes). For balancing attributes balance depends on the dispersion in the attribute levels of the items in the set. For equibalancing attributes dispersion negatively contributes to balance (i.e. consumers seek homogeneity in the attribute's level across items in the set), whereas for counterbalancing attributes dispersion positively contributes to balance in the set (i.e. consumers seek diversity in the attribute's level across items in the set). Farquhar and Rao (1976) applied their model to bundles of television programs and showed that their balance model can be assessed through linear programming, where the essential function is:

$$(3.16) \quad f(Z_j) = \sum_{t \in B_o} (-1) w_t \sum_{j=1}^n z_{tj} (x_{jt} - \bar{x}_{jt})^2 + \sum_{t \in B_c} (+1) w_t \sum_{j=1}^n z_{tj} (x_{jt} - \bar{x}_{jt})^2 \\ + \sum_{t \in B_u} (-1) w_t \sum_{j=1}^n z_{tj} x_{jt} + \sum_{t \in B_d} (+1) w_t \sum_{j=1}^n z_{tj} x_{jt}$$

with  $B_o$ ,  $B_c$ ,  $B_u$ , and  $B_d$ , representing the subsets of equibalancing, counterbalancing, undesirable and desirable attributes, respectively, to be specified by the decision maker. In terms of structural variety-seeking behavior, the Farquhar and Rao (1976) model provides insight into the attribute specific nature of such variety-seeking behavior. Structural variety will be sought on counterbalancing attributes only. However, positive value derived from variety on the counterbalancing attributes may be neutralized by simultaneous variety on the other types of attributes, for which variety negatively contributes to the balance in the set.

McAlister (1979) interpreted Farquhar and Rao's (1976) concept of attribute balance in terms of attribute satiation, arguing that consumers may seek heterogeneity in attribute levels in a set of generically similar products because they get satiated with the attributes upon consumption. This attribute satiation model is a non-dynamic version of the DAS-model discussed in section 3.3.3. It assumes that sets of generically similar items are evaluated as bundles of independent attributes that summate across the items. Preference for a set of items  $g$  ( $AS(g)$ ) is directly related to the extent to which the items in set  $g$  deliver the attribute levels  $k$  ( $x_{g,k}$ ) that correspond to the consumer's ideal levels for those attributes ( $\hat{x}_k$ ). Thus:

$$(3.17) \quad AS(g) = \sum_{k=1}^K w_k f(x_{g,k}; \hat{x}_k) = \sum_{k=1}^K w_k (x_{g,k} - \hat{x}_k)^2$$

and when the consumer is confronted with the choice between multi-item sets  $g$  and  $h$ , he will compare both sets' contribution to achieving ideal levels of attributes  $k$ , according to the decision rule:

$$(3.18) \quad AS(g) - AS(h) = \sum_{k=1}^K w_k (x_{g,k}^2 - x_{h,k}^2) - 2 \sum_{k=1}^K w_k \hat{x}_k (x_{g,k} - x_{h,k})$$

With attribute levels summed over the items in the groups, the parameters in equation (3.18) can be estimated through the linear program LINMAP. McAlister (1979) applied her model to subscription packages of magazines and shows that her model predicts choices better than the Farquhar and Rao (1976) model.

Whereas the previous two models assume that all items in the set are actually consumed, others have developed models that apply to the hierarchical choice situation where a set of products is initially chosen, but from which only one alternative will actually be consumed at some later time. McAlister (1979) proposed a lottery model for this purpose. Kahn and Lehmann (1991) extended this work by explicitly incorporating utility ( $p_j$ ) for the individual items in the set as well as the variety among the items in the set (in terms of uniqueness  $U_j$ ) as two dimensions contributing to the total perceived value of any set of items ( $V_{set}$ ). Basic assumptions of this work are that the value of a set increases with an increase in the number of acceptable ( $n_A$ ) items and decreases with increase in the number of non-acceptable ( $n_N$ ) items. Further, given a certain number of acceptable options, consumers prefer sets of higher valued items over sets of lower valued items. Finally, when two items are equally preferred, the item that is more unique relative to the items already in the set adds more to the value of the total set. The Kahn and Lehmann (1991) model formulation is given in equation (3.19).

$$(3.19) \quad V_{set} = \sum_{j \in A} p_j U_{j|i < j} + c_1 n_A + c_2 n_N$$

Assuming that the items are ordered in terms of preference and that uniqueness scores are restricted to the range 0 to 1, the first term on the right side of equation (3.19) shows that the preference for the first item in the set fully translates into the value derived from the assortment. The contribution of the second highest preferred item to the value of the set depends on the preference for that item, weighted by the item's uniqueness relative to the higher preferred item(s) already in the set.

Given the large number of parameters to be estimated, Kahn and Lehmann (1991) suggested a constrained version of the model where the  $p_j$ 's and  $U_j$ 's are estimated outside the model. The constrained model reduces to:

$$(3.20) \quad V_{set} = a \sum_a U_{j|i < j} + b \sum_a P_j U_{j|i < j} + c_1 n_A + c_2 n_N$$

where  $a$ ,  $b$ ,  $c_1$  and  $c_2$  can be estimated by ordinary least squares.

Kahn and Lehmann (1991) tested their model empirically and found support for their hypotheses that (1) preference for the assortment is enhanced when additional acceptable items are included, (2) preference for the assortment is enhanced when preferences for the items in the set are higher, (3) preference contributions to the value of the set depend on the uniqueness of the items, and that (4) variety interacts with the number of items in the set,

implying that uniqueness adds more to the value of small sets than for larger sets. The authors further showed that their assortment model performs better than the simpler models that assume that the value of an assortment depends only on the best liked item in the set.

To summarize, the approaches discussed in this section suggest that variety-seeking behavior can be conceptualized meaningfully at the level of structural variety in a set of items consumed as a unity. Unfortunately, no studies have been conducted so far that relate the individual difference characteristic of optimal level of stimulation or derivatives thereof to structural variety in product choice.

### **3.6. Discussion**

The purpose of this chapter was to review and discuss marketing studies dealing with variety-seeking behavior. In this general discussion, we will concentrate on studies on temporal variety-seeking behavior as that will be the focus of the other chapters of this book. Previous research in this area may be assessed using the evaluative criteria that arise from the definition of variety-seeking behavior (see section 3.1). In this discussion, we will focus on the criteria of adequacy of measurement of variety-seeking behavior and the richness of the explanation of the phenomenon.

#### *Adequacy of measurement of variety-seeking behavior.*

The definition of variety-seeking behavior stresses the distinction between observed variation in behavior that is motivated by the utility derived from variation per se (i.e. true variety-seeking behavior) and observed variation that is extrinsically motivated (i.e. derived varied behavior). The implicit approach falls short in this respect. The studies in this approach attempt to derive insight into variety-seeking behavior from purchase or consumption histories, mainly panel data. As these panel data typically do not provide insight into the underlying motivation for observed switching behavior, they do not allow for distinguishing true variety-seeking behavior from derived varied behavior. This situation seriously threatens the validity of the variety-seeking parameters obtained in these studies. They merely reflect a tendency to vary in behavior vis-à-vis repeat purchasing, rather than specifically relating to variety-seeking behavior. This measurement problem was already noted by Kahn, Kalwani and Morrison (1986: 99) who stated: "Like other researchers in this area we may be labelling behavior as variety-seeking (reinforcement) which in fact is not motivated by a desire to seek (avoid) variety." The measurement problem associated with the implicit approach may be alleviated along two lines. First of all, the internal validity of the variety-seeking parameters may be increased by using experimental choice data rather than panel data (e.g. McAlister 1982; Givon 1985). It may be expected that experimental choice data are less affected by extrinsic motivations on the choice task than are "real-life" panel data. However, this increase of internal validity will be gained at the expense of the external validity of the variety-seeking

parameters. A second approach to increase the validity of the variety-seeking parameters is to explicitly incorporate extrinsic motivations and resulting variation in behavior into the model formulation. This approach was used by Kahn and Raju (1991) who incorporated switching due to price promotions into their model specification, thereby separating the variety-seeking parameters from this undesired influence. Though the variety-seeking parameters are only purified for one selected extrinsic motivation, in the long run this may be a viable approach to obtain more valid parameter estimates for true variety-seeking behavior.

The measurement problem also applies to the explicit approach to variety-seeking behavior, although in a different sense. Here an important distinction needs to be made between studies that measure variety-seeking behavior in terms of self-report measures versus those that focus on actual manifestations of variety-seeking behavior in experimental choice situations. Most studies in the explicit approach have related personality scales to self-report measures of variety-seeking behavior and have consistently found significant relationships. However, to some extent this evidence may be due to 'shared method' variance as the personality scales also are defined in terms of items relating to self reported behavior. The few studies that have related personality measures to actual manifestations of variety-seeking behavior generally find substantially weaker relationships. As most of these studies assess variety-seeking behavior in experimental choice situations, where extrinsic motivations on the choice task are virtually absent, the confounding effect of derived varied behavior with true variety-seeking behavior is less likely to be a serious problem in studies using the explicit approach.

#### *Richness of the explanation in terms of underlying processes*

A second relevant evaluative criterion for previous research efforts on variety-seeking behavior is whether they provide an adequate theoretical explanation for the phenomenon. Product-level models have a disadvantage in this respect. They are primarily descriptive in nature in that they provide product-level insight into the intensity of variety-seeking behavior. They do not, however, provide an adequate explanation of why this behavior occurs. Attribute-level models within the implicit approach as well as those applying to structural variety can provide richer theoretical explanations as they allow for the identification of attributes on which variety is avoided and those on which variety is sought. These models typically hypothesize attribute satiation and attribute balance as underlying psychological processes for variety-seeking behavior. Studies within the explicit approach have tended to take personality characteristics as the underlying explanation for variety-seeking behavior. More and more these studies have developed in the direction of consumer specific personality characteristics for general exploratory tendencies in the consumer context, or even more specifically for variety-seeking tendency in product consumption. Acknowledging that variety-seeking behavior is only one possible manifestation of exploration in the consumer context, the more specific scales for variety-seeking tendency are to be preferred when the

purpose is to predict variety-seeking behavior. However, personality characteristics fall short in fully explaining the complex nature of this behavioral phenomenon as they do not account for the observed within-subject differences in variety-seeking behavior. In order to provide a richer explanation of variety-seeking behavior, the explicit approach should also take into account contextual determinants of variety-seeking behavior as well as the interaction of personality characteristics and contextual factors.

To summarize, each approach to temporal variety-seeking behavior has strengths and weaknesses, in terms of adequacy of measurement of variety-seeking behavior and the richness of the explanation provided. The present review also suggests ways in which these weaknesses may be overcome. Studies within the implicit approach would greatly benefit from the availability of consumption or purchase histories that would allow for identification of the underlying motivation for observed switching behavior. Computerized panels may provide such data to allow for a more valid assessment of the variety-seeking parameters. Studies within the explicit approach might benefit from personality measures that specifically tap consumers' variety-seeking tendency rather than the more general tendency toward exploratory behavior of which variety-seeking behavior is only one specific manifestation. Also the richness of the explanation may be enhanced by recognizing that variety-seeking behavior is under the joint control of personality variables and context factors that may interact to determine when and why variety-seeking is most likely to occur. Developments along these lines might contribute to a closer integration between the implicit and explicit approach to variety-seeking behavior.



## CHAPTER FOUR

### THE MODEL AND HYPOTHESES

#### 4.1. Introduction

In line with the general definition of variety-seeking behavior put forward in Chapter 1, temporal variety-seeking behavior is formally defined as the "biased behavioral response by some decision making unit to a specific item relative to previous responses within the same behavioral category due to the utility inherent in the variation per se, independent of the instrumental or functional value of the alternatives or items, and is a function of psychological processes". The purpose of this chapter is to derive a formal micro-level model that captures these dimensions of temporal variety-seeking behavior.

Central to the variety-seeking model are the following assumptions:

1. consumption alternatives can be conceived of as bundles of attributes,
2. consumers derive value from the attributes implied by the consumption alternatives
3. consumers' decisions as to whether to engage in a particular consumption behavior depend on the total expected value of the consumption alternatives.

It is thus assumed that from the available consumption alternatives, the consumer will choose the alternative that delivers the highest total (expected) value of consumption at that particular choice occasion, possibly per price unit.

Building on the literature on intrinsic versus extrinsic motivation discussed in Chapter 2, the total perceived value of a particular consumption alternative is decomposed into three components (Figure 4.1). The long-term *hedonic* value of the consumption alternative finds its basis in product attributes that manifest themselves at the very moment of consumption or choice in relation to intrinsic consumption motivations, such as sensory pleasure derived from consumption. Long-term *instrumental* value of the consumption alternative results from attributes that materialize as consequences of consumption or choice behavior based on their means-end relationship with extrinsic consumption motivations.

*Variety* value, the third component of total value, forms the heart of the temporal variety-seeking model as it reflects the bias in behavioral response due to the utility inherent in variation relative to previous consumption per se<sup>1</sup>. In contrast to the other two components, the variety component is not a characteristic of the consumption alternative in isolation. Variety value reflects that under the influence of previous consumption, the consumer's value assessment for a choice alternative may diverge from that alternative's long-term (instrumental and hedonic) value. The assumption that consumers' value assessments are

---

<sup>1</sup> Our primary focus is on temporal variety-seeking behavior, but the distinction between instrumental, hedonic and variety value can also be extended to bundles of items and thus to structural variety-seeking behavior.

affected by consumption history is central to the variety literature (Chapter 3), and is also the central component of our variety-seeking model. Variety value finds its basis in three underlying psychological processes: relief of boredom, relief of attribute satiation and curiosity. These underlying processes will be discussed in more detail in section 4.4.

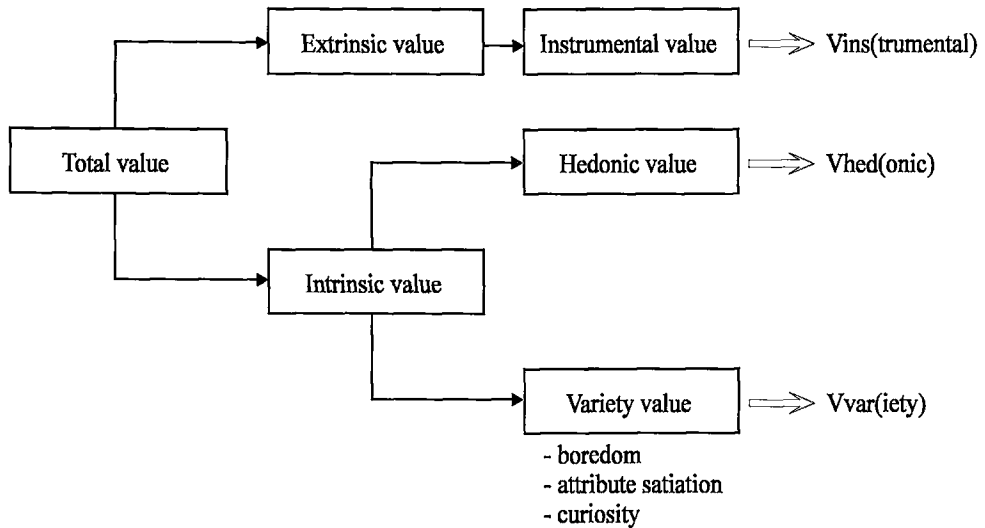


Figure 4.1. Sources of value derived from consumption

A consumer's evaluation of any consumption alternative can be described in terms of the three value components. However, each of the value components gains meaning in relation to the consumer's motivational state at the moment of choice. Thus, although the consumer may be aware of each of the three value components (salience) in any choice situation, their relative importance in choice behavior depends on the consumer's motivational structure at the moment of choice. Which of the value components is decisive in actual choice behavior (determinance; cf. Myers and Alpert 1977) further depends on the perceived differences between the available consumption alternatives. To illustrate this point, consider a food choice situation, in which the available food alternatives have instrumental value in that they provide the energy for performance and growth, i.e. nutritional value. The food alternatives further have hedonic value in that they are a source of sensory pleasure at the moment of consumption, and variety value in that they may be a source of variation relative to a previous food consumption. Each of these value components may be distinguishable (i.e. salient) to the consumer at a particular moment of choice. To a hungry person who primarily eats to satisfy physiological needs (i.e. extrinsically motivated), the extrinsic (nutritional) value of the available food alternatives will probably be more important and choice behavior is more

likely to be guided by the extent to which food alternatives are instrumental in reducing this physiological need. However, in situations where several food products with comparable nutritional value are available to this consumer, nutritional value will not be determinant in choice behavior as more than one alternative is capable of providing the desired nutritional value. In such situations, other value components than the most important instrumental value are likely to come to the forefront and intrinsic value is likely to be determinant in actual choice behavior among the alternatives with similar nutritional value. This may either be the hedonic value (e.g. taste) or the extent to which they provide the desired variation relative to the previous consumption (variety value).

Consumers' value assessments are made across the three value components simultaneously. In some situations the three value components are fully compatible, for example when a consumption alternative is available that provides the desired variation in choice (variety value) and in addition outperforms the previously chosen alternative in terms of hedonic (e.g. taste) and instrumental value (e.g. nutritional value). In many consumption situations, however, the three sources of value can not be fully reconciled, and some sort of trade-off between the three sources of value will take place. An example would be the consumption of a bad-tasting medicine. Obviously, in such a situation the instrumental value (i.e. in terms of consequences of behavior such as contribution to cure) of consumption is likely to take motivational precedence over the hedonic value of consumption (i.e. the intrinsic value of the consumption experience, i.c. poor taste) with variety value probably not even being considered. Similarly, situations may occur where the desired variation in consumption behavior can only be achieved at the expense of hedonic and/or instrumental value of consumption. In the variety-seeking model, these trade-offs are explicitly taken into account.

#### 4.2. Basic equations

The basic concepts discussed in the previous section can now more formally be represented. For ease of exposition, let  $V_i$  and  $V_j$  be the unconditional or long-term preference for alternatives  $i$  and  $j$  respectively. Then, the value of choice alternatives  $i$  and  $j$  can be expressed as:

$$(4.1) \quad V_i = V_{hed_i} + V_{ins_i}$$

$$(4.2) \quad V_j = V_{hed_j} + V_{ins_j}$$

Further, let  $V_{i|i}$  be the perceived value of consumption alternative  $i$ , after a previous consumption of alternative  $i$ . This conditional value assessment of alternative  $i$  need not necessarily equal its unconditional value assessment (Jeuland 1978). Acknowledging that changes in value assessment may be due to changes in perceived hedonic and instrumental value, then  $V_{i|i}$  may be expressed as:

$$(4.3) \quad V_{i|i} = V_i + \Delta V_{i|i} = V_i + [\Delta V_{hed_{i|i}} + \Delta V_{ins_{i|i}}]$$

and in a similar fashion

$$(4.4) \quad V_{j|i} = V_j + \Delta V_{j|i} = V_j + [\Delta V_{hed_{j|i}} + \Delta V_{ins_{j|i}}]$$

Equations (4.1) to (4.4), when expressed in terms of conditional and unconditional choice probabilities, form the heart of most modelling approaches to variety-seeking behavior (see Chapter 3). Much of this research assumes that variety-seeking behavior is reflected in a reduction in the repeat purchase probability ( $\Delta V_{i|i} < 0$ ), and that reinforcement behavior is reflected by an increase in repeat purchase probability ( $\Delta V_{i|i} > 0$ ). Along these lines, comparison of the conditional and unconditional choice probabilities ( $V_{i|i} - V_i$ ) allows for classifying consumers as variety seekers or reinforcement consumers. Although equations (4.1) to (4.4) reflect a first-order representation of variety-seeking behavior, it is obvious that it might be extended to reflect purchase/consumption feedback from consumption experiences in prior periods. However, in line with most variety-seeking behavior models (see Chapter 3), we operationalize variety-seeking behavior as a first-order process.

Despite the fact that equations (4.1) to (4.4), when expressed in terms of conditional and unconditional choice probabilities, are similar to stochastic modelling approaches to variety-seeking behavior, it is important to recognize that negative values for  $\Delta V_{i|i}$  and positive values for  $\Delta V_{j|i}$  do not necessarily imply variety-seeking behavior. Different behavioral phenomena may underlie  $\Delta V_{i|i}$  and  $\Delta V_{j|i}$ , and the failure to distinguish between these phenomena was identified as one of the crucial shortcomings of previous modeling efforts in the implicit approach (see Chapter 3). To structure the subsequent discussion, each of the components of equations (4.3) and (4.4) will be discussed in more detail. Section 4.3. discusses the unconditional value assessments ( $V_i = V_{hed_i} + V_{ins_i}$ ) in more detail. As these value components are defined in terms of perceived characteristics of the product alternative in isolation,  $V_{hed}$  and  $V_{ins}$  will together be referred to as value derived from product-related characteristics. Section 4.4. discusses the 'dynamic' components of equations (4.3) and (4.4) that result from consumption feedback. Section 4.4.1. will discuss changes in instrumental value. Section 4.4.2. will discuss changes in hedonic value in response to previous consumption and relate them to the underlying psychological phenomena of boredom with the choice task, attribute satiation and curiosity.

### 4.3. Value derived from product-related characteristics

An alternative's value derived from product-related characteristics is comprised of two components: instrumental value and hedonic value. As discussed in Chapter 2, the distinction between these two components depends on the type of attributes involved. For some attributes ('hedonic attributes'), value manifests itself at the very moment of consumption. As a consequence, these attributes contribute to the appreciation of the consumption experience for

its own sake (Holbrook 1986), primarily in terms of the (sensory) pleasure and fun associated with the consumption experience *per se* (Holbrook and Hirschman 1982). For instrumental attributes, in contrast, value doesn't materialize at the very moment of consumption, but rather as a more or less delayed consequence of consumption behavior. These attributes are valued by the consumer because they hold a means-end relationship with other consumption goals. Thus, the instrumental attributes are valued because they are instrumental in achieving consumption goals that are extrinsic to the direct consumption experience. For example, hedonic value of beer would relate to the direct appreciation of beer consumption and would, for example, find its basis in the sensory attributes responsible for taste appreciation. Instrumental value would relate to the delayed consequences that arise from beer consumption and would, for example, be based on perception of health effects of beer consumption, the morning after effects, etcetera.

Our distinction between hedonic versus instrumental attributes and value components finds support in the consumer behavior literature that suggests that "products are consumed for two basic reasons: (1) consummatory affective (hedonic) gratification, and (2) instrumental, utilitarian reasons concerned with expectations of consequences" (Batra and Ahtola 1990: 159). Batra and Ahtola (1990) extend Millar and Tesser's (1986) distinction between the cognitive and affective component of attitudes to the consumer domain and classify product attributes accordingly, with sensory attributes relating to the consummatory affective gratification, and functional and non-sensory relating to instrumentality in a means-ends relationship with extrinsic consequences. Several other authors have also suggested that product attributes can be meaningfully classified into two broad categories: those that are primarily hedonic and those that are primarily instrumental in nature (e.g. Alpert 1971; Batra and Ahtola 1990; Levy 1959; Holbrook and Hirschman 1982; Millar and Tesser 1986; Myers and Shocker 1981). However, despite the apparent consensus about the basic notion of two different types of attributes, there is far less consensus about the exact terminology and measurement (see Mittal, Ratchford and Prabhakar 1990 for an overview).

The distinction between hedonic and instrumental value has also been suggested to apply to more inclusive consumer behaviors. Examples include the distinction between intrinsic and extrinsic preferences (O'Shaughnessy 1987), hedonic versus instrumental shopping value (Babin, Darden and Griffin 1994) and hedonic versus instrumental value of consumer search behavior (Bloch, Sherrell and Ridgway 1986). Each of these distinctions finds its basis in whether the value materializes at the very moment of engaging in the behavior or as a delayed consequence of behavior in relation to consumption goals outside the direct consumption context.

Given that the consumer behavior literature suggests that hedonic and instrumental value of product alternatives are two distinguishable components of consumers' appreciation of products and that recognition of these two dimensions may enrich the understanding of consumers' value assessments (Mittal, Ratchford and Prabhakar 1990), we will distinguish

between the two components of value derived from product-related characteristics, as reflected in equation (4.5)<sup>2</sup>.

$$(4.5) \quad V_i = V_{ins,i} + V_{hed,i} = \sum_{f=1}^F w_f P_{if} + \sum_{h=1}^H w_h P_{ih}$$

where:

- $f (1, \dots, F)$  the relevant instrumental or extrinsically valued attributes
- $h(1, \dots, H)$  the relevant hedonic or intrinsically valued attributes
- $P_{if} (P_{ih})$  the perception of alternative  $i$  on instrumental (hedonic) attribute  $f$  ( $h$ )
- $w_f (w_h)$  the value weight attached to instrumental (hedonic) attribute  $f$  ( $h$ )

As discussed before, in our operationalization the distinction between hedonic and instrumental attributes depends on whether value derived from a particular attribute manifests itself directly at the moment of consumption or as a more or less delayed consequence of consumption. The categorization of attributes into hedonic and instrumental can proceed along two lines. The first approach would classify attributes analytically based on exploratory factor analysis on attribute scores. Batra and Ahtola (1990) used this approach and found support for the two components of brand attitude, although these results do not necessarily extend to the attitudes towards product categories as a whole (Crowley, Sprangenberg and Hughes 1992). A second approach would classify the attributes a priori based on their content. Attributes that materialize at the very moment of consumption (e.g. sensory attributes) would be classified as hedonic, whereas attributes that would materialize as a delayed consequence of behavior (e.g. health) would be classified as instrumental. In both cases the attributes' value weights ( $w_f$  and  $w_h$ ) can be estimated through multiple linear regression with total value derived from product-related characteristics (or its components) as the dependent variable. Since we operationalize value derived from product-related characteristics as an unconditional value assessment, these analyses should be conducted without reference to the consumption history, resulting in an operationalization that is very similar to the attitude-toward-the-object concept.

In principle, any product alternative may be described in a very large number of functional and hedonic attributes at different levels of abstraction. The attributes we refer to in equation (4.5) reflect product benefits, the utility generating attributes of products. Equation (4.5) does not include attributes that merely serve as indicators or cues (cf. Steenkamp 1989) for these product benefits. For example, brand name as a product attribute would not be included in equation (4.5) as brand name in itself is not a product benefit.

---

<sup>2</sup> Some attributes may hold an ideal-point relationship with Value derived from product-related characteristics. We consider equation (4.5) an adequate representation for our purposes because we believe that most attributes are of the "more is better" type and because linear formulations such as (4.5) have been found to be robust against deviations from linearity (e.g. Anderson and Shanteau 1977).

Nevertheless, through the associations consumers hold with brand names in a particular product category, brand name may serve as an important cue to perceived product benefits (e.g. taste). Only the latter true utility-generating product benefits are considered in the value derived from product-related characteristics.

#### 4.4. Value changes due to feedback

In equations (4.3) and (4.4), the dynamic aspects of choice behavior are reflected in the differences between conditional and unconditional value assessments ( $\Delta V_{i|i}$  and  $\Delta V_{j|i}$ ). Here again, a distinction can be made between changes in hedonic value due to previous consumption ( $\Delta V_{hed,|i}$ ) and changes in instrumental value in response to previous consumption ( $\Delta V_{ins,|i}$ ). Under the assumption that consumers' perceptions of the instrumental ( $P_i$ ) and hedonic ( $P_h$ ) attributes do not change under the influence of previous consumption, changes in instrumental and hedonic value will arise from changes in the value-weights ( $w_i$  and  $w_h$ ) attached to these attribute perceptions as a result of previous consumption<sup>3</sup>. The value weights reflect the marginal contribution to perceived value of a unit increase in the attribute level and can be conceptualized in a means-end relationship with the consumer's need structure (Vinson, Scott and Lamont 1977). Thus, a first obvious reason why value weights may change under the influence of previous consumption would be that previous consumption ( $t-1$ ) has changed the consumer's need structure. A key example of this case would be the extrinsic motivation of hunger. The nutritional value of an alternative may be an important attribute at  $t-1$ , but on the next consumption occasion it may be an unimportant attribute simply because previous consumption has already satisfied the hunger motive. This will typically be the case for all motives that operate in a "cyclical" fashion, implying that once satisfied they will not be active again for some period of time. Operationally, the contribution of attributes to the satisfaction of cyclical motives can most meaningfully be modelled in terms of an ideal-point representation. To account for the cyclical nature of these motives, this ideal-point representation should explicitly incorporate the notion of situation-specific ideal points (Holbrook 1984). In the example discussed above, this would imply that at  $t-1$  the situation-specific ideal point would be a high value of nutritional value (probably at infinity) and food products providing nutritional value would be valued positively (probably according to a vector-model representation). At moment  $t$ , however, the ideal point would be close to zero, depending on the extent to which previous consumption already satisfied the hunger motive.

---

<sup>3</sup> Note that at any moment in time (e.g.  $t-1$ ), cross sectionally the weights reflect the relative importance attached to the attributes (cf. equation (4.5)). Here we address the longitudinal dynamics in the weight vectors  $w_i$  and  $w_h$  as a result of previous consumption.

For most motives that are "insatiable," attributes that contribute to the satisfaction of these motives will hold a linear relationship with value, implying that "more is always better." Myers and Shocker (1981) suggest that most of the product benefits and also imagery attributes will hold such a linear relationship. For example, for a consumer to whom health is a central value in life, the product attribute of perceived healthiness will linearly contribute to the achievement of this central value, irrespective of previous consumption.

Hedonic motivation aimed at the pleasure inherent in the multisensory, fantasy and emotive aspects of one's experience with products (Hirschman and Holbrook 1982) takes a special position in this discussion. Despite the fact that sensory pleasure will hold a linear relationship with hedonic value (more pleasure is always better), importance weights attached to the hedonic attributes may change under the influence of previous consumption. However, this is not because the need structure changes under the influence of previous consumption (as was the case in the hunger example), but because some attributes become less (or more) valued in relation to the constant motive strength of the desire for sensory pleasure. In other words, in the case of hedonic motivation, previous consumption may influence the attribute weights  $w$ , implying that alternatives (which are configurations of attributes) become differently valued goals in relation to the constant need structure. Operationally, this process may be represented as an ideal point model, with ideal points constant over time and attribute levels building up across time. McAlister (1982) suggested a dynamic attribute satiation model that does exactly that (see chapter 3).<sup>4</sup>

Against the background of the processes underlying changes in value weights discussed above, the two dynamic components of equation (4.3) and (4.4) will be discussed in more detail. Section 4.4.1. discusses the changes in instrumental value, and changes in hedonic value will be discussed in section 4.4.2.

#### 4.4.1. Changes in instrumental value

Changes in instrumental value as a result of previous consumption are reflected in  $\Delta V_{ins_{ij|}}$  and  $\Delta V_{ins_{jj|}}$ . As discussed before, instrumental value relates to the product's instrumentality in relation to consumption motives that are extrinsic to the direct consumption experience. In line with Myers and Shocker (1981), we assume that instrumental attributes have a consistent linear relationship with most extrinsic motives. Thus, importance weight  $w_i$  may be assumed to be relatively insensitive to previous consumption. As a consequence, changes in instrumental value ( $\Delta V_{ins_{ij|}}$  and  $\Delta V_{ins_{jj|}}$ ) equal zero and can be ignored in the model formulation (cf. equation (4.3) and (4.4)).

---

<sup>4</sup> Note that we follow McAlister (1982) in her ideal-point level representation for sensory attributes, but not for the non-sensory attributes such as 'calories' and 'thirst quenching'. For these attributes we suggest that the ideal point levels change over time rather than being constant as McAlister (1982) suggests.

Changes over time in instrumental attributes' weights  $w_f$  that are a result of changes in the individual's need structure between  $t-1$  and  $t$  (such as in the case of the hunger motive) will not be incorporated in the variety-seeking model. Instead, we will assume that individuals enter the choice situation at  $t-1$  and  $t$  with a constant set of extrinsic motives and that previous consumption has not affected the individual's need structure. In situations where these extrinsic motivational structures are of primary concern, they can be introduced into the variety-seeking model as a situational influence. For example, it may be relevant to consider differences in variety-seeking behavior intensity in a hungry state versus a non-hungry state. Hypotheses of this type can then be empirically tested in a between- or within-subjects design with degree of hunger as a experimental (situational) factor.

#### 4.4.2. Changes in hedonic value

Changes in hedonic value as a result of previous consumption are reflected in  $\Delta Vhed_{i|i}$  and  $\Delta Vhed_{j|i}$ . As discussed before, value derived from hedonic attributes materializes directly at the moment of consumption rather than as a delayed consequence in relation to instrumental motives extrinsic to the consumption experience. Hedonic value assessments differ in two important aspects from instrumental value assessments. First, hedonic value assessment arises directly and specifically from the consumption situation in which variety-seeking behavior is investigated. And second, value derived from hedonic attributes materializes in relation to intrinsic motives that operate in an ongoing rather than a cyclical nature (Deci 1975). As a result, changes in hedonic value due to previous consumption operate in relation to a different motivational process than changes in instrumental value. Intrinsic motives operate in an ongoing fashion implying that motive strengths are constant over time. Changes in value weights for hedonic attributes (resulting in changing hedonic value) as a result of previous consumption do not originate from changing motive strengths, but from the fact that obtaining a particular attribute or configuration of attributes becomes a less (or more) valued goal in relation to a constant intrinsic motivational structure. This is an important difference vis-à-vis cyclical motives, as in the case of hedonic value, changes under the influence of previous consumption are reducible to characteristics of the choice alternatives.

Two types of changes in hedonic value of a choice alternative are distinguished: changes due to the fact that the product (the configuration of attributes) has been consumed on the previous consumption occasion ( $\Delta Vhed_{i|i}$ ) and changes due to the fact that the present alternative has not been chosen on the previous consumption occasion ( $\Delta Vhed_{j|i}$ ). As reflected in equations (4.3) and (4.4), both of these components may influence the relative attractiveness of the choice alternatives and lead to variety-seeking behavior. For example, in situations where  $\Delta Vhed_{i|i} < 0$ , other alternatives become *relatively* more attractive, which may lead to switching behavior. Similarly, in situations where  $\Delta Vhed_{j|i} > 0$ , another alternative than previously chosen becomes *absolutely* more attractive, which may also lead to

switching behavior. These two aspects of changing hedonic value in response to previous consumption have a clear behavioral interpretation. A not previously chosen alternative may become relatively more attractive ( $\Delta V_{hed_{j|i}} > 0$ ), because choosing this alternative may satisfy the curiosity for it. Satiation with the attributes of the alternative previously chosen and boredom associated with choosing the previous alternative again would reflect themselves in negative values of  $\Delta V_{hed_{j|i}}$ . The main difference between the latter two psychological processes underlying  $\Delta V_{hed_{j|i}} < 0$  is whether the decrease in hedonic value is product-specific (boredom with choosing the same product again) or attribute specific (attribute satiation). Each of the underlying processes of changing hedonic value in response to previous consumption will be discussed in more detail. Section 4.4.2.1. and 4.4.2.2. will discuss the underlying processes of changing hedonic value due to boredom with the choice task and attribute satiation respectively. Section 4.4.2.3. will discuss the underlying process of curiosity.

#### **4.4.2.1. Boredom with the choice task**

Boredom with the choice task resulting in a decrease in an alternative's hedonic value in response to previous consumption of that alternative was suggested by Howard and Sheth (1969) as an underlying mechanism for variety-seeking behavior. They suggested that consumers try to simplify their choice process over time and go through a sequence ranging from extensive problem solving, through limited problem solving to routinized response behavior. Routinized response behavior is a very efficient choice process but not very challenging. Howard and Sheth (1969) suggest that at a certain moment in time, the choice process may actually become too simple a situation and that consumers actively try to complicate their choice process to resolve the boredom resulting from routinized choice behavior. Variety-seeking behavior in terms of trying out relatively new and unfamiliar product alternatives may be a means of doing so. This type of variety-seeking behavior is referred to as "Psychology of Complication" (Howard and Sheth 1969) or "Boredom Problem Solving" (Howard 1989). Some indirect empirical support for this choice mechanism was provided by Wierenga (1974), who showed that over time consumers adjust their consideration set. Using his concept of pool-size, the number of different brands chosen during the last ten purchases, he shows that consumers complicate the choice task by considering brands not previously in their choice set, and then return to routinized response behavior where choices are made from within a very limited number of brands.

Boredom with the choice task reflects itself in negative affect associated with choosing or consuming the same product again. It thus materializes in a product-specific negative value for  $\Delta V_{hed_{j|i}}$ . It is important to note that the change in hedonic value due to boredom with the choice task is not an attribute-specific phenomenon. Boredom with the choice task is instigated by a (temporary) sub-optimal level of stimulation associated with the choice task.

Thus, choosing a different product than the one chosen before (i.e. variety-seeking behavior) may be a means of increasing the stimulation derived from choice into closer correspondence with the optimal level of stimulation. Berlyne (1960; 1963) referred to this type of stimulation-increasing variety-seeking behavior as diversive exploration (Berlyne 1960; 1963).

The diversive and non-attribute specific nature of variety-seeking behavior in response to boredom has important implications for the type of exploratory behaviors that may bring stimulation into closer correspondence with the optimal level. As the basic underlying motivation is to raise the stimulation level experienced in choice behavior, a relatively broad array of products may be considered as suitable candidates for solving boredom with the decision process. Further, boredom need not necessarily manifest itself in actual variety-seeking in product choice. A consumer has several options to complicate the choice process. Vicarious exploration, such as reading about the product or talking to different experts about the purchase decision to be made, may serve as effective means of increasing the complexity of the choice process.

#### **4.4.2.2. Attribute satiation**

Attribute satiation is a second underlying mechanism that manifests itself in negative values for  $\Delta V_{hed_{ij}}$ . It may be conceptualized as an attribute-specific manifestation of boredom with previous consumption. In situations of attribute satiation, it is not the boredom with the product per se but rather satiation with specific attributes of the previously chosen product that is the cause of decreasing hedonic value in response to previous consumption. Satiation with hedonic attributes, particularly the sensory attributes, may stimulate variety-seeking behavior. In the sensory literature, this process is known as 'sensory-specific satiety' (LeMagnen 1967). Rolls (e.g. 1986 for an overview) conducted a series of experiments into the phenomenon of sensory specific-satiety and its influence on preference and food intake. She has shown that consumer preference for a food decreases with prolonged experience with the sensory characteristics of that food, and that this decrease in preference generalizes to other foods with similar sensory properties but not to foods with dissimilar sensory properties. Sensory-specific satiety may influence the quantity of food intake, but whether or not this occurs depends on the sensory variation among the available alternatives. When sensory variation is high, food intake may be increased, but when sensory variability is low, changing preferences do not generally result in quantitative changes in food intake.

Different mechanisms have been suggested to account for the phenomenon of sensory-specific satiety. Cabanac (1971) suggests a physiological mechanism for his concept of alliesthesia (i.e. the changing hedonic response to solutions as they are consumed). Cabanac argues that the pleasure derived from various sensations depends on their physiological usefulness. He showed that after a preload of a sweet solution, either given orally or

intragastrically, sweet solutions became gradually less pleasant over a period ranging to 45 to 60 minutes after the preload. This phenomenon is sensory-specific in that the pleasantness ratings for sweet solutions appeared insensitive to salty preloads and vice versa. Because of the slowness of the hedonic changes, and because these changes also occurred following intragastric preloads, they were presumed to be due to an alteration in physiological need for particular substances. However, this physiological explanation cannot account for the short-term effects in the process of sensory-specific satiation.

Rolls (1984; Yaxley et al. 1985) related sensory-specific satiety to neuronal activity in monkeys eating particular foods to satiety. It was found that sensory-specific satiety is not due to decreased sensitivity of areas in the brain concerned with the sensory analysis of taste (the nucleus tractus solitarius and the opercular cortex) or visual stimuli (the inferior visual temporal cortex and the amygdala). Rather, the studies revealed that sensory-specific satiety led to changes in the areas of the brain which control motivation and the reward value of foods. Upon consumption of the food, the neurons of the lateral hypothalamus became less responsive to that food and acceptance for that food gradually decreased. These findings strongly suggest that sensory-specific satiety is not a result of habituation or adaptation to the sensory characteristics, but rather relates to the motivational state of the organism. This is in line with our operationalization of attribute satiation as an underlying process for negative values of  $\Delta V_{hed_{iji}}$ .

Contrary to boredom with the choice task, attribute satiation is an attribute-specific phenomenon. This implies that variety-seeking behavior due to attribute satiation is a more specific phenomenon. The biased response toward this underlying mechanism is likely to be directed toward products that have attributes different from the previously chosen product. Also, because attribute satiation is related to valuation of sensory attributes, it can only be overcome by means of variety-seeking in actual product choice. Vicarious exploration will not contribute to overcoming attribute satiation.

#### 4.4.2.3. Curiosity

Whereas attribute satiation and boredom with the choice task relate to negative values for  $\Delta V_{hed_{iji}}$ , curiosity serves as an underlying psychological process for positive values for  $\Delta V_{hed_{iji}}$  in response to previous consumption. Curiosity finds its basis in the existence of an information gap between what one knows and what one wants to know (Loewenstein 1994). Curiosity is associated with an above-OSL level of arousal, an aversive situation which can be resolved by an appropriate response (Loewenstein 1994). Building on Berlyne's distinction between specific and diversive curiosity, the term curiosity has historically been used to denote two different phenomena: diversive exploration, reflecting the seeking of stimulation to alleviate boredom and specific curiosity as a desire for more information about a specific stimulus. Several authors, including Berlyne (1974; Day 1971) have suggested that diversive

curiosity should not be classified as curiosity, as it is more closely related to boredom than to curiosity (Loewenstein 1994). This is in line with our operationalization, where boredom ( $\Delta V_{hed_{ij}} < 0$ ) as an underlying motivation is separated from curiosity ( $\Delta V_{hed_{ji}} > 0$ ). Thus, we will treat curiosity as a heightened arousal state due to uncertainty about the hedonic and instrumental value of a specific consumption alternative  $j$  not consumed during the previous consumption occasion. This uncertainty renders the experienced level of stimulation slightly above the optimal level. Curiosity, the desire to close the information gap (i.e. reducing the uncertainty), is conceptualized as an example of specific exploration (Berlyne 1960; 1963) that aims to reduce the stimulation level, to bring it into closer correspondence with the optimal level of stimulation. Curiosity-motivated variety-seeking behavior serves as a means of reducing uncertainty through actual product experience.

With respect to uncertainty in consumer decision making, an important distinction needs to be made between the components of risk and ambiguity (Einhorn and Hogarth 1985). In decisions under risk, the probability distribution of outcome occurrences is known although a consumer is not fully certain about which outcome will occur at this specific occasion. In decisions under ambiguity, the probabilities themselves are uncertain (i.e. ambiguous). In other words, ambiguity reflects a second-order uncertainty, that is: uncertainty about uncertainty (Kahn and Sarin 1988). An example of product curiosity may clarify this distinction. Consider a consumer who is planning to buy a steak. From personal experience, this consumer knows that his butcher on average delivers good quality steaks, but that there is some inherent quality variation in this butcher's steaks. Let us assume that from experience the consumer knows that there is a .8 probability of getting a 'good quality' steak, a .1 probability of getting a 'excellent quality' steak, and a .1 probability of getting a 'reasonable' quality steak. There is no ambiguity, since the probability distribution of alternative outcomes is known, but there is still risk involved since the consumer does not know which of the possible outcomes will actually result. Now consider the same consumer who is confronted with a product that is completely new to him. This consumer has no information about the probability distribution. At best this consumer can make an informal assessment of the probability distribution by making inferences from the other alternatives in the relevant product category (Meyer 1981; Oliver and Winer 1987) or by using informational cues from the environment. In this situation the consumer is faced with an ambiguous decision involving risk.

Curiosity is induced by uncertainty about the probability distribution and reflected in the desire to ascertain the probability distribution (Loewenstein 1994). For example, consider the situation where the consumer is absolutely sure that a specific outcome will be experienced. In such instances, there is no uncertainty in the probability distribution and the expected value of the outcome can also be predicted without uncertainty (i.e. no dispersion around the expected value). In such a situation, there is no curiosity, and the consumer can make a decision based on the expected value of the event. As the other extreme, consider the

(rare) case of complete ignorance. In such instances the consumer has no insight into the probability distribution of possible outcomes. He can form an expected value of the outcome, but only with maximum uncertainty (all possible outcomes have equal probability). In intermediate situations, the decision is ambiguous. The consumer's ignorance can be modelled in an entropy format (Loewenstein 1994) as:

$$(4.6) \quad \text{Ignorance} = - \sum_{i=1}^n \pi_i \log \pi_i$$

where  $n$  is the number of possible outcomes and  $\pi_i$  is the subjective probability that outcome  $i$  will occur. In case of complete certainty, where one of the  $\pi_i$ 's equals 1, ignorance is at a minimum ( $=0$ ), whereas complete ignorance (all  $\pi_i = 1/n$ ) is reflected in the maximum value:  $-\log (1/n)$ .

Ambiguity about the probability distribution may be resolved in a number of different ways. First of all, the consumer may attempt to collect further information about the product alternative by means of vicarious exploration or goal-directed information search behavior (Bloch, Sherrell and Ridgway 1986). For example, a consumer who is uncertain and curious about the performance of a new product can collect further information to reduce uncertainty and (partly) satisfy the curiosity. Talking to others about the product, reading about it and engaging in vicarious shopping behavior are all activities that may provide relevant information. If the consumer is willing to accept this new information, he can use it to rule out some or most of the possible outcomes of choice, thereby reducing uncertainty.

Uncertainty can also be reduced through actual product consumption. By trying out the product the consumer can verify the product's performance through personal experience rather than through reliance on information from others. Although vicarious exploration has been shown to be inherently satisfying to consumers (e.g. Bloch, Sherrell and Ridgway 1986; Tauber 1972), in many situations actual product trial may be the most efficient way of solving uncertainty and curiosity (Nelson 1970; Wilde 1981). Curiosity-motivated variety-seeking behavior combines the risk and ambiguity dimensions of uncertainty. We assume that these two dimensions have a differential effect on the occurrence of variety-seeking behavior. Whereas actual product trial is a highly efficient way to reduce ambiguity, we hypothesize it to be most likely to occur in low risk situations. Actual product trial (variety-seeking behavior) has the advantage that the consumer does not need to rely on information from others or inference from other informational cues but can actually assess product performance from personal experience.

Thus, curiosity-motivated variety-seeking behavior is an example of specific exploration that aims at a reduction of the level of stimulation experienced in the choice task, to bring it into closer correspondence with the Optimal Level of Stimulation. Curiosity-motivated variety-seeking behavior is specifically oriented towards a particular product alternative that the consumer is uncertain or curious about. Curiosity may be satisfied through vicarious exploration (information from others or inference from cues) or through variety-seeking

behavior involving actual product consumption, in which case curiosity is more directly satisfied through personal experience.

#### 4.5. Value derived from variety

The previous sections have discussed the three underlying psychological processes that are responsible for the dynamic nature of hedonic value derived from choice alternatives in response to previous consumption. In line with the psychological complexity theories (Chapter 2), these underlying processes will collectively be summarized as the concept *Value derived from variety*. The binding principle for the processes of boredom with the choice task, attribute satiation and curiosity is found in the unifying construct of arousal or stimulation associated with variety. In line with the psychological theory and for ease of exposition in the remainder of this chapter, we will summarize the three processes into the model component *Vvar(iety)*.

As discussed in chapter 2, variety as a collative variable (Berlyne 1960) has arousal potential, i.e. it contributes to the stimulation level experienced in life. As a result, variety and other collative variables play an important role in regulating the stimulation level experienced in life to bring it into closer correspondence with the idiosyncratic optimal level of stimulation. Both Berlyne's (1960; 1963) and Fiske and Maddi's (1961) perspectives on exploratory behavior hypothesize that arousal potential (including variety) is related to attractiveness in an inverted U-shaped manner (see Figure 4.2), although the underlying assumptions for this overall relationship differ (see Berlyne (1963) for a more elaborate discussion).

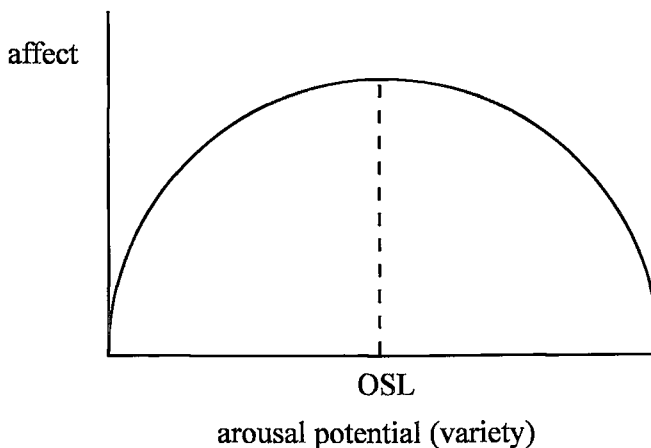


Figure 4.2. Relationship between variety as a source of arousal potential and attractiveness (after Berlyne 1963)

Berlyne (1960; 1963), working from the consistency tradition, hypothesized that arousal is related to arousal potential in an inverted U-shaped manner, whereas a linearly decreasing function is hypothesized between attractiveness and arousal (i.e. behavior aims at minimizing arousal). Fiske and Maddi (1961) on the other hand hypothesized that arousal linearly increases with arousal potential, whereas arousal is related to attractiveness in an inverted U-shaped manner (i.e. the complexity position).

### *Stimulation-increasing versus stimulation-decreasing variety-seeking behavior*

Variety-seeking behavior as a source of arousal potential may contribute to the regulation of the experienced stimulation level in two basic ways. In situations where the stimulation level is below the OSL variety-seeking behavior may increase the stimulation level into closer correspondence with the Optimal Level of Stimulation. Boredom with the choice task and attribute satiation reflect situations of sub-optimal stimulation and variety-seeking in response to these motivations serves as a stimulation-increasing activity. Variety-seeking behavior may also serve as a means of regulating stimulation level in situations where the actual level of stimulation is mildly above the OSL. For example, uncertainty has arousal potential (Berlyne 1960; 1963) and may raise the experienced stimulation level above the optimum. When the actual level of stimulation is far above the OSL, avoidance behaviors such as withdrawal from the overstimulating context is most likely to occur. However, when the actual level of stimulation is only mildly above OSL, uncertainty may evoke curiosity: a desire to resolve the uncertainty. Variety-seeking may then serve as a means of obtaining the desired information, thereby reducing curiosity and uncertainty. As a consequence, the actual level of stimulation is brought into (closer) correspondence with the optimal level, a situation associated with positive affect.

### *The role of ASL and OSL*

The value derived from variety results from its contribution in bringing the actual level of stimulation (ASL) into closer correspondence with the OSL, a process associated with positive affect. The value a particular consumer derives from variety in a given choice situation will thus depend on three factors:

1. the level of stimulation that is optimal for that consumer (OSL)
2. the actual level of stimulation experienced by that consumer at the moment of the decision (ASL)
3. the contribution of variety-seeking behavior (increase or decrease) to the actual level of stimulation

The concept of OSL has received considerable attention in the literature and has been discussed in Chapter 2. The basic assumption is that OSL can be conceived of as a personality characteristic and that individuals can be meaningfully classified in terms of the extent to which they possess this personality characteristic. Individuals with a higher OSL are more likely to engage in activities that provide stimulation, such as variety-seeking behavior.

The influence of the actual level of stimulation experienced by the consumer at the moment of the choice decision has received only minor attention in the literature. Actual level of stimulation not only comprises the stimulation inherent in the specific choice situation *per se*, but also to the stimulation inherent in the decision context in the broader sense. The decision context in the broader sense is important because a wide variety of activities may contribute to the stimulation level experienced in life. Many of the general personality measures have recognized this diversity in sources of stimulation by treating OSL as a multi-dimensional concept (section 2.4.1). For example, a particular consumer may choose to engage in risky activities (sky diving etc) or wild parties as a means of satisfying his/her high need for stimulation rather than variety-seeking behavior in choice behavior from a specific product category. Formally, these other sources of stimulation should be incorporated when the purpose is to predict whether variety-seeking behavior as a means of stimulation regulation will occur. After all, whether or not a particular consumer is likely to seek variety in a specific situation will depend on the discrepancy between his OSL and the actual level of stimulation (ASL) experienced at that particular moment in time (including stimulation derived from these other activities). Steenkamp, Baumgartner and Van der Wulp (1994) refer to this discrepancy as "Need for Stimulation", where both OSL and ASL reflect stimulation from all possible internal and external sources. Incorporation of the other potential sources of stimulation in the comparison with OSL would suggest a state-approach rather than the trait-approach more commonly adopted in this type of research. The state-approach has the advantage of being more specific for the situation being predicted, but unfortunately requires that Need for Stimulation is assessed for every possible choice situation separately. The trait-approach has the advantage of generalization across choice situations, at the expense of specificity for any particular choice situation. Although the state-approach is theoretically more correct, the trait approach may be a satisfactory approximation particularly when the purpose is to predict multiple behavioral acts (e.g. variety-seeking behavior intensity over time) rather than one specific behavioral act (variety-seeking behavior at any specific moment in time).

Even when only the stimulation inherent in the specific choice task is incorporated in the comparison of OSL and ASL, it is important to recognize that the variation implied by a variety-seeking activity is not necessarily the only source of arousal or stimulation inherent in that activity. Other aspects of the choice alternatives involved add to the stimulation level too, as is explicitly recognized in both Berlyne's (1967; 1971) and Fiske and Maddi's (1961) frameworks. Berlyne distinguished between psychophysical, ecological and collative stimulus

properties in close parallel to Fiske and Maddi's conceptualization of intensity, meaningfulness and variation as sources of stimulation. Psychophysical properties (intensity) depend on the physical and chemical characteristics of the stimulus (loudness, color, temperature etc). Ecological properties (meaningfulness) refer to variables that involve association with extrinsic rewards, including biologically noxious or beneficial conditions. Collative properties (including Fiske and Maddi's variation) relate to Berlyne's 'traditional' collative variables, including variation and novelty. Berlyne (1967) reviews evidence that indicates that the various components of arousal potential can be substituted for one another to keep arousal at the same level.

All sources of stimulation inherent in the choice activity, ecological meaningfulness<sup>5</sup>, psychophysical characteristics, and variation implied by variety-seeking behavior itself, must be taken into account for a full assessment of variety-seeking behavior's contribution to the actual level of stimulation. Fiske and Maddi (1961) suggest that the ecological meaningfulness of the choice activity generally will take motivational precedence over the desire to satisfy the need for variety. This notion has important implications for the study of variety-seeking behavior. It would imply that the consumer perception of the ecological meaningfulness of the choice context has to be taken into account when the purpose is to predict whether or not variety-seeking behavior will be engaged in as a source of stimulation adjusting behavior<sup>6</sup>. Stimulation derived from ecological meaningfulness of the choice context might be accounted for by finding the quantitative relationships between different level of ecological meaningfulness and the stimulation implied (ASL), so that it can be directly incorporated in the comparison with OSL. However, as ecological meaningfulness is highly situation-specific and consumers may differ in the ecological meaningfulness attached to same choice task, any attempts to quantify and compare ecological meaningfulness, ASL, and OSL, would have to be operationalized at the level of the individual consumer and specific situations. For that reason, this approach would be very cumbersome, impractical and prone to measurement error.

Therefore, we incorporate the influence of perceived ecological meaningfulness of the choice task indirectly. We consider ecological meaningfulness an external factor that moderates the relationship between Need for Stimulation and variety-seeking behavior. In other words, when there is a Need for Stimulation, variety-seeking behavior is expected to serve as a important means to satisfy the Need for Stimulation. However, it will be less likely to be so in choice situations that are characterized by a high level of ecological

---

<sup>5</sup> We use the concept of ecological meaningfulness for ease of exposition. It combines Berlyne's concept of ecological stimulus properties and Fiske and Maddi's concept of meaningfulness as sources of stimulation. These concepts are similar and refer to the aspects of the choice task (including stimulus properties) that involve association with extrinsic rewards.

<sup>6</sup> Note that ecological meaningfulness might also be accounted for by the instrumental value (Vins) of a particular behavior.

meaningfulness (e.g. apparent direct health consequences), as these choice situations already provide considerable stimulation from other sources than variety. In line with Fiske and Maddi (1961) we assume that in such situations, ecological meaningfulness will take motivational precedence over variety-seeking behavior.

#### *Variety-seeking behavior and the regulation of ASL*

Consumers strive to bring the actual level of stimulation experienced in life (ASL) into correspondence with their idiosyncratic Optimal Level of Stimulation (OSL). Both positive and negative deviations between ASL and OSL are associated with sub-optimal affect. Therefore, at any particular moment in time (t-1) affect is related to deviations between ASL and OSL in an inverted U-shape manner, which may be represented as:

$$(4.7) \quad \text{Affect}_{t-1} = b_0 - b_1 [\text{ASL}_{t-1} - \text{OSL}]^2$$

Now consider the situation at moment t, where the consumer may choose to engage in variety-seeking behavior as a means of bringing ASL into closer correspondence with OSL. Variety-seeking behavior contributes to the ASL. If the consumer decides to engage in variety-seeking behavior at moment t, affect at moment t may be expressed as:

$$(4.8) \quad \text{Affect}_t = b_0 - [(\text{ASL}_{t-1} + \Delta\text{ASL}_t) - \text{OSL}]^2$$

Value derived from variety (Vvar) may be expressed as

$$(4.9) \quad \text{Vvar} = \text{Affect}_t - \text{Affect}_{t-1}$$

Value ( $\text{Vvar} > 0$ ) will be derived from variety-seeking behavior if in absolute values  $|[(\text{ASL} + \Delta\text{ASL}) - \text{OSL}]| < |[\text{ASL} - \text{OSL}]|$ . Thus, positive value will be derived from variety-seeking behavior if 1) it adds to the actual level of stimulation ( $\Delta\text{ASL} > 0$ ) in situations where ASL was initially lower than OSL, or if 2) it reduces the actual level of stimulation ( $\Delta\text{ASL} < 0$ ) in situations where ASL was initially higher than OSL. In terms of the underlying processes discussed in the previous section, these two situations reflect stimulation-increasing variety-seeking behavior (resolving attribute satiation or boredom with the choice task) and stimulation-decreasing variety-seeking behavior (resolving curiosity) respectively.

As discussed in section 4.4.2.3. the value derived from curiosity-motivated variety-seeking behavior depends on the decrease in uncertainty about the product alternatives. Modelling of this value component is highly complex as it critically depends on the individual consumer's prior knowledge. Stimulation-increasing forms of variety-seeking behavior can directly be related to the perceived attributes of the product alternatives. In this respect we follow Fiske and Maddi (1961) and Steenkamp, Baumgartner and Van der Wulp (1994) in the assumption that the stimulation derived from switching between alternatives i and j increases

linearly with the perceptual variation between alternatives  $i$  and  $j$ . Thus the contribution to the actual level of stimulation ( $\Delta ASL_{i,j}$ ) as a result of variety-seeking behavior between alternatives  $i$  and  $j$  can be expressed as:

$$(4.10) \quad \Delta ASL_{i,j} = a + b \text{ Variety}_{i,j}$$

The variety implied by a switch from alternative  $i$  to  $j$  ( $\text{Variety}_{i,j}$ ) can be modelled in terms of the Euclidian distances between alternative  $i$  and  $j$  in a multi-attribute space (cf. Pessemier and Handelsman 1984; Pessemier 1985), as:

$$(4.11) \quad \text{Variety}_{ij} = \sqrt{\sum_{f=1}^F b_f [P_{jf} - P_{if}]^2 + \sum_{h=1}^H b_h [P_{jh} - P_{ih}]^2}$$

where:

$f$  (1,...,F) the number of relevant functional attributes

$h$  (1,...,H) the number of relevant hedonic attributes

$P_{jf}$  ( $P_{jh}$ ) the perception of alternative  $j$  on the functional (hedonic) attribute  $f$  ( $h$ )

$P_{if}$  ( $P_{ih}$ ) the perception of alternative  $i$  on the functional (hedonic) attribute  $f$  ( $h$ )

$b_f$  ( $b_h$ ) the weight attached to instrumental (hedonic) attribute  $f$  ( $h$ )

Two aspects of equation (4.11) are particularly noteworthy. First of all, both hedonic and instrumental attributes of the alternatives contribute to perceived variety and thus to stimulation implied by variety-seeking behavior. For example, two alternatives may have high structural variety because the consumer believes that one is healthy and the other is not, or because the consumer believes that one has a sweet taste while the other has not. Probably more important is the striking similarity that exists between equation (4.11) and equation (4.5) that reflected the value derived from product-related characteristics. These two equations share the same elements. Rewriting equation (4.5) as the (long-term) preference differential between value derived from the product-related characteristics of alternatives  $i$  and  $j$ , yields:

$$(4.12) \quad V_j - V_i = \sum_{f=1}^F w_f [P_{jf} - P_{if}] + \sum_{h=1}^H w_h [P_{jh} - P_{ih}]$$

The fundamental difference between (4.11) and (4.12) lies in the weights attached to the attributes ( $w_f$  and  $w_h$  versus  $b_f$  and  $b_h$ ). The  $b$  weight reflects the attribute's contribution to perceptual differentiation (and thus its contribution to stimulation) and the  $w$  weight reflects the attribute's contribution to the value derived from product-related characteristics (preferential differentiation). Without loss of generality we may assume that all weights  $w$  are positive, indicating that the attributes are scored in such a direction that more of the attribute contributes positively to value derived from product characteristics. Now the trade-off between variety and value derived from product-related characteristics becomes directly

apparent. If there are two choice alternatives defined in terms of the same attributes, then any attribute that makes an important contribution to perceptual variety (i.e. high weight  $b$ ) may or may not impact the preference differential between alternatives  $i$  and  $j$  ( $V_j - V_i$ ), depending on this attribute's weight  $w$ . Table 4.1. summarizes the attribute's consequences in terms of stimulation derived from switching and the preference differential between the products switched to and from (in terms of product-related characteristics). The important implication from table 4.1. is that an attribute may have a different effect on the value derived from product-related characteristics than on the stimulation implied by the change from alternative  $i$  to  $j$ . Attributes with high  $b$  weight will add substantially to the stimulation level and variety-seeking behavior on these attributes may be an efficient means to raise the actual level of stimulation to the optimal level in situations when ASL is sub-optimal. However, if these attributes have a high  $w$  weight attached to them, this increase in stimulation may occur at the expense of value derived from product-related characteristics (preference differential). In other words, depending on the preference weight  $w$ , high stimulation may or may not be traded off against the instrumental or hedonic value of the chosen alternative.

Table 4.1. Differential effects of attributes on stimulation and value derived from product-related characteristics.

b (perc.)	w (pref.)	effect of switching from alternative $i$ to alternative $j$ on	
		stimulation derived from switching	preference differential
low	low	small	small
low	high	small	large
high	low	large	small
high	high	large	large

A second important point is that product alternatives  $i$  and  $j$  usually do not differ in only one attribute. Value derived from product characteristics (equation 4.5) is defined as a weighted linear combination of perceptions about the product characteristics. It is modelled in a compensatory manner, implying that two products that differ in their product characteristics may result in the same net value derived from product characteristics. This is an interesting situation from a variety-seeking perspective, as it implies that the situation allows for deriving stimulation from a switch from alternative  $i$  to  $j$ , without any lowering of the hedonic or instrumental value of the alternative chosen. In the next section, this notion will be integrated into the formal model for variety-seeking behavior.

#### 4.6. The variety-seeking model

The previous sections discussed the basic components necessary for the formal specification of the variety-seeking model. For ease of exposition, let us assume that a particular consumer has consumed alternative  $i$  at the previous ( $t-1$ ) choice occasion. At moment  $t$ , this consumer has to make a new choice from the same product category and enters the choice situation with the same extrinsic motivational structure as operated at  $t-1$ . The consumer then has the choice between choosing the same alternative  $i$  again, or switching to any other choice alternative  $j$ . Let  $\Delta V_{hed}$  be the change in hedonic value under the influence of previous consumption and  $\Delta V(i,j)$  be the difference in total value between alternative  $i$  chosen at  $t-1$  and any other alternative  $j$  considered for choice at moment  $t$ . Then, under the assumption that the consumer has perfect information about alternatives  $i$  and  $j$ , and accounting for feedback from previous consumption, the consumer's value assessments may be represented as:

$$(4.13) \quad V_{i|i} = V_{ins_i} + V_{hed_i} + \Delta V_{hed_{i|i}}$$

$$(4.14) \quad V_{j|i} = V_{ins_j} + V_{hed_j} + \Delta V_{hed_{j|i}}$$

The consumer's decision rule at moment  $t$  to choose the same alternative  $i$  again or to switch to any other alternative  $j$  reduces to a comparison of  $V_{j|i}$  with  $V_{i|i}$ , which may be represented as:

$$(4.15) \quad \Delta V(i,j) = V_{j|i} - V_{i|i} = [V_{ins_j} - V_{ins_i}] + [V_{hed_j} - V_{hed_i}] + [\Delta V_{hed_{j|i}} - \Delta V_{hed_{i|i}}]$$

When  $\Delta V(i,j) > 0$ , the consumer will switch to any particular brand  $j$ , and if  $\Delta V(i,j) \leq 0$ , the consumer is hypothesized to choose the same alternative  $i$  again. The model thus assumes that the consumer compares the alternatives in terms of their instrumental value  $[V_{ins_j} - V_{ins_i}]$ , their hedonic value  $[V_{hed_j} - V_{hed_i}]$ , and their variety value relative to previous consumption  $[\Delta V_{hed_{j|i}} - \Delta V_{hed_{i|i}}]$ . Three psychological processes, discussed in the previous sections, are reflected in (positive) variety value ( $V_{var} = \Delta V_{hed_{j|i}} - \Delta V_{hed_{i|i}}$ ):

1. Boredom with the choice task, resulting in a product specific  $\Delta V_{hed_{i|i}} < 0$
2. Attribute satiation, resulting in an attribute specific  $\Delta V_{hed_{j|i}} < 0$
3. Curiosity, a desire to solve uncertainty about alternative  $j$  resulting in  $\Delta V_{hed_{j|i}} > 0^7$

These three processes reflect the positive value derived from the variety end of the continuum. Of course consumers may also derived negative value from variety. For example, consumers' inertial tendencies and mere exposure effects will be reflected in positive values of  $\Delta V_{hed_{i|i}}$ , indicating that an alternative's value increases due to the fact that it has

---

<sup>7</sup> Note that under the present assumption of perfect information, curiosity will be absent. However, this term will become relevant in the model extension to imperfect information (section 4.6.1).

previously been chosen<sup>8</sup>. These processes are not of prime concern for the present discussion, however.

Equation (4.15) reveals that a consumer may switch from alternative *i* to alternative *j* ( $\Delta V(i,j) > 0$ ) for three basis reasons:

- a. alternative *j* has higher long-term instrumental value ( $[Vins_j - Vins_i] > 0$ )
- b. alternative *j* has higher long-term hedonic value ( $[Vhed_j - Vhed_i] > 0$ )
- c. the consumer derives positive value from the variation implied by switching from alternative *i* to *j* ( $Vvar > 0$ )

In many choice situations, however, alternatives *i* and *j* differ on more than one value component, and the consumer decision to switch will depend on the net value of  $\Delta V(i,j)$  which incorporates the three components. However, the important implication to note at this point is that observed switching behavior (due to  $\Delta V(i,j) > 0$ ) may result from fundamentally different consumer motivations.

### **Extension to bundles of items**

Equation (4.15) assumes that the consumer consumes exactly one consumption alternative at moments *t-1* and *t*. Although not the primary focus of the present discussion, the decision problem can logically be extended to reflect the situation where bundles of alternatives are consumed as a unity. For example, consider a consumer who has the choice between chocolate yogurt for dessert, vanilla yogurt or a combination of chocolate and vanilla yogurt. Let us assume that the hedonic and instrumental value of both unmixed alternatives are known to the consumer. If we further assume that hedonic and instrumental value are derived from the attributes implied by the two products and that the two products can be defined relative to the same set of attributes, then the hedonic and instrumental value of the combination of the two products may be modelled as a weighted average of the hedonic and instrumental value of the unmixed alternatives.

However, the mix of the two alternatives consumed as a unity has structural variety as an important property distinct from the unmixed alternatives. The model might be extended to account for this situation by adding the value derived from structural variety ( $Vsv$ ) as a fourth source of value. We define structural variety of a single alternative as zero, and further assume that  $Vsv$  equals zero when structural variety is absent. Value derived from structural variety thus reflects the value derived from the combination of products that cannot be accounted for by the unconditional value of the components. In addition to value derived from

---

<sup>8</sup> Note that brand loyalty, which in addition to a bias toward repeat purchasing the previously chosen alternative also requires a perceived preference for the brand one is loyal to, would primarily reflect itself in the long-term component of the model, i.e.  $[(Vins_j + Vhed_j) - (Vins_i + Vhed_i)]$ .

the variety inherent in the combination per se, it also captures value derived from the interaction among the components (e.g. Green and DeVita 1974; 1975; Carmone and Green 1981). Thus, with the extension to account for bundles of alternatives (say a and b) consumed as a unity, the model states that at moment t-1 (i.e. discounting for previous consumption):

$$(4.16) \quad V_{(a+b)} = Vins_{(a+b)} + Vhed_{(a+b)} + Vsv_{(a+b)}$$

and the consumer decision to switch from the bundle of alternatives to j, assuming that  $Vsv_j$  equals zero, would depend on:

$$(4.17) \quad \Delta V(a+b,j) = [Vins_j - Vins_{(a+b)}] + [Vhed_j - Vhed_{(a+b)}] - Vsv_{(a+b)} + Vvar_{(a+b),j}$$

In the specific case where the hedonic and instrumental value of (a+b) and j are equal, the consumer's choice task concerns the decision whether or not to achieve temporal variety (Vvar) at the expense of structural variety (Vsv).

In the remainder of this chapter, we will assume that the consumption alternatives are single products consumed as a unit.

#### 4.6.1. Extension to imperfect information

So far it has been assumed that the consumer has perfect information about all alternatives available for choice. We will now consider the more realistic situation where the consumer does not have perfect information about the hedonic and instrumental value of consumption alternatives i and j. Rather, the consumer has to make a subjective assessment of the attribute values of alternatives i and j (beliefs) and to integrate these attribute perceptions into an assessment of the hedonic and instrumental value. The subjective assessment on part of the consumer may be referred to in terms of expected values ( $E(V_{..})$ ). Thus, under imperfect information about choice alternatives i and j, the consumer decision to switch from alternative i to alternative j will find its basis in the comparison of the expected total value of the alternatives:

$$(4.18) \quad E(\Delta V(i,j)) = [E(Vins_j) - E(Vins_i)] + [E(Vhed_j) - E(Vhed_i)] + E(Vvar_{i,j})$$

The model now states that the decision to switch depends on the consumer's expectations about the hedonic and instrumental value of alternatives i and j, and the expected variety value of alternative j relative to i. Consumers' expectations may find their basis in three different processes of belief formation concerning the characteristics of alternatives i and j: descriptive, informational and inferential belief formation (Fishbein and Ajzen 1975). Descriptive belief formation results from direct experience with the product. The process of forming descriptive beliefs is one of associative or verbal learning through the formation of stimulus-response bonds (Van Raaij 1991). For example, a consumer may form an expectation about the taste of a product by sampling it or by recalling his or her taste

perception in a previous experience with the product. The opportunity to sample a product prior to consumption or to base beliefs on recalled prior experience is not always available. Sometimes consumers base their expectation on information provided by outside sources (e.g. social, commercial and neutral sources). This process of belief formation is referred to as informational belief formation. For example, a consumer may form an expectation about the taste of a product based on information provided by socially relevant others (e.g. a friend who told that the product has a good taste) or by neutral sources (e.g. taste test results in Consumer Reports). Finally, consumers may also form expectations about a product by making inferences about the relevant characteristics from other available information. This process of belief formation is referred to as inferential belief formation. For example, a consumer may infer an expectation about a product's taste from its brand name (e.g. a high reputation brand).

In the present choice situation, the consumer is hypothesized to form an expectation about the hedonic and instrumental value of alternative  $i$  (just consumed) and alternative  $j$  and the variety value inherent in a switch from  $i$  to  $j$ . Hedonic value of the alternatives by definition finds its basis in attributes whose value materializes at the moment of consumption. For that reason hedonic value will be based on beliefs about so called experience attributes, i.e. attributes that can be ascertained on the basis of actual experience with the product (Nelson 1970). Instrumental value of a consumption alternative by definition finds its basis in attributes that are a consequence of behavior rather than inherent in the consumption experience itself. Some of these consequences of consumption may reveal themselves during or shortly after the consumption experience (e.g. satiation value of a food product or headache relief of a medicine), whereas other attributes may only reveal themselves long time after the consumption experience (e.g. health consequences of cigarette smoking). Thus, some of the attributes relevant in the assessment of instrumental value may be ascertained at or shortly after actual consumption (experience attributes) whereas the long term consequences cannot be validly assessed other than through reliance on information from others (so called credence attributes).

The process of belief formation can be described in terms of two basic characteristics: the expected value of the attribute belief and the certainty with which the belief is held. If we assume that attribute  $P^9$  can take  $m$  levels ( $k=1, \dots, m$ ), and  $\pi_k$  is the consumer's probability assessment that the product will deliver attribute level  $P_k$ , then the expected level of attribute  $P$  ( $E(P)$ ) is:

---

<sup>9</sup> To allow a direct comparison with equation (4.5) we use  $P$  to reflect the consumer's attribute perception. The arguments put forward in this section apply to all hedonic attributes  $P_h$  ( $h=1, \dots, H$ ) and all instrumental attributes  $P_i$  ( $i=1, \dots, F$ ).

$$(4.19) \quad E(P) = \sum_{k=1}^m \pi_k P_k$$

Uncertainty with which the attribute belief ( $E(P)$ ) is held is reflected in the variance of  $E(P)$  which directly relates to the dispersion of the probability distribution of  $\pi_k$  and may be expressed in an entropy format (see equation 4.6).

Several factors may influence the certainty with which attribute beliefs are held. First of all, there may be inherent variation in the attribute levels, as is for example the case for many agricultural products. This implies that, a priori,  $P_k$  cannot be assessed unequivocally thus adding to uncertainty in attribute beliefs. Second, prior information about the product, gained through actual product trial or through vicarious exploration, will generally reduce the uncertainty in attribute beliefs. This will be particularly true for attributes whose levels have been ascertained through personal experience, as descriptive beliefs have been found to be held with a greater degree of certainty than beliefs that have been formed through the processes of informational and inferential belief formation (Fazio and Zanna 1981). Certainty in attribute beliefs will thus also depend on the type of attributes involved. Only experience attributes can be assessed through personal experience. This suggests that beliefs with respect to experience attributes will generally be held with greater confidence than credence attributes (cf. Steenkamp 1989). The availability of previous experiences from memory is sensitive to forgetting and incomplete processing. For that reason, certainty in recalled beliefs will generally be higher for attributes and products for which the consumer is more involved and has more, and more recent experiences with. Finally, the fact that consumers may make use of inferential belief formation suggests that confidence will be greater when valid cues are available for this process. Apart from the consumer's experience in the relevant product category, the availability of valid cues for products that have not been consumed before also depends on the degree of 'newness' of the product. For me-too products, such cues will be readily available, whereas for discontinuous innovations, they will be available only to a lesser extent.

Certainty with which attribute beliefs are held has a differential effect on the three processes underlying value derived from variety. Boredom with the choice task does not stimulate a very specific form of variety-seeking behavior in that the primary underlying motivation is simply that the product be different from the one previously chosen. In this process attribute uncertainty does not play a key role. Whether or not the newly chosen alternative turns out to be substantially different from the previously chosen product, the consumer has achieved the goal of complicating the choice situation. Attribute satiation is a more specific form of exploration. Here the purpose is to switch to an alternative that differs from the previously chosen alternative on one or more specific attributes to which the consumer was satiated. This motivation can only be satisfied with respect to attributes about whose level the consumer is fairly certain. Variety-seeking behavior to resolve curiosity is actually instigated by the uncertainty about the attribute levels of alternative  $j$ . The desire to

know what the product is like in terms of attribute composition comprises the underlying motivation.

Level of certainty with which attribute beliefs are held not only has an impact on expected value derived from variety, but also on consumer expectations about the alternatives' long-term hedonic and instrumental value. If we assume that attribute levels  $P_k$  contribute differently (reflected in part worth value  $a$  associated with attribute level  $P_k$ :  $a(P_k)$ ) to value derived from product-related characteristics ( $V_i = V_{ins_i} + V_{hed_i}$ ), and that the consumer's assessment of the probability that alternative  $i$  will deliver attribute level  $P_k$  is reflected in  $\pi_{ik}$ , then the contribution of attribute  $P$  to alternative  $i$ 's expected value derived from product-related characteristics ( $E(V_i(P_k))$ ) can be expressed as:

$$(4.20) \quad E(V_i(P_k)) = \sum_{k=1}^m \pi_{ik} a(P_k)$$

Equation (4.20) again illustrates the trade-off between value derived from product-related characteristics and value derived from change. For example, after a previous consumption of alternative  $i$ , the consumer may be motivated to relieve satiation with respect to attribute level  $P_{ik}$ . An alternative  $j$  for which  $E(V_j(P_{jk}))$  is sufficiently different from  $E(V_i(P_{ik}))$  may deliver the stimulation necessary to relieve attribute satiation (equation 4.11), but at the same time (equation 4.20) may have an impact on expected value derived from product related characteristics in that  $E(V_j(P_{jk}))$  may differ from  $E(V_i(P_{ik}))$ .

Similarly, curiosity-motivated variety-seeking behavior aimed at reducing the ambiguity in the choice situation (the verification of  $\pi_{ik}$ ) may involve risk in terms of  $E(V_j(P_{jk}))$ . The important point is that in terms of equation (4.20), satisfaction of curiosity primarily depends on verification of the values of  $\pi_{ik}$ , whereas risk ( $V_j - V_i$ ) associated with variety-seeking behavior primarily depends on the part worth values  $a(P_{jk})$ . For example, if the vector  $a(P_{jk})$  has low variance across different levels of  $P_k$ , then little risk is involved in satisfying curiosity, as different values of  $P_k$  result in similar values of  $V_j$ . On the other hand, if the vector  $a(P_{jk})$  has high variance across different levels of  $P_k$ , then verification of  $P_k$  (satisfaction of curiosity) can only be achieved at the risk of putting value derived from product-related characteristics ( $V_j$ ) at stake.

#### 4.6.2. Extension to more than two alternatives

The situation of only two consumption alternatives is rare in real market situations. Usually the consumer has the choice from among a wide array of products. To apply the model to more than two products, several restrictions are necessary. First of all, when extended to more than two consumption alternatives the model assumes that all these alternatives  $j$  ( $j=1, \dots, k$ ) are compared to consumption alternative  $i$ , but in addition that alternatives  $j$  ( $j=1, \dots, k$ ) are also mutually compared to find that alternative for which total (expected) value is at its maximum. This would imply that the number of (pairwise) comparisons would

increase rapidly. Here we assume bounded rationality (Simon 1955) in that the consumer's rationality is subjected to limitations in information processing capacity and motivation. This implies that the consumer will not consider all possible alternatives from the awareness or knowledge set (i.e. the subset of items in the universal set of consumption alternatives from which the consumer is aware and which are believed appropriate for the consumer's goal(s) or objectives (Shocker et al. 1991)). Rather, based on previous experiences stored in memory, the consumer is assumed to have formed a consideration set consisting of those goal-satisfying alternatives salient or accessible on a particular occasion (Shocker et al. 1991). At the moment of choice, the consumer is hypothesized to form a choice set of alternatives actively considered for choice and only these alternatives will be compared in the decision to switch or not. The choice set is hypothesized to consist of some of the alternatives from the memory-based consideration set and newly encountered alternatives in the external decision-making context at the time of decision. As information about the alternatives in the consideration set is stored in memory in a highly structured and efficient way, evaluation of these alternatives requires little effort on the part of the consumer. For newly encountered alternatives, the consumer is hypothesized to go through a more elaborate process of evaluation. New alternatives that the consumer considers viable choice options in relation to the consumption goal are hypothesized to be added to the choice set.

The alternatives taken into consideration for choice are defined relative to the consumer's goal or objectives in decision making. The level of specificity in the consumer's goal or objectives is reflected in the level of abstractness of the consideration set. For example, if the consumer's goal is highly specific (e.g. buy orange juice), the choice set will also be specific (e.g. consisting of different brands of orange juice). If the consumer's objective is less specific (e.g. buy a soft drink), the choice set will be more general and may include different types of beverages, as well as different brands and packagings within beverages. For an even more general consumer goal (e.g., buy something as a gift), the choice set may reflect a goal-derived category that consists of alternatives from different nominal product classes that have in common that they all possess characteristics suitable for the intended purpose (e.g. Barsalou 1985; Ratneshwar and Shocker 1991).

Thus, in situations where more than two alternatives are available for consideration, the consumer is hypothesized to go through a hierarchical process of alternative selection. The set of alternatives actively considered in the choice process (choice set) consists of alternatives from within the consideration set (stored in memory) and may also include alternatives newly encountered in the decision context that the consumer perceives as viable options in relation to his/her goal or objective. Depending on the specificity of the consumer's goal, the decision to switch may be defined relative to different brands of the same product, different product types within the same product category or even alternatives from different product classes that share characteristics that make them suitable options for the satisfaction of the consumption goal.

Also, a budget restriction will be added to the model to account for the option that the consumer will buy all alternatives from the choice set. Here we assume that the consumer's income allocation process can be described as a hierarchical process consisting of four different stages (Olshavsky and Granbois 1979; Wierenga 1983): budget allocation (allocating income to saving and spending), allocation across broad expenditure categories (e.g., housing, food, etc), generic allocation (the allocation within expenditure categories across products and product classes e.g. meat, beer, vegetables etc), and allocation within a product class (e.g. type of vegetable or brand of beer). It is assumed that the decision to switch is made within the budget restriction implied by the third stage of the income allocation process. This implies that alternatives not fitting in with the budget restriction are not included in the choice set. Within the budget restriction, perceived price of the consumption alternatives is included in the set of attribute perceptions that directly or indirectly may contribute to the hedonic and instrumental value of the choice alternatives.

If the consumer's choice set is referred to as CS, the model now implies that the consumer makes an comparison of the expected total value derived from consuming alternative  $i$  vis-à-vis the expected total value derived from each of the alternatives  $j$  in the choice set ( $j \in CS$ ) following equation (4.18) that stated:

$$\Delta V(i,j) = [E(V_{insj}) - E(V_{ins_i})] + [E(V_{hedj}) - E(V_{hed_i})] + E(V_{var_{i,j}}).$$

If one or more of the alternatives  $j$  not chosen on the previous choice occasion have a conditional total expected value greater than that of the previously chosen alternative  $i$  ( $\Delta V(i,j) = V_{j|i} - V_{i|i} > 0$  for any  $j$ ) the consumer is hypothesized to switch to that alternative  $j$  ( $j \in CS$ ) for which  $E(V_{j|i})$  is highest. If not (i.e.  $\Delta V(i,j) \leq 0$ ), the consumer is hypothesized to repurchase alternative  $i$ .

#### 4.7. Classification of observed variation in behavior

Summarizing the expected value derived from the product-related characteristics of alternative  $i$  and  $j$  in  $E(V_i)$  ( $=E(V_{ins_i} + V_{hed_i})$ ) and  $E(V_j)$  ( $=E(V_{ins_j} + V_{hed_j})$ ) respectively, equation (4.18), representing the consumer decision rule at moment  $t$ , may be expressed as:

$$(4.21) \quad \Delta V(i,j) = [E(V_j) - E(V_i)] + E(V_{var_{i,j}})$$

Equation (4.21) allows for a classification of observed variation in choice behavior into three different categories: repeat purchase behavior, variety-seeking behavior and derived switching behavior. The model conditions under which each of the different types of behavior occurs are summarized in Table 4.2. Choice behavior is classified as repeat purchase if, after consuming alternative  $i$ , the consumer decides to choose alternative  $i$  again. Behavior is classified as derived switching behavior if the consumer decision to switch from  $i$  to  $j$  is

motivated by the higher perceived hedonic and/or instrumental value of alternative  $j$  relative to  $i$ <sup>10</sup>. Observed behavior is classified as variety-seeking behavior if the consumer decision to switch from alternative  $i$  to  $j$  is motivated by the value derived from variety.

Table 4.2. Classification of observed variation in behavior

$E(V_j) - E(V_i) < 0$ and $E(Vvar_{ij}) < 0$	--->	repeat purchase
$E(V_j) - E(V_i) < 0$ and $E(Vvar_{ij}) = 0$	--->	repeat purchase
$E(V_j) - E(V_i) < 0$ and $E(Vvar_{ij}) > 0$		
$E(Vvar_{ij}) = E(V_i) - E(V_j)$	--->	repeat purchase
$E(Vvar_{ij}) < E(V_i) - E(V_j)$	--->	repeat purchase
$E(Vvar_{ij}) > E(V_i) - E(V_j)$	--->	variety switch
$E(V_j) - E(V_i) = 0$ and $E(Vvar_{ij}) < 0$	--->	repeat purchase
$E(V_j) - E(V_i) = 0$ and $E(Vvar_{ij}) = 0$	--->	repeat purchase
$E(V_j) - E(V_i) = 0$ and $E(Vvar_{ij}) > 0$	--->	variety switch
$E(V_j) - E(V_i) > 0$ and $E(Vvar_{ij}) < 0$		
$E(Vvar_{ij}) = E(V_j) - E(V_i)$	--->	repeat purchase
$E(Vvar_{ij}) < E(V_j) - E(V_i)$	--->	derived switch
$E(V_j) - E(V_i) > 0$ and $E(Vvar_{ij}) = 0$	--->	derived switch
$E(V_j) - E(V_i) > 0$ and $E(Vvar_{ij}) > 0$		
$E(Vvar_{ij}) = E(V_j) - E(V_i)$	--->	equally derived / variety switch
$E(Vvar_{ij}) < E(V_j) - E(V_i)$	--->	primarily derived switch
$E(Vvar_{ij}) > E(V_j) - E(V_i)$	--->	primarily variety switch

Table 4.2. identifies three different conditions under which variety-seeking behavior will occur:

1. although the expected value derived from alternative  $j$  in terms of product-related characteristics ( $E(V_j)$ ) is lower than the expected value derived from alternative  $i$  ( $E(V_i)$ ) the consumer expects this decrease in value to be over-compensated by the positive value derived from variety from  $i$  to  $j$  ( $Vvar_{ij}$ )

<sup>10</sup> This situation may occur for new choice alternatives that the consumer believes to have superior long-term hedonic and/or instrumental value, but also when expectations of a previously chosen alternative are adjusted in the light of additional information. Finally, it may occur after an incidental variety switch.

2. the expected value of alternative  $j$  in terms of product-related characteristics ( $E(V_j)$ ) equals the value derived from alternative  $i$  ( $E(V_i)$ ), and in addition the consumer derives positive value from the act of switching from  $i$  to  $j$  per se ( $Vvar_{ij}$ )
3. the expected value of alternative  $j$  in terms of product-related characteristics ( $E(V_j)$ ) is greater than the value derived from alternative  $i$  ( $V_i$ ), the consumer derives positive value from the act of switching from  $i$  to  $j$  per se ( $Vvar_{ij}$ ), and the positive value derived from switching per se ( $Vvar_{ij}$ ) is greater than the extra value derived from the product-related characteristics of alternative  $j$  relative to alternative  $i$ .

Table 4.2. clearly illustrates that insight into the nature and intensity of variety-seeking behavior cannot be directly derived from observed switching behavior ( $\Delta V(i,j) > 0$ ), but requires additional insight into the different motivations that may underlie observed variation in behavior. This point forms one of the central concerns of the variety-seeking model. Although this concern has been well established conceptually in the variety-seeking literature, it has been largely ignored in previous empirical studies on variety-seeking behavior (exceptions are Raju 1984; Mazursky, LaBarbera and Aiello 1987; Van Trijp and Hoyer 1991).

#### 4.8. Model summary

Central to the variety-seeking model is the consumer's decision to switch to another alternative  $j$  or to stick with the previously chosen alternative  $i$ . The variety-seeking model expresses the decision rule as:

$$\Delta V(i,j) = [E(Vins_j) - E(Vins_i)] + [E(Vhed_j) - E(Vhed_i)] + E(Vvar_{ij})$$

where  $j$  ( $j=1,\dots,k$ ) comprises the  $k$  alternatives in the consumer's choice set (CS) at the decision moment ( $j \in CS$ ). The consumer is hypothesized to switch from the previously chosen alternative  $i$  to another alternative  $j$  if the *total* expected value derived from any alternative  $j$  is higher than the *total* value derived from repurchasing alternative  $i$ . In such instances ( $\Delta V(i,j) > 0$ ), the consumer is hypothesized to switch to alternative  $j$  ( $j=1,\dots,k$ ) that has the highest expected *total* value.

The variety-seeking model may now be summarized in terms of the following sets of postulates:

##### *Consumer value assessments*

Consumer assessments of expected total value from a choice alternative are based on three (expected) value components: long-term instrumental value of the choice alternative, long-term hedonic value of the choice alternative and value derived from the variety implied by a

switch from alternative *i* to *j*. Perceived differences on any of these three value components may be responsible for switching behavior from alternative *i* to *j* (i.e. observed variation in behavior).

True variety-seeking behavior comprises only a subset of all observed variation in behavior. It refers to those elements of observed variation in behavior that are motivated by the expected value derived from variety per se, without regard for the long-term instrumental and hedonic value of the choice alternative switched to or from.

#### *Value derived from variety*

Value derived from variety in choice behavior finds its origin in the behavior's contribution to the actual level of stimulation experienced in the choice task. Variety-seeking behaviors contribute to the actual level of stimulation in bringing it into closer correspondence with the Optimal Level of Stimulation, a process associated with positive affect (i.e. Variety value).

Three psychological processes underlie value derived from variety-seeking behavior: relief of boredom with the choice task, relief from attribute satiation and satisfaction of curiosity. In the first two processes, variety-seeking behavior serves as a means of increasing the actual level of stimulation from sub-optimal levels into closer correspondence with the Optimal Level. In the situation of curiosity, the actual level of stimulation is mildly above the Optimal Level, and variety-seeking behavior serves as a means of reducing the actual level of stimulation into closer correspondence with the Optimal Level.

#### *Person-related determinants of variety-seeking behavior*

Consumers differ in the level of stimulation that is optimal for them. Consumers' variety-seeking tendency, as a derivative of the Optimal Stimulation Level, reflects individual differences in the extent to which consumers are likely to use variety-seeking in product consumption as a means of bringing the actual level of stimulation into closer correspondence with the Optimal Level of Stimulation.

#### *Product-related determinants of variety-seeking behavior*

The consumer's decision about whether to engage in variety-seeking behavior depends on a trade-off between the expected instrumental and hedonic value of the choice alternatives and the value derived from variety. Whether or not variety-seeking behavior occurs (i.e. the value derived from variety is the decisive motivation in choice behavior) depends on individual difference characteristics, product-related determinants and their interaction.

From the variety-seeking model, specific hypotheses will be derived, most of which will be empirically tested in the subsequent chapters. Section 4.9. discusses these hypotheses.

#### **4.9. Hypotheses**

Having defined variety-seeking behavior as switching behavior induced by the value derived from variety ( $E(Vvar_{ij})$ ), the variety-seeking model stresses the importance of studying variety-seeking behavior in the context of the expected hedonic and instrumental value of the consumption alternatives involved. This broader perspective is particularly relevant in light of results from empirical studies comparing the intensity of variety-seeking behavior across different product classes (e.g. Givon 1984; Raju 1984; Mazursky, LaBarbera and Aiello 1987; Bawa 1990). All these studies have reported considerable differences in the intensity of variety-seeking behavior across product classes. These findings strongly suggest that person-related determinants (such as OSL and variety seeking tendency) may only partly account for the occurrence of variety-seeking behavior. Incorporating elements of the specific choice context (including product-related determinants) in the explanation of variety-seeking may enrich the understanding and predictive accuracy for the phenomenon (cf. Hoyer and Ridgway 1984).

The variety-seeking model allows for an interpretation of elements of the choice context in terms of the expected instrumental and hedonic value of the choice alternatives. It explicitly models the consumer's choice decision as a trade-off between value derived from variety and value derived from product-related characteristics. Therefore, specific hypotheses concerning person- and product-related determinants of the phenomenon of variety-seeking behavior follow in a straightforward manner from the model in terms of these determinants' relative impact on the value derived from product-related characteristics and value derived from variety components. In this section these hypotheses will be structured in terms of person-related (section 4.9.1) and product-related (section 4.9.2) determinants of variety-seeking behavior. Product-related determinants may further be classified as to whether they exert their influence primarily through expected value from variety (section 4.9.2.1), expected value from product-related characteristics (section 4.9.2.2) or both (section 4.9.2.3).

##### **4.9.1. Person-related determinants of variety-seeking behavior**

Person-related determinants of variety-seeking behavior have been studied extensively in the consumer behavior literature. Chapter 3 discussed these studies and classified them in terms of their measurement correspondence with variety-seeking behavior. Some studies have adopted general psychological personality scales for OSL in an attempt to explain specific manifestations of variety-seeking behavior. The underlying assumptions are that the variety inherent in variety-seeking behavior is a source of stimulation, that individuals differ in their Optimal Level of Stimulation and that these individual differences in OSL at least partly explain observed differences in variety-seeking behavior. A consensus finding in this stream

of research is that individuals with a higher Optimal Level of Stimulation are more likely to engage in variety-seeking behavior than those with a lower OSL. However, the predictive validity of these general scales is modest, particularly when the purpose is to predict actual behavior rather than self-reports of behavior (Steenkamp and Baumgartner 1992).

General psychological scales for measuring OSL have only limited measurement correspondence with exploratory tendencies in the more specific domain of consumption behavior. Baumgartner and Steenkamp (1991; 1994) developed a consumer-specific scale for measuring individual differences in consumers' tendencies to engage in exploratory consumer behavior. Their EBBT (Exploratory Buying Behavior Tendency)-scale has higher measurement correspondence with exploratory consumer behaviors, such as variety-seeking tendency, and may be expected to have higher predictive validity for variety-seeking behavior (Ajzen and Fishbein 1980; Verhallen and Pieters 1984; Ajzen 1987). Some support for the higher predictive validity of these measures is found in two studies conducted by Baumgartner and Steenkamp. Steenkamp and Baumgartner (1992) related generalized personality scales to variety-seeking behavior in restaurant choice and found a correlation of 0.17 ( $p < .05$ ), while Baumgartner and Steenkamp (1991), using the same data set, reported a correlation of 0.27 ( $p < .01$ ) for a consumer-specific measure for OSL.

However, as discussed in sections 2.4. and 3.4. variety-seeking in product choice behavior is only one specific manifestation of exploratory consumer behavior. Therefore, measurement correspondence between the personality construct and variety-seeking behavior may further be increased when the personality measure specifically taps the consumer's tendency to engage in variety-seeking behavior in product choice. Variety-seeking tendency, defined as "the motivational factor that aims at providing variation in stimulation through varied product consumption, irrespective of the instrumental or functional value of food products" was suggested as the relevant personality measure in relation to variety-seeking behavior (section 1.3.4). We therefore hypothesize:

- H1. Variety-seeking behavior is more likely to occur among consumers with a higher variety-seeking tendency.

Given variety-seeking tendency's higher measurement correspondence with the behavioral phenomenon of interest (i.e. variety-seeking behavior), we further hypothesize:

- H2. Personality measures that specifically tap variety-seeking tendency will have higher predictive validity for actual manifestations of variety-seeking in product choice behavior than both: a) general personality scales for OSL, and b) domain-specific scales for measuring exploratory tendencies in the consumer context.

#### **4.9.2. Product-related determinants of variety-seeking behavior**

The variety-seeking model emphasizes that the actual consumer decision to switch or not depends on the consumers' value assessment across three different sources of value simultaneously. In addition to the expected value derived from variety (Vvar), comparison of the choice alternatives in terms of hedonic and instrumental value forms an integral part of the variety-seeking model. In some situations these three sources of value will point in the same direction, but the more common situation is that some sort of trade-off will take place. The outcome of this trade-off not only depends on the individual's variety-seeking tendency, but also on perceived characteristics of the product (-category) under consideration. We therefore hypothesize that variety-seeking behavior is a product-specific phenomenon that does not occur for all products and in all choice situations to the same extent.

Both empirical and theoretical evidence supports our contention that the occurrence of variety-seeking behavior is product-specific. Empirical studies that have compared variety-seeking intensity across product categories (e.g. Bawa 1990; Givon 1984; Handelsman 1987; Kahn, Kalwani and Morrison 1986; Mazursky, LaBarbera and Aiello 1987; Pessemier and Handelsman 1984; Raju 1984; Rozin and Markwith 1990; Simonson 1990; Van Trijp and Hoyer 1991; Van Trijp, Lähteenmäki and Tuorila 1992) all revealed substantial differences across product categories. These findings strongly suggest that consumers do not seek variety consistently across all product categories and that some product categories are perceived as more suitable for expressing the variety-seeking tendency than others.

Additional support for the product-specific nature of variety-seeking behavior is derived from the psychological theories of exploratory behavior (Berlyne 1960; Fiske and Maddi 1961) and intrinsic motivation (e.g. Deci 1975; Deci and Ryan 1987), which suggest that elements of the choice context (including product-related factors) play an important role in determining whether or not intrinsically motivated behaviors, including variety-seeking behavior are likely to be initiated and maintained. In Berlyne's (1960; 1963) and Fiske and Maddi's (1961) framework this is incorporated in psychophysical (intensity) and ecological (meaningfulness) properties as additional sources of stimulation (see section 4.5). The variety-seeking model accounts for these influences through the value derived from product-related characteristics component. For example, ecological meaningfulness relating to the activity's association with extrinsic rewards is reflected in the instrumental value-component. The psychophysical stimulus properties primarily serve as informational cues that the consumer uses in the inferential assessment of the hedonic (e.g. color of a car or food product; loudness of the music in a bar) and instrumental value (e.g. the color of tainted meat, or temperature of a fire place) value of alternative courses of action.

Cognitive evaluation theory (section 2.3) makes a similar proposition about the effect of elements of the choice context on variety-seeking and other intrinsically motivated behaviors. Cognitive evaluation theory focuses on the motivational effects of extrinsic rewards on the

initiation and maintenance of intrinsically motivated behaviors. A consensus finding in this stream of research is that choice contexts that are perceived as controlling (i.e. pressuring toward particular outcomes) tend to undermine the initiation and maintenance of intrinsic motivation, whereas choice contexts that are perceived as autonomy supportive (i.e. providing choice and minimizing pressure to perform in specified ways) enhance intrinsically motivated behavior.

The variety-seeking model accounts for these controlling<sup>11</sup> influences on choice behavior by explicitly considering the *total* expected value of alternatives *i* and *j* in the consumer decision to switch. Total value includes instrumental and hedonic value in addition to the variety value derived from a switch from *i* to *j*. Equations (4.18) and (4.21) are reproduced here to facilitate the subsequent discussion.

$$(4.18) \quad \Delta V(i,j) = [E(Vins_i) - E(Vins_j)] + [E(Vhed_i) - E(Vhed_j)] + E(Vvar_{i,j})$$

$$(4.21) \quad \Delta V(i,j) = [E(V_j) - E(V_i)] + E(Vvar_{i,j})$$

In the variety-seeking model, controlling factors that pressure choice in a specific direction rather than allowing for free choice, are reflected in the instrumental (*Vins*) and hedonic (*Vhed*) value-components. Aspects of the choice context (including product-related determinants) that magnify the differential in value derived from product-related characteristics [ $E(V_j) - E(V_i)$ ] reduce the likelihood that variety-seeking behavior will occur. They will either stimulate derived varied behavior ( $E(V_j) > E(V_i)$ ) or repeat purchase behavior ( $E(V_j) < E(V_i)$ ) at the expense of variety-seeking behavior intensity (see Table 4.2.).

Of particular interest to the present discussion is the situation where positive expected value from variety ( $E(Vvar_{i,j}) > 0$ ) is traded-off against a loss in value derived from product-related characteristics ( $E(V_j) - E(V_i) < 0$ ). In this situation, whether or not variety-seeking behavior will occur depends on whether or not  $E(Vvar_{i,j}) > [E(V_i) - E(V_j)]$ . As discussed in the previous section, expected value derived from variety primarily depends on the consumer's variety-seeking tendency. Consumers who are high in this personality characteristic will derive positive value from variety, whereas those who are low in variety-seeking tendency will not derive positive value from variety. Thus, low variety-seeking consumers are not very likely to engage in variety-seeking behavior irrespective of the choice context. Consumers high in variety-seeking tendency, on the other hand, will engage in this type of behavior *unless* they are hindered by controlling factors. They are more likely than low variety-seeking consumer to show differences in variety-seeking behavior intensity

---

<sup>11</sup> The term controlling factors is used for ease of exposition. It reflects one end of the continuum ranging for autonomy supportive (low extrinsic pressure on behavior allowing for free choice) to controlling (pressure to behave in specified ways). Whereas controlling factors tend to undermine variety-seeking behavior, the opposite end of the continuum (absence of the controlling factor) would reflect an autonomy supportive choice context than would actually facilitate variety-seeking behavior.

depending on the choice context. We therefore expect the controlling factors to interact with consumers' variety-seeking tendency. Those high in variety-seeking tendency are hypothesized to be particularly sensitive to the controlling aspects of choice situations. This conceptualization of variety-seeking behavior is in line with Hoyer and Ridgway (1984: 115) who suggested that "variety-seeking is a general drive which is expressed in only a subset of product-specific situations (i.e. an individual  $\times$  product interaction)". Figure 4.3. illustrates the hypothesized main and interaction effects graphically.

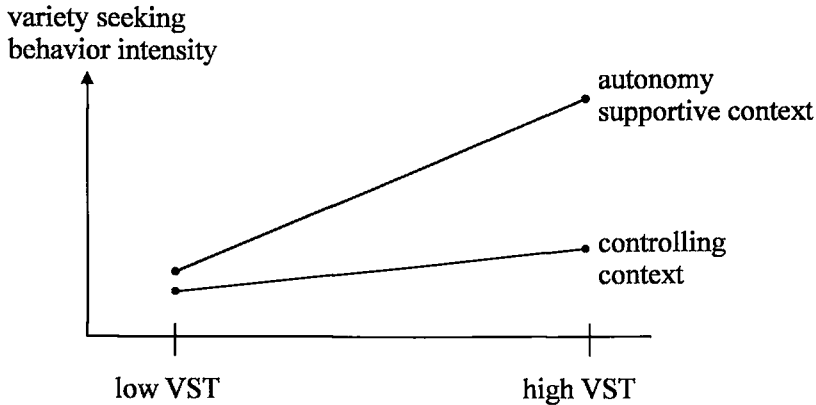


Figure 4.3. Graphical representation of hypothesized main effect and interactive effects of controlling factors on variety-seeking behavior intensity.

In terms of the variety-seeking model, controlling factors are those influences that magnify  $[E(V_i) - E(V_j)]$ , relative to  $E(Vvar_{i,j})$ . Several contextual factors in consumer choice behavior will contribute to this difference in expected values. We will develop hypotheses with respect to a selected number of product-related determinants that operate as controlling factors in variety-seeking behavior. The term 'product-related' is used here merely for convenience and to clearly differentiate them from the person-related determinant of variety-seeking tendency. Many of the hypotheses relate to subjective characteristics rather than objective characteristics of the products or the product class, in that their values depend on an interpretation on the part of the consumer.

The product-related determinants will be discussed in terms of their effect on the relative magnitude  $[E(V_i) - E(V_j)]$  vis-à-vis  $E(Vvar_{i,j})$ . A first group of product-related determinants exerts its effect primarily through value derived from variety ( $Vvar_{i,j}$ ) and includes factors that determine the opportunity to find the desired variety and factors that determine the intensity of the variety-seeking tendency. A second group exerts its effect primarily through the differential in value derived from product-related characteristics of the alternatives  $[E(V_j) - E(V_i)]$ , while a third group of determinants affects both expected value derived from variety ( $E(Vvar_{i,j})$ ) and the value differential  $[E(V_j) - E(V_i)]$ . As discussed above,

we hypothesize that consumers high in variety-seeking tendency will be particularly sensitive to the controlling aspects of the choice context. For that reason, we propose two hypotheses for each product-related determinant: one for the product-related determinant's main effect and a second for its interaction with variety-seeking tendency.

#### 4.9.2.1. Product-related determinants affecting variety value

The product-related determinants discussed in this section influence the differential between  $[E(V_i) - E(V_j)]$  and  $E(Vvar_{i,j})$  by influencing the expected value derived from variety. In terms of the variety-seeking model, they exert their influence through  $E(Vvar_{i,j})$  reflected in changes in hedonic value of alternative  $i$  in response to previous consumption ( $\Delta Vhed_{i|i} \neq 0$ ) or in changes in hedonic value of alternative  $j$  in response to previous consumption ( $\Delta Vhed_{j|i} \neq 0$ ). Product-related determinants that may have such an effect will now be discussed in turn.

##### *Inter-consumption time / consumption frequency.*

Consumption frequency and inter-consumption time are closely related constructs that exert their influence on value derived from variety through the processes of boredom, curiosity and attribute satiation. Consuming a product frequently over time with relative short inter-consumption times implies repetitiveness in the decision process contributing to boredom in the choice task. Further, in terms of the product's attributes, frequent consumption implies that the inventories for the attributes build up quickly and the short inter-consumption times imply that the attribute inventories will hardly dwindle between consumptions (McAlister 1982). These two characteristics both contribute to satiation with the product's attributes, a condition that stimulates variety-seeking behavior. Finally, high consumption frequency and short inter-consumption time imply that the attribute value of the chosen alternative(s) are well established with a very low degree of ambiguity. This situation reduces the 'novelty' and curiosity value of the present alternative(s) vis-à-vis the others. We therefore hypothesize:

H3a. Variety-seeking behavior is more likely to occur for products that are frequently consumed with short inter-consumption times

We further hypothesize that consumers with a high variety-seeking tendency will be more sensitive to these effects of high consumption frequency and short inter-consumption time. In other words, we hypothesize:

H3b. The difference in variety-seeking behavior between those with a high and a low variety-seeking tendency will be greater for frequently consumed products with short inter-consumption times.

*Hedonic features of the product*

Sensory-specific satiety (Rolls 1986) has been identified as an important underlying process underlying variety-seeking behavior. Sensory-specific satiety results in sub-optimal stimulation levels, a situation that can effectively be resolved by switching to products with dissimilar sensory attributes (i.e. variety-seeking behavior). Therefore, we hypothesize that products that are strongly associated with neural or affective sensations ("hedonic products" e.g. food products, soft drinks, restaurants) should display a stronger than average urge to express the variety-seeking tendency in actual variety-seeking behavior (Hoyer and Ridgway 1984; Kahn and Lehmann 1991). Again, we also hypothesize that consumers with a high variety-seeking tendency are more sensitive to sensory-specific satiety than are consumers with a low variety-seeking tendency. We thus hypothesize:

- H4a. Variety-seeking behavior is more likely to occur for hedonic products.
- H4b. The difference in variety-seeking behavior between those with a high and a low variety-seeking tendency will be greater for product categories that are high in hedonic characteristics.

**4.9.2.2. Product-related determinants affecting the difference in value derived from product-related characteristics.**

Product-related determinants discussed in this section influence the differential between  $[E(V_i) - E(V_j)]$  and  $E(Vvar_{i,j})$  by influencing the difference in value derived from product-related characteristics. As we discuss the product-related characteristics in terms of their potential controlling effect, for ease of exposition we will assume that, of the available alternatives, the previously chosen alternative  $i$  has the highest perceived value for product-related characteristics (i.e.  $E(V_i) > E(V_j)$ ).

*Strength of preference / size of the consideration set*

Assuming that alternative  $i$ , consumed at the most recent consumption experience, is the unconditionally most preferred alternative, the magnitude of  $[E(V_i) - E(V_j)]$  depends on the difference in long-term preference between alternative  $i$  and one or more other choice alternatives. A strong preference for alternative  $i$  relative to the second-best preferred alternatives  $j$  will result in a large value of  $[E(V_i) - E(V_j)]$ , making it less likely that this loss in product-related value will be compensated by the value derived from variety ( $Vvar_{i,j}$ ). We thus hypothesize:

- H5a. Variety-seeking behavior is more likely to occur when the preference differential between the unconditionally most preferred consumption alternative and second-best unconditionally preferred alternative in the product category is smaller.

The variety-seeking model assumes that consumers go through a hierarchical process of alternative selection. In a specific choice situation, the consumer is hypothesized to form a consideration set consisting of choice alternatives that the consumer considers suitable to satisfy the identified need (Roberts and Lilien 1993). This consideration set may potentially be augmented with newly encountered alternatives in the decision making context to form the choice set. Although the products in the consideration set may differ in terms of perceived characteristics, they have in common the assessment by the consumer that they are all capable of satisfying the identified need adequately. In terms of the variety-seeking model, this would imply that the alternatives in the consideration set all have approximately the same expected unconditional value ( $E(V_{ins_j} + V_{hed_j})$ ). As alternative  $i$  is an element of the consideration set, this also implies that for the alternatives in the consideration set  $[E(V_i) - E(V_j)]$  is small.

The fact that the alternatives in the consideration set have expected values  $E(V_j)$  close to  $E(V_i)$ , does not necessarily imply that these alternatives are identical configurations of attributes. The variety-seeking model defines the consumer's assessment of the intrinsic and extrinsic value of alternatives as a weighted linear combination of perceived attribute values, implying that different configurations of attributes may result in the same net value of  $E(V_{ins_j})$ ,  $E(V_{hed_j})$ , and  $E(V_j)$ . Thus structural variety may exist within the consideration set, even though the alternatives do not differ significantly in net expected value. This characteristic of the alternatives in the consideration set implies that switching among alternatives in the consideration set allows consumers to satisfy their desire for variety without having to trade-off the value derived from variety ( $V_{var_{i,j}}$ ) against a loss in  $E(V_i) - E(V_j)$ .

Thus, hypothesis 5 may be extended beyond the second-best preferred alternative to include the other items in the consumer's consideration set. Assuming that the alternatives in the consumer's consideration set have similar values in terms of product-related characteristics, we hypothesize:

- H6a. Variety-seeking behavior is more likely to occur in product categories for which consumers have larger consideration sets.

Again, we hypothesize that consumers with a high variety-seeking tendency are more sensitive to the potential controlling effect of these product-related determinants and thus hypothesize:

- H5b. The difference in variety-seeking behavior between those with a high and a low variety-seeking tendency will be greater in situations where the difference preference differential between the (unconditionally) most preferred alternative and the other alternative in the product category is small.
- H6b. The difference in variety-seeking behavior between those with a high and a low variety-seeking tendency will be greater in product categories for which consumers have larger consideration sets.

*Brand loyalty*

Behaviorally, high strength of preference is likely to result in repeat purchase behavior. Repeat purchase behavior in combination with a strong commitment to the brand is generally referred to as brand loyalty (Jacoby and Chestnut 1978). Thus, brand loyalty as a behavioral characteristics should be a strong inhibitor of variety-seeking behavior because consumers feel committed to purchase the same brand or brands consistently. If consumers do not have a strong commitment to one of more brands, variety-seeking may be more likely to occur. We thus hypothesize:

- H7a. Variety-seeking behavior is more likely to occur when brand loyalty is low.
- H7b. The difference in variety-seeking behavior between those with a high and a low variety-seeking tendency will be greater in situations where brand loyalty (as defined by strength of preference and repeat purchase pattern) is lower.

**4.9.2.3. Product-related determinants affecting both variety value and the difference in value from product-related characteristics**

The product-related determinants discussed in this section have a joint effect on value derived from variety ( $E(V_{var_{ij}})$ ) and the differential between alternative  $i$  and the other alternatives  $j$  ( $E(V_i) - E(V_j)$ ). The relative impact on the two components of the variety-seeking model is hypothesized to depend on three closely related concepts: perceived differences, involvement with the product category and perceived risk. The hypotheses logically follow from equations (4.11) and (4.12). These equations, which reflect amount of variety and the differential in value derived from product-related characteristics of  $i$  and  $j$ , respectively, are repeated here for ease of exposition<sup>12</sup>:

---

<sup>12</sup> Note that equation (4.12) is adjusted to reflect the situation of imperfect information.

$$(4.11) \quad \text{Variety}_{ij} = \sqrt{\sum_{f=1}^F b_f [P_{jf} - P_{if}]^2 + \sum_{h=1}^H b_h [P_{jh} - P_{ih}]^2}$$

$$(4.12) \quad E(V_j) - E(V_i) = \sum_{f=1}^F w_f [P_{jf} - P_{if}] + \sum_{h=1}^H w_h [P_{jh} - P_{ih}]$$

The effect of perceived differences on stimulation level, which is a linear function of the amount of variety and value derived from product-related characteristics, is reflected in the differential weights  $b_f$  and  $b_h$  vis-à-vis  $w_f$  and  $w_h$ , respectively. Attribute-weight vectors  $b_f$  and  $b_h$  reflect the contribution of instrumental and hedonic attributes on perceived variety, whereas attribute weight vectors  $w_f$  and  $w_h$  reflect the contribution of the same instrumental and hedonic attributes on the perceived differential in value derived from product-related characteristics (see section 4.5). For ease of exposition, in the remainder of this section we will refer to the weights  $b$  as *perceptual* weights and to weights  $w$  as *preferential* weights.

#### *Perceived differences among alternatives*

Equations (4.11) and (4.12) reflect that the influence of perceived differences among alternatives on the magnitude of  $[E(V_j) - E(V_i)]$ , relative to  $E(V_{var_{ij}})$ , critically depends on the value of the perceptual and preferential weights attached to them. Assuming that alternative  $i$  is the unconditionally most preferred brand, perceived differences on attributes with high preferential weights attached to them render  $[E(V_j) - E(V_i)]$  negative, making it less likely that this loss in product-related value can be compensated by the positive value derived from change. Thus, variety-seeking behavior is less likely to occur when differences are perceived among the alternatives on attributes that have high preferential weights  $w$  attached to them.

On the other hand, the stimulation derived from the variety implied by a switch from  $i$  to  $j$  is also hypothesized to be linearly dependent on the perceived differences among alternatives  $i$  and  $j$  (equations 4.10 and 4.11). Thus, in situations of a sub-optimal level of actual stimulation, perceived differences among alternatives with high perceptual weights  $b$  attached to them will contribute more strongly to the stimulation level. In such cases, the value derived from variety as a result of stimulation depends on the degree of discrepancy between the actual level of stimulation and OSL and on the amount of stimulation implied by the perceived variety (equation 4.8). At lower levels of variety, perceived differences will result in positive value derived from variety, whereas higher levels of variety may actually render the actual level of stimulation above the Optimal Level (OSL), resulting in decreasing value derived from variety.

To reflect our expectation that the effect of perceived differences among alternatives on value derived from variety and thus on variety-seeking behavior critically depends on the type of attribute involved, we hypothesize:

- H8a. Variety-seeking behavior is more likely to occur in situations where smaller differences are perceived among the alternatives on attributes that contribute substantially to the value derived from product-related characteristics (as reflected in high preferential weights  $w_f$  and  $w_h$ ).
- H9a. Perceived differences among alternatives on attributes that contribute substantially to the perceived variety among alternatives (as reflected in high perceptual weights  $b_f$  and  $b_h$ ) hold a curvilinear relationship with variety-seeking behavior intensity.

Initial support for hypotheses 8a and 9a may be derived from a study by Feinberg, Kahn and McAlister (1992) who solved Lattin and McAlister's (1985) first-order Markov model for variety-seeking behavior (see Chapter 3) for steady-state probabilities. The authors show that brand  $j$  will gain market share, relative to brand  $i$ , when the unconditional preference for  $j$  is increased without influencing its distinctiveness vis-a-vis brand  $i$ . In terms of hypotheses 8a and 9a, this would imply that repositioning takes place on attributes that have low perceptual weights  $b$  and high preferential weights  $w$  attached to them. Brand  $j$  will lose market share when it repositions itself as being more similar to  $i$ , keeping unconditional brand preference for  $j$  constant. In our terminology, this would imply that repositioning takes place on attributes with low preferential weights  $w$  and high perceptual weights  $b$  attached to them. Finally, brand  $j$  will gain market share if it repositions itself as more similar to  $i$ , thereby increasing its relative unconditional preference. The latter situation would imply repositioning on attributes with high preferential weights  $w$  and relatively high perceptual weights  $b$  attached to them.

We hypothesize that perceived differences on attributes with high preferential weights  $w$  interact with variety-seeking tendency. In other words, compared to consumers with a low variety-seeking tendency, variety-seeking behavior intensity among consumers with a higher variety-seeking tendency is hypothesized to be more sensitive to potential losses in value derived from product-related characteristics.

- H8b. The difference in variety-seeking behavior between those with a high and a low variety-seeking tendency will be greater in situations where smaller differences are perceived among the alternatives on attributes that contribute substantially to the value derived from product-related characteristics (as reflected in high preferential weights  $w$ ).

#### *Involvement with the product category*

Involvement, the consumer's subjective perception of the personal relevance of an object, activity or situation, has goal-directed arousal capacity (Park and Mittal 1985). Involvement

will exert its influence through the perceived relevance of goal-directed consequences of behavior. In terms of the variety-seeking model, high involvement implies that higher importance and personal relevance is attached to small perceived differences between alternatives  $i$  and  $j$  (i.e. the preferential weights  $w$  in equation (4.12)). Under the assumption that alternative  $i$  is the unconditionally most preferred brand, higher preferential weights  $w$  will thus imply that  $(E(V_j) - E(V_i))$  increases relative to  $E(Vvar_{ij})$ . Thus, given a certain level of perceived differences between choice alternatives, variety-seeking behavior will be less likely to occur in situations where involvement with the product category is higher relative to low involvement situations where value derived from variety in product attributes is more likely to be a decisive factor in choice behavior (i.e. variety-seeking behavior). We thus hypothesize (cf. Assael 1987):

- H10a. Variety-seeking behavior is more likely to occur for products that evoke lower levels of involvement.
- H10b. The difference in variety-seeking behavior between those with a high and a low variety-seeking tendency will be greater in situations where involvement is lower.

### *Perceived risk*

The joint (and potentially contradictory) effects of perceived differences among choice alternatives on  $[E(V_j) - E(V_i)]$  and  $E(Vvar_{ij})$  are most clearly reflected in the concept of perceived risk as a product-related determinant of variety-seeking behavior. The two components of perceived risk (e.g. Ross 1975): the uncertainty of consequences (i.e. the subjective probability of unfavorable outcomes) and the magnitude or importance of consequences (i.e. amount at stake) directly bear on  $E(Vvar_{ij})$  and  $[E(V_j) - E(V_i)]$ , respectively. In terms of the variety-seeking model, uncertainty relates to the consumer's confidence in his pre-choice assessment of the hedonic and instrumental value of alternative  $j$  (i.e. uncertainty in  $E(V_j)$ ). The amount at stake refers to the expected personal importance of a potentially disappointing experience with alternative  $j$ . As the variety-seeking model assumes that alternative  $i$  consumed at  $t-1$  is the unconditionally most preferred alternative, the amount at stake may also be written relative to the value of alternative  $i$ :  $[E(V_i) - E(V_j)]$ .

Low uncertainty implies low perceived risk, as the consumer is relatively certain about what to expect from alternative  $j$  (Hansen 1972). Whether high uncertainty implies high risk depends on the perceived magnitude of the potential consequences of behavior. If low, there is little risk involved, as little is put at stake in an attempt to try out alternative  $j$ . High perceived risk is characterized by the situation where both uncertainty and the magnitude of the potential consequences of behavior are high (Cunningham 1967; Hansen 1972).

Since the two components of the perceived risk concept directly bear on  $Vvar_{ij}$  and  $[E(V_i) - E(V_j)]$ , we can use the variety-seeking model to derive hypotheses concerning the

conditions under which variety-seeking behavior is most likely to occur. Four conditions may be distinguished:

a. *low uncertainty - unimportant potential consequences*

In this situation, the consumer attaches little importance to the potential consequences of choice in terms of  $[E(V_j) - E(V_i)]$ . Because of low uncertainty there will be little curiosity about alternative  $j$ , and curiosity-motivated variety-seeking behavior is not likely to occur. This situation may stimulate variety-seeking behavior to resolve boredom with choosing the same product again as the choice task can be complicated without it having to go at the expense of variety derived from product-related characteristics. The situation also stimulates variety-seeking behavior to resolve attribute satiation, as the consumer is certain about the attribute structure of alternative  $j$  and little is at stake.

b. *high uncertainty - unimportant potential consequences*

In this situation, the consumer attaches little importance to the potential consequences of choice in terms of  $[E(V_j) - E(V_i)]$ . This situation is likely to stimulate variety-seeking behavior to solve boredom with the choice task. As the consumer is relatively uncertain about the attribute levels implied by alternative  $j$ , the consumer is uncertain about alternative  $j$ 's contribution to resolving attribute satiation and this type of variety-seeking behavior is thus less likely to occur. The uncertainty inherent in this choice situation is likely to stimulate curiosity-motivated variety-seeking behavior, particularly because curiosity can be satisfied without having to incur high costs of important consequences being affected by product-related characteristics.

c. *low uncertainty - important potential consequences*

Still assuming that alternative  $i$  is the unconditionally most preferred alternative, in this situation little is to be gained by variety-seeking behavior. The consumer is relatively certain that the choice of  $V_j$  will result in a disappointing experience vis-a-vis repurchase of alternative  $i$ . Therefore attribute satiation and boredom with the choice task can only be resolved at the expense of value derived from product-related characteristics. There is little curiosity involved, as the consumer is relatively certain about the outcomes of choosing alternative  $j$ . This situation is likely to stimulate repeat purchasing of the previously chosen alternative  $i$ .

d. *high uncertainty - important potential consequences*

This situation reflects the high-risk choice task. Variety-seeking to resolve attribute satiation is not likely to occur, as the consumer is relatively uncertain about whether alternative  $j$  has the right attribute structure to resolve satiation, and attribute satiation is likely to occur at the expense of value derived from product-related characteristics. Similarly, variety-seeking behavior to resolve boredom with the choice task is not likely to occur as it will occur at the expense of value derived from product-related characteristics. Although high uncertainty may stimulate curiosity-motivated variety-

seeking behavior, it is not likely to occur because it would result in a decrement in value derived from product-related characteristics.

To summarize, perceived risk may be hypothesized to be an important product-related determinant of variety-seeking behavior, particularly in situations where novel stimuli are involved. It influences both the value derived from variety and the value derived from product-related characteristics components of the variety-seeking model, and the net result on variety-seeking behavior will depend on perceived risk's contribution to these two components. At lower levels of perceived risk, the positive contribution to value derived from variety is likely to dominate over the potential losses in value derived from product-related characteristics, and variety-seeking behavior will occur. At higher levels of perceived risk, the net value will point in the opposite direction and variety-seeking behavior will be less likely to occur. We thus hypothesize:

- H11a. Variety-seeking behavior is more likely to occur in choice situations where low risk is perceived.
- H11b. The difference in variety-seeking behavior between those with a high and a low variety-seeking tendency will be greater in choice situations where low risk is perceived.

Support for our position that perceived risk exerts its influence through both the value derived from variety and value derived from product-related characteristics can be derived from work by Zuckerman (1976; 1991), who discusses the approach-avoidance conflict in relation to perceived risk. Zuckerman proposed a two-process theory which takes anxiety and State-Sensation Seeking as the two underlying processes that jointly predict whether approach or avoidance behavior is more likely to occur in response to perceived risk. Zuckerman assumes that anxiety has a linearly increasing relationship with perceived risk, whereas state sensation seeking has an inverted U-shaped relationship with perceived risk. At lower levels of perceived risk, the behavior's positive contribution to the sensation seeking state will dominate its contribution to the negative valued anxiety state, and approach behavior will occur. At higher levels of perceived risk, the behavior's contribution to the anxiety state will dominate its positive contribution to the sensation seeking state, resulting in net negative affect and withdrawal from the situation. The level of perceived risk where withdrawal tendencies start to dominate approach tendencies primarily depends on the individual's Optimal Level of Stimulation.

#### 4.10 Structure of the empirical chapters

In this chapter a model for variety-seeking behavior was developed. It identifies the key components and issues relevant to variety-seeking behavior. Specific hypotheses were developed, most of which will be empirically tested in the subsequent chapters. Figure 4.4. represents the basic components of the variety-seeking model. In the next chapters, key issues related to variety-seeking behavior will be empirically addressed in the context of food consumption. Chapter five is an empirical investigation into the validity of measures for quantifying *observed variation* in choice behavior. As variety-seeking behavior represents a subset of all observed variation in behavior, these measures also apply to the quantification of variety-seeking behavior.

Chapter six discusses the development of a consumer-specific scale for quantifying *variety-seeking tendency*. The construct validity of this scale is extensively investigated with a special emphasis on its predictive validity for variety-seeking behavior and other exploratory tendencies in the food domain and its convergent and discriminant validity with respect to scales for quantifying consumers' tendency toward exploratory behavior in general (OSL) and consumer-specific scales for measuring OSL in the consumer context. Hypotheses 1 and 2, which concern to person-related determinants of variety-seeking behavior, will be tested in this chapter.

Chapter seven represents an empirical investigation into determinants of variety-seeking behavior. For this purpose we use an innovative panel data collection method that allows for identifying observed brand switching in "real-life" situations, but in addition allows for distinguishing true variety-seeking behavior from derived varied behavior. Subsequently, specific hypotheses with respect to *person-related determinants*, *product-related determinants* and *their interaction* as determinants of variety-seeking behavior will be empirically tested.

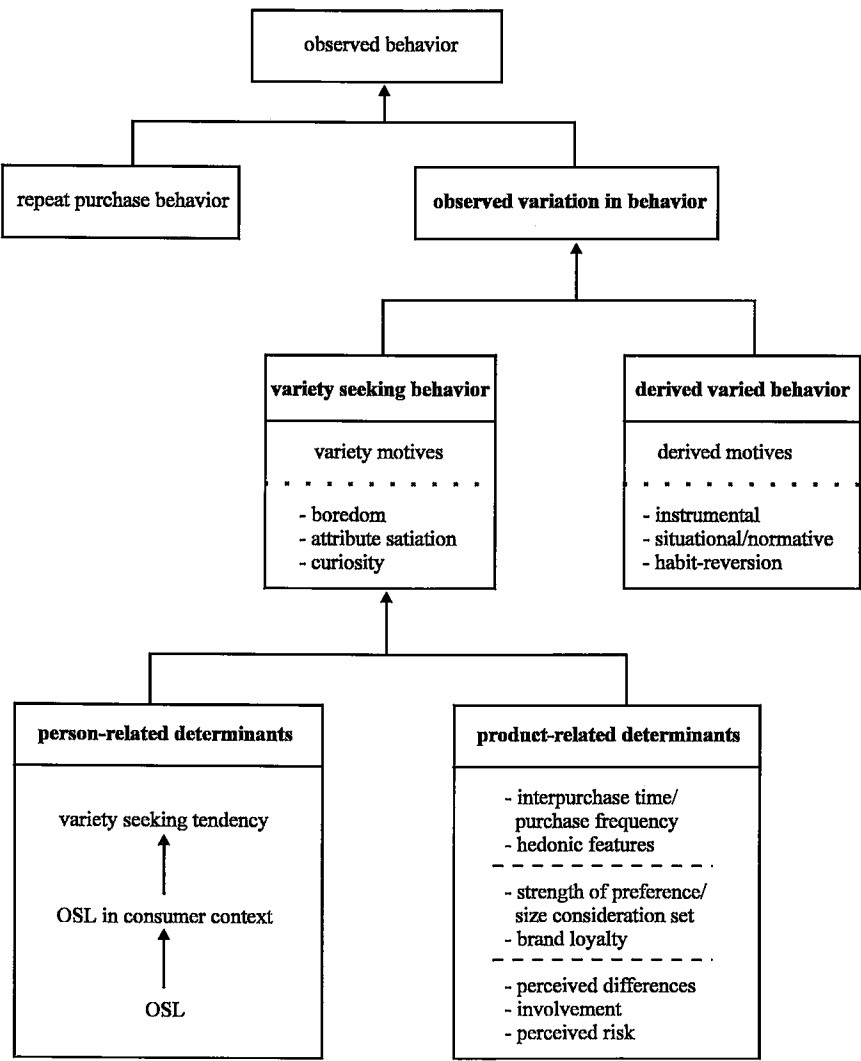


Figure 4.4. Representation of the variety-seeking model

## CHAPTER FIVE<sup>1</sup>

### MEASURES FOR VARIATION IN CONSUMPTION: REVIEW AND VALIDITY ASSESSMENT

#### 5.1. Introduction

In the previous chapter, regulation of the stimulation level experienced in life was identified as the key underlying motivation for variety-seeking behavior. When the stimulation level experienced in life is below the Optimal Level of Stimulation (due to attribute satiation and boredom with the choice task), or mildly above the Optimal Level (e.g. curiosity), variety-seeking behavior may serve as an active means to bring the actual level of stimulation into closer agreement with OSL. It was further argued that the amount of stimulation implied by a momentary switch from alternative  $i$  to alternative  $j$  is linearly related to the structural variety that exists between alternatives  $i$  and  $j$  (equation (4.10)). For ease of exposition (see also equation (4.11)), structural variety between alternatives  $i$  and  $j$  may be expressed as:

$$(5.1) \quad \text{Variety}_{ij} = \sqrt{\sum_{k=1}^K b_k (P_{ik} - P_{jk})^2}$$

Equation (5.1) shows that the amount of structural variety is reflected in the perceived dissimilarity between alternatives  $i$  and  $j$  in terms of attribute composition ( $P_{ik}$ ,  $P_{jk}$ ), where the  $k$  attributes may have different impacts on perceived dissimilarity ( $b_k$ ).

Whereas equation (5.1) reflects the variety implied by a momentary switch between two alternatives, several studies have been concerned with summary measures that quantify the total amount of variation implied by a temporal sequence of more than two purchases or consumptions. These studies will be discussed in this chapter. Thus, rather than, or in addition to, structural variety the studies discussed here have incorporated time as a relevant dimension. Measures for temporal variety have been proposed in economics and marketing and have usually been applied to variation in behavior, without distinguishing between variety-seeking behavior and derived varied behavior. Note, however, that most of these measures may also be applied to quantify variety-seeking behavior. More specifically, if the underlying motivation for the observed brand switches is known, allowing for the identification of true variety-seeking switches, most of these measures can be selectively applied to just the variety switches. Further, although the discussion in this chapter focuses on brand switching behavior, it is important to recognize that these measures can be calculated at different levels of abstraction. For example, they may be used to quantify variation at the

---

<sup>1</sup> This chapter is a slightly adapted version of an article that appeared in *European Review of Agricultural Economics* 17: 19-41 (Van Trijp and Steenkamp 1990).

level of different varieties of a brand (e.g. different flavors of yogurt), at the level of different brands within a product class, at the level of different product types within a product class (e.g. different vegetables) and even at the level of variation in consumption across different product classes (e.g. spending on different product classes).

In economics (e.g. Theil and Finke 1983; Jackson 1984; Shonkwiler, Lee and Taylor 1987; Lee 1987; Lee and Brown 1989) variation in consumption has mainly been studied in relation to income and total expenditure in the product category. For example, Prais (1953) asserted that within a given commodity, the number of different products purchased increases with expenditure. Jackson (1984) found empirical support for Prais' assertion, showing that the average number of products increases monotonically with total expenditure, both in aggregate and for 13 commodity groups (including food).

Shonkwiler, Lee and Taylor (1987) studied the effect of expenditure on the number of items purchased for a single commodity, foods. The number of food items consumed of all food groups was strongly influenced by the expenditure on food in general. A similar result was obtained by Lee and Brown (1989). Lee (1987) explored how the demand for a varied diet (as indexed by the number of different food items consumed during the survey week) is related to food expenditures and household characteristics. Lee's study reveals that increases in household food expenditure increase the number of different food items consumed at home. Further, this study identifies several household characteristics that are related to the variation in household consumption. The number of food items consumed by a particular household increases with the number of household members but at a decreasing rate and declines when the household size becomes very large (larger than seven persons). Further, variation in consumption increases with the level of education and depends on the season.

In a cross-country study involving 30 different countries, Theil and Finke (1983) studied the effect of per capita real income on variation in consumption. In their study, variation in consumption was operationalized as the diversity of spending across ten commodities (including food). The logic behind this measure is Engel's law, which predicts that as per capita real income rises, the percent of income spent on food will decrease and the percent of income spent on other commodities will increase. As hypothesized, it was found that diversity increases with income. Further, Theil and Finke (1983) provide a measure that quantifies the income elasticity of the demand for variation.

In marketing, research on variation in consumption has focused on the identification of the factors that give rise to variation in consumption. In addition to income and general household characteristics, other factors, such as personality traits and characteristics of the choice context, are taken into account as well. The reader is referred to Chapter 3 for a review of these studies. Unfortunately, research efforts to date have been conducted in isolation, with integration of the insights obtained in each of the disciplines virtually non-existent. This is particularly evident with respect to the quantification of variation in consumption. Various measures that purport to quantify variation in consumption have been

proposed such as the Index of Temporal Variety (Pessemier and Handelsman 1984), Varied Behaviour Measure (Handelsman 1987), variance in quantities consumed (Wierenga 1984), the entropy measure (Theil and Finke 1983; Lee and Brown 1989), the Hirschman-Herfindahl index (Theil and Finke 1983), the Simpson index (Lee and Brown 1989), and the number of different products consumed (Jackson 1984; Shonkwiler, Lee and Taylor 1987; Lee 1987). These measures have often been put forward without adequate assessment of their validity, including how they relate to other measures. The lack of established validity of these measures is problematic as it directly influences the validity of the results obtained concerning variation in consumption and its determinants and renders a direct comparison of results from various studies very difficult. It is unclear whether the measures pertain to the same concept, to different aspects of the same concept, or to different concepts. As a result, none of them has generally been accepted.

The purpose of this chapter is to describe and critically review the measures for variation in behavior that have been proposed in the economics and marketing literatures. As these measures serve as operationalizations of the dependent variables (variation in behavior and/or variety-seeking behavior) in the analysis of variety-seeking behavior and related constructs, insight into their reliability and validity is of paramount importance for theory development and testing. Therefore, the second purpose of this chapter is to investigate empirically the validity of these measures. Validity assessment will be conducted within the domain of food consumption. The structure of this chapter is as follows. Section 5.2. discusses the various measures for variation in consumption. The research methodology is described in section 5.3. and section 5.4. reports the results. The chapter concludes with a discussion of the results.

## **5.2. Measures for variation in consumption**

On the basis of their level of elaboration, the measures that purport to quantify variation in consumption may be divided into two groups. A first set of measures consists of those that quantify variation in consumption at the product level. Such measures take into account the number of different brands and possibly the share of each of the brands in total consumption, without reference being given to the perceived characteristics those brands provide.<sup>2</sup> Such measures have the advantage that they are easy to calculate and do not entail great costs. On the other hand, measures that incorporate perceived characteristics of the brands have also been proposed. These measures take into account the perceived (dis)similarity among the brands, implying that for any two brands chosen, more variation in consumption is realized when the two brands are more dissimilar in the consumer's perception. The measures belonging to this set quantify variation in consumption at the attribute level and thus require

---

<sup>2</sup> For ease of presentation, the word 'brand' also denotes 'variety'.

perceptual data. These measures may provide a more detailed picture of variation in consumption behavior, but they do require more extensive data. Below, both types of measures will be discussed.

### 5.2.1. Measures at the product level

#### *NUM*

The most simple measure of variation in consumption consists of the number of different brands bought by a consumer/household from the relevant product set during a particular time period. It assumes that variation increases when the number of different brands bought increases. Measures of this type have been applied by Jackson (1984) and Lee (1987) among others. NUM is a crude measure that does not take into account the share of each of the brands in the purchase sequence. As NUM is restricted to integer values, it has limited discriminative power, but it is easy to understand and easy to calculate.

#### *Hirschman-Herfindahl index (HH)*

The Hirschman-Herfindahl index was originally proposed as a measure for industrial concentration (see e.g., Theil 1967). This measure may also be used to quantify variation in consumption (e.g., Theil and Finke 1983; Meulenberg 1989). It takes into account both the number of brands consumed and the share of the brands in total consumption:

$$(5.2) \quad HH = - \sum_{j=1}^m [p_j]^2$$

where:

- $p_j$  = the brand  $j$ 's share in total consumption from the relevant product set;
- $m$  = the number of different brands consumed from the relevant product set.

Note that the measure HH deviates from the traditional formulation of the Hirschman-Herfindahl index in that the 'minus-sign' has been added, so that less variation is expressed as a larger negative number. HH is at its maximum when all brands have equal shares of consumption (then,  $HH = -p_j$ ) and at its minimum when only one brand is consumed ( $HH = -1$ ). The share of brand  $j$  in the total consumption may be expressed in several different ways (e.g., in quantity, in number of times a brand is chosen, in budget shares etc.). If the quantity in which alternatives usually are bought are alike, results obtained will be similar irrespective of whether shares are expressed in quantities or in number of times a brand is bought. In such instances, the number of times a brand is chosen will be the simplest and thus preferable unit of analysis. However, if the 'standard units' do vary among brands, the results will vary as well. In such instances, it is preferable to express each brand's contribution to total consumption relative to its respective 'standard unit.'

*Coefficient of entropy (ENTR)*

The coefficient of entropy is another measure for concentration that takes into account both the number of brands consumed and the share of these brands in total consumption from the relevant product set. It has been used by Theil and Finke (1983), Lee and Brown (1989), and Meulenbergh (1989) to quantify variation in consumption. Following the notation of the HH-index, it is defined as:

$$(5.3) \quad ENT = \sum_{j=1}^m [-p_j \ln(p_j)]$$

The entropy measure may be standardized between 0 and 1 by dividing it by  $ENT_{\max}$ , the maximum entropy given the number of brands available in the relevant product set and taking into account the number of purchases made:

$$(5.4) \quad ENTR = ENT / ENT_{\max}$$

with:

$$(5.5) \quad ENT_{\max} = - \sum_{i=1}^L (1/N^*) \ln(1/N^*)$$

where:

$N^*$  = the lesser of  $L$  and  $N$ , with  $L$  being the total number of available brands and  $N$  being the number of purchase occasions.

With respect to the definition of 'share' the same arguments as were given for the Herfindahl-Hirschman index are relevant for this measure: 'share' may be operationalized in several different ways.

*Variance in quantities consumed (VARQUAN)*

This measure was used by Wierenga (1984) in his extension of Lancaster's characteristics model. The variance in the vector of quantities that are consumed of each of the brands is used as a direct measure of variation in consumption. When all brands are bought in equal quantities, the variance in the vector of quantities consumed equals zero and variation is maximal.

$$(5.6) \quad VARQUAN = - \sum_{j=1}^L (x_j - \bar{x})^2 / L$$

Where:

$x_j$  = quantity bought of brand  $j$ ;  
 $\bar{x}$  = average quantity bought across the  $L$  available brands;  
 $L$  = the total number of available brands.

### 5.2.2. Measures at the attribute level

Measures for variation in consumption that take into account the perceptual similarity among brands have also been proposed. These measures assume that variation in consumption not only depends on the number of different brands that are chosen and on the shares of each of the brands in total consumption, but also on the perceived (dis)similarity among the brands. Two such measures have been proposed in the literature and will be described in this section.

#### *Index of Temporal Variety (ITV)*

Pessemier and Handelsman (1984) have developed a sophisticated measure for variation in consumption, the Index of Temporal Variety (ITV). This measure is composed of three components: Percentage of Realized Dissimilarity (PRD), Percentage of Realized Entropy (PRE) and Relative Nonbunching (RNB). The first component measures the dissimilarity of the chosen brands, the second measures the degree to which purchases are evenly distributed across the chosen items, and the third measures the relative frequency with which the items purchased change from one purchase occasion to the next (Pessemier and Handelsman 1984: 437).

Percentage of Realized Dissimilarity (PRD) represents the perceived structural variety in the set of  $m$  chosen brands. The rationale for PRD is that given a certain number of items consumed, variety is greater the more different these items are in the consumer's perception. For example, when consumer A has consumed a number of items that are perceptually rather close, say only soft drinks, his behavior is less varied than the behavior of consumer B, who has consumed items that are perceptually further apart, say fruit juices in addition to soft drinks. Equation (5.8) reflects that perceived structural variety as a component of PRD is calculated across all different items that occur in the consumption history. As such it reflects a summary measure for the whole consumption history, rather than structural variety at a particular moment in time as reflected in equation (5.1).

In order to restrict the values of PRD to the range of zero to one, it would be preferable to relate the realized perceived structural variety to the maximum structural variety that would have been achieved if the  $m$  most dissimilar brands were chosen. When realized dissimilarity is expressed in the form of Euclidean distances among the objects, PRD is defined as:

$$(5.7) \quad \text{PRD} = D_o / D_{\max}, \quad 0 < \text{PRD} \leq 1$$

where:

$$(5.8) \quad D_o = \sqrt{\frac{\sum_{i=1}^m \sum_{j=1}^m \sum_{k=1}^K (P_{ik} - P_{jk})^2}{(m \times m)}}$$

and

$$(5.9) \quad D_{\max} = \sqrt{\frac{\sum_{i=1}^{m^*} \sum_{j=1}^{m^*} \sum_{k=1}^K (P_{ik} - P_{jk})^2}{(m \times m)}}$$

where:

- $D_0$  = the observed perceived structural variety in the set of  $m$  chosen brands;  
 $D_{\max}$  = the structural variety that would have been achieved if the  $m^*$  most dissimilar alternatives would have been chosen;  
 $P_{ik}$  = brand  $i$ 's score on perceptual dimension  $k$ ;  
 $P_{jk}$  = brand  $j$ 's score on perceptual dimension  $k$ ;  
 $k$  = index of perceptual dimensions ( $k=1 \dots K$ );  
 $m$  = number of different brands consumed from the relevant product set;  
 $m^*$  =  $m$  most dissimilar brands that are available in the product set.

The calculation of  $D_{\max}$  is complicated due to the fact that a simple algorithm for determining the  $m^*$  most dissimilar brands from a larger set is not available. Pessemier (1985) has suggested a proxy measure for  $D_{\max}$ . Unfortunately, this proxy measure is cumbersome to calculate and arbitrary in the sense that it requires the determination of the just noticeable difference along the attribute dimensions  $k$ . The reader is referred to Pessemier's work for a description of this proxy measure. We propose a much easier measure to be used as standardization factor in our estimation of PRD. This measure, DAV, represents the average dissimilarity among all brands that are available in the relevant product set. As the repertoire of brands that a consumer could possibly have chosen can easily be assessed, even at the level of the individual consumer if required, assessment of DAV is less arbitrary and far easier. Using the same notation as was used in formula (5.9), and with  $L$  being the total number of brands available in the relevant product set, DAV is defined as:

$$(5.10) \quad \text{DAV} = \sqrt{\frac{\sum_{i=1}^L \sum_{j=1}^L \sum_{k=1}^K (P_{ik} - P_{jk})^2}{L \times (L-1)}}$$

Note, however, that as a result of using DAV as the denominator of PRD, PRD is not necessarily restricted to the range of zero to one.<sup>3</sup>

<sup>3</sup> In our empirical analyses, we compared our easy-to-calculate PRD-measure with Pessemier's (1985) measure. In the calculation of Pessemier's measure, for each perceptual dimension the 'just noticeable difference' was arbitrarily chosen to be 10% of the range in the products' attribute scores. Our PRD-measure correlated as high as 0.93 with the PRD-measure using Pessemier's proxy-measure as the denominator.

In addition to perceived structural variety among the  $m$  different brands chosen in the purchase sequence, ITV also accounts for variety due to the temporal arrangement of the chosen brands. Percentage of Realized Entropy (PRE) captures the relative frequency with which each object appears in the sequence. In its formulation it is identical to the entropy measure ENTR, described earlier in this section. It is assumed that temporal variety is maximized when all objects are evenly distributed across the purchase sequence. To standardize PRE on the range of zero to one, the observed entropy is expressed relative to the maximum entropy that would be achieved if all  $m$  objects are distributed equally across the sequence.

The Relative Nonbunching (RNB) component accounts for another aspect of temporal variety, namely the degree of stringing in the sequence. For the two sequences ABABABA and AAAABBB, the PRD- and PRE-values are equal. Yet, the first sequence is more varied. This difference is reflected by the RNB-component. The RNB relates to the number of contiguous changes that occur in the sequence. The larger the number of contiguous changes, the greater the temporal variety, *ceteris paribus*. RNB is defined as:

$$(5.11) \quad \text{RNB} = O_N / (N-1), \quad 0 < \text{RNB} \leq 1$$

where:

$O_N$  = the number of contiguous changes in a sequence of  $N$  purchases;

$N$  = the number of purchases made.

The Index of Temporal Variety (ITV) is defined as:

$$(5.12) \quad \text{ITV} = \text{PRD} + \text{PRE} + \text{RNB}$$

Theoretically, the three components making up ITV might be weighted differentially, although no straightforward criterion for the determination of the differential weights is available. Further, multi-item measures have been shown to be robust against unit weighing, in that their reliability (Armor 1974) and predictive accuracy (Wilkie and Pessemier 1973) are relatively insensitive to differential weighing. In addition, unit weighing allows for a more direct comparison of results from different studies. For these reasons, we follow Pessemier and Handelsman (1984) in assigning unit weights to each of the components.

Although ITV is a sophisticated measure for variation in consumption that takes into account three intuitively appealing aspects of variation, it is not without drawbacks. First, the summary measure for structural variety in the temporal sequence of brands chosen is somewhat static, in that the realized structural variety is expressed post hoc as a summary across the total set of brands that has been chosen. A more dynamic approach would recognize that every single purchase separately contributes to the realized perceived structural variety over time. This would imply that realized dissimilarity is assessed for each single

choice occasion, depending on the attribute composition of the chosen brand relative to the attribute composition of the most recent choice. Further, in the ITV-measure the effect of prior choices on the temporal variety of the sequence is limited to the most recent purchase (RNB only accounts for contiguous changes). This view on variation in behavior may be depicted as a first-order Markov process (cf. Givon 1984). However, other authors (e.g., Jeuland 1978; McAlister 1982) have argued that this view is unnecessarily restrictive and have presented more dynamic models: purchases prior to the most recent one also influence current choice behavior. These points of criticism are accounted for by Handelsman's Varied Behaviour Measure.

### *Varied Behaviour Measure (VBM)*

In line with ITV, Handelsman (1987) distinguishes between perceived structural variety (the degree of perceived structural difference between brands in the purchase sequence) and temporal variety (how the purchase sequence varies over time). His operational definition of the most varied purchase behavior possible is "...a purchase sequence that maximizes the structural variety gained (purchasing a set of maximally dissimilar brands) and the temporal variety gained (avoiding the repurchase of a brand as long as unpurchased brands remain in the available set)" (Handelsman 1987: 299).

For every separate choice moment, the realized perceived structural variety ( $D_n$ ) is represented in the form of the Euclidean distance based on the consumer's perceptions of the brand bought at moment  $n$ , relative to his perceptions of the brand bought at moment  $n-1$ . That is:

$$(5.13) \quad D_n = \sqrt{\left[ \sum_{k=1}^K (P_{n,k} - P_{n-1,k})^2 \right]}$$

where:

- $D_n$  = the perceived structural variety embedded in the switch from the brand chosen at moment  $n-1$  to the brand chosen at moment  $n$ ;
- $P_{n,k}$  = score of the brand chosen at moment  $n$  on perceptual dimension  $k$ ;
- $P_{n-1,k}$  = score of the brand chosen at moment  $n-1$  on perceptual dimension  $k$ ;
- $k$  = index of perceptual dimensions ( $k=1 \dots K$ ).

Note that equation (5.13) reflects the momentary structural variety that is realized in a switch from the alternative chosen at moment  $n-1$  to the alternative chosen at moment  $n$ . Except for the differential weighting of the perception this formulation is identical to equation (5.1). This absolute measure of momentary perceived structural variety is converted into a relative measure by dividing it by DAV: the average dissimilarity among all brands that are available in the relevant product set (see equation 5.10). The relative realized perceived structural variety ( $D'_n$ ) is expressed as:

$$(5.14) \quad D'_n = D_n / DAV$$

In the calculation of VBM,  $D'_n$  is weighted by an experience factor ( $E_{j,m}$ ) that accounts for the decay of experience over time.  $E_{j,m}$  represents the tendency of temporal variety to increase with the number of different brands purchased since the brand bought at moment  $n$  was last purchased. If a brand is bought at two successive moments in time, it does not contribute to variation in consumption. On the other hand, if a brand is bought for the first time it maximally contributes to the variation in consumption. The experience factor is defined as:

$$(5.15) \quad E_{j,m} = \begin{cases} 1.0 & \text{if the brand is purchased for the first time} \\ (j-1)/(m-1) & \text{or 1.0 whichever is smaller} \end{cases}$$

where:

- $j$  = the number of purchase intervals between the brand chosen at moment  $n$  and the last time the same brand was purchased;  
 $m$  = total number of different brand chosen from the relevant product set.

The Varied Behaviour Measure is defined as:

$$(5.16) \quad VBM = \frac{\sum_{n=1}^N (D'_n * E_{j,m})}{(n-1)}$$

### 5.2.3. Previous research on the convergent validity of measures for variation in consumption

Some research has been conducted with respect to the convergent validity among measures that purport to quantify variation in consumption. Meulenberg (1989) applied the measures ENTR, HH, and NUM to panel data for cheese and bread. On the basis of correlation analysis, he found convergent validity among ENTR and NUM. Correlations between HH and the other measures were poor, particularly for cheese. Pessemier and Handelsman have applied their ITV-measure to cake mix, toothpaste and liquid household cleaner. In comparing their ITV-measure with Handelsman's (1987) VBM they conclude: "...the two measures of varied purchase behaviour lead to approximately the same results.." (Pessemier and Handelsman 1984: 441). In the regression analyses they carried out, ITV did appear to have an advantage in the attained  $R^2$  values. They also compared ITV with another measure VAR, the variance of the proportion of times each brand is chosen. This measure is closely related to the VARQUAN measure described above, except that in VARQUAN proportions are expressed in quantities. Pessemier and Handelsman (1984: 442) conclude that "Though data-

collection costs favor VAR, this index is less predictable and less comprehensive than the ITV and VBM indices." Handelsman (1987) briefly reports some of the correlational analyses he has carried out to obtain insight into the VBM's reliability and validity. Using the same data that were used for the development of ITV (Pessemier and Handelsman 1984), scores on the VBM were correlated with scores on the ITV measure. For the three different product classes (number of subjects ranging from 94 to 142), the correlation among the two measures varied from 0.626 to 0.803 (all significant at the 0.001 level).

The results reported above are all based on bivariate correlational analyses have concentrated on the convergent validity among measures from the same class (either the product level or the attribute level). In this chapter, the reliability and convergent validity of the measures will be investigated using LISREL (Jöreskog and Sörbom 1993), which allows simultaneous consideration of multiple measures.

### **5.3. Methodology**

The measures presented in the previous section all purport to represent the amount of variation in consumption and may also be used to quantify variety-seeking behavior, provided the underlying motivation for the observed brand switch is known. The central issue of this chapter is the investigation of the measures' reliability and convergent validity. For this methodological purpose, it is not necessary that the underlying motivations for observed variation in consumption are known. The results and conclusions will be invariant to whether these measures are applied to variety-seeking behavior or to total variation in consumption behavior. Wierenga (1984) collected data that may be used for our purpose. This section describes Wierenga's data collection, the computation of the various measures, and the method of analysis.

#### **5.3.1. Data**

Wierenga (1984) extended Lancaster's (1966; 1971) characteristics model to include variation in consumption that is independent of the characteristics levels. In Wierenga's (1984) so-called "Variety-seeking Model," variation in consumption is hypothesized to result from the consumer's utility maximization process with respect to the characteristics levels and his/her variety drive. The variety drive is attributed to the fact that variation is pursued as a goal in itself. Wierenga (1984) conducted his empirical test of the (extended) Lancaster characteristics model on Dutch consumers' choice data with respect to vegetables. These data are also used for the present methodological investigation.

Wierenga (1984) selected fifteen vegetables representative for the vegetables actually available in the market at the month of data collection (May). Wierenga (1984) identified three perceptual dimensions on which the respondents evaluated the vegetables: 'distinction',

'energy' and 'micro-components'. As we use these perceptual data in the present study, Wierenga's (1984, Table 2) perceptual structure is reproduced here as Table 5.1. The data were collected through a market research agency. Respondents were 300 housewives from a panel who come to the agency a few times a year to perform various tests. The respondents carried out several different tasks, but only the data collection with respect to the buying simulation will be described, as it is relevant for the present study.

Table 5.1. Perceptual matrix of 15 vegetables obtained by factor analysis of individual attribute scores (rescaled average factor scores). Source: Wierenga (1984, table 2)

	'distinction'	'energy'	'micro-components'
endive	0.132	1.816	0.912
asparagus	2.283	0.848	0.140
cauliflower	0.676	1.653	0.337
mushrooms	1.699	0.206	0.064
cucumber	0.082	0.116	0.000
sweet pepper	1.050	0.000	0.421
leeks	0.111	1.274	0.474
rhubarb	0.093	0.112	0.044
red cabbage	0.000	1.758	0.289
lettuce	0.179	0.802	0.777
French beans	0.597	1.784	0.587
spinach	0.233	1.868	0.885
onions	0.040	0.825	0.066
white cabbage	0.003	1.589	0.189
carrots	0.217	1.428	0.606

In the buying simulation, subjects were confronted with a set of 15 colored photographs of the vegetables. All photographs were provided with the name and the price of the vegetable depicted. Subjects were told that they had Dfl. 15,- available for purchase of vegetables for a one-week period. They were asked how they would allocate this budget if they were to purchase vegetables for a family of two adults and two children for a one-week period. Subjects were asked to report their planned vegetable consumption at main dish on a day-to-day basis: they were asked what they would buy for Monday, then for the Tuesday, Wednesday, etc. For each single day, a maximum of three different vegetables could be chosen. The prices of the vegetables were chosen as close as possible to the prevailing retail prices (which fluctuate heavily in the Netherlands). None of the housewives reported any great problem in

making their decisions. Only respondents who reported vegetable purchases on all seven days during the simulated week of data collection, in total 265 cases, were included in the analyses.

### **5.3.2. Computation of the measures**

The calculation of the measures NUM, ITV and VBM is based on each consumer's individual consumption history and on Wierenga's (1984) Table 2 (see Table 5.1). The measure VARQUAN requires information on the quantities consumed of each of the vegetables. In calculating these quantities it is assumed that the perceived characteristics levels refer to a standard unit of each vegetable. As can be derived from Wierenga's (1984) Table 8, these standard units vary considerably between vegetables. It is further assumed that if more than one vegetable is chosen for a particular meal equal portions of all vegetables are consumed. VARQUAN may then be calculated directly.

The measures HH and ENTR are based on the 'share of the vegetables in total consumption.' As was mentioned earlier in this chapter, share may be operationalized in several different ways. The two concentration measures applied in this study are expressed both in terms of quantities (referred to as HHQUAN and ENTQUAN respectively) and in terms of number of times a vegetable is chosen (referred to as HHNUM and ENTNUM). For HHQUAN and ENTQUAN, quantities of the vegetables bought are expressed in terms of standard consumption units. For HHNUM and ENTNUM, shares are expressed as the number of times a vegetable is chosen relative to the total number of vegetables chosen, irrespective of quantities consumed.

### **5.3.3. Method of analysis**

In line with the distinction made in section 5.2, a two-construct model for measures of variation in consumption is hypothesized, with ITV and VBM as indicators of the construct 'variation at the attribute level', and the other measures as indicators of the construct 'variation at the product level'. The two constructs are hypothesized to represent distinct but related aspects of variation in consumption. The two-construct model is shown in Figure 5.1.

Evaluation of a model of the kind reflected in Figure 5.1. specifying two different but related constructs, involves the assessment of the model in terms of selected aspects of construct validity (Steenkamp and Van Trijp 1991). Construct validity is the degree to which a construct achieves empirical and theoretical meaning (Bagozzi 1980; Peter 1981). On the one hand, a construct achieves meaning through its relationship with its measures. On the other hand, the meaning of a construct depends on its relationship with other constructs in a theoretical model. In the present context, three aspects of construct validity (cf. Steenkamp and Van Trijp 1991) are of particular relevance: convergent validity within constructs, relia-

bility, and discriminant validity between constructs. Within-construct convergent validity relates to the agreement among the measures that purport to represent the same construct. It is evaluated on the basis of the amount of variance in the measures that is captured by the construct in relation to the amount of variance due to measurement error. Only when within-construct convergent validity is supported, can reliability of individual measures and constructs meaningfully be assessed.

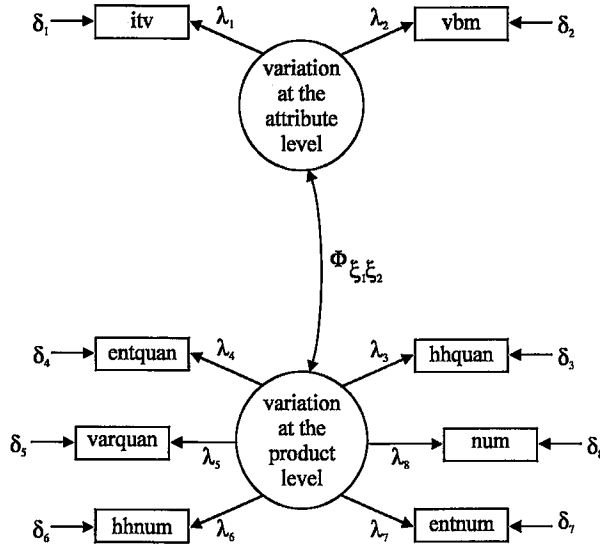


Figure 5.1. The two-construct model for measures of variation in consumption.

Reliability of the constructs is closely related to the concept of within-construct convergent validity. However, high reliability of a construct can also be achieved when within-construct convergent validity has not been supported (Gerbing and Anderson 1988). For example, reliability of a construct can generally be increased through the inclusion of additional measures even though these additional measures do not substantially relate to the construct. For that reason, we consider within-construct convergent validity as a necessary condition for meaningful assessment of reliability (see also chapter 6). The reliability of an individual measure is reflected in how strongly it is related to the concept it purports to measure. Reliability concerns the extent to which a measure is repeatable. When a relatively large amount of the measure's total variance is due to measurement error (i.e., variance not reflecting the underlying construct), the finding cannot be repeated accurately and hence the measure is said to have low reliability. In a similar fashion, the reliability of a construct can be determined (cf. Fornell and Larcker 1981; Steenkamp and Van Trijp 1991). Between-construct discriminant validity relates to whether two constructs do indeed reflect different

constructs or whether the measures are just representations of one single underlying construct.

Thus the two construct model is evaluated on the following aspects of construct validity (cf. Campbell and Fiske 1959; Bagozzi 1980; Steenkamp and Van Trijp 1991): (1) overall fit of the model, (2) convergent validity within each construct, (3) the reliability of the individual measures for variation in consumption and the reliability of each of the two constructs, and (4) discriminant validity between the constructs. This evaluation was performed using LISREL-8 (Jöreskog and Sörbom 1993). The correlation matrix served as input to the LISREL program. LISREL is a covariance structure model that simultaneously estimates the relationships between the unobservable constructs and between a construct and its (observable) indicators. The model (Figure 5.1) was estimated using LISREL's Unweighted Least Squares Estimates option (ULS). Contrary to the more common Maximum Likelihood Estimates (ML), ULS does not require the observed variables to have a multivariate normal distribution. That is, the fitting function for ULS can be justified without any distributional assumption. Standardization of the unit of measurement of the constructs was achieved by assigning unit variances to each of the constructs.

## **5.4. Results**

### **Overall fit**

Based on the correlation matrix of the eight measures (NUM, HHQUAN, HHNUM, ENTNUM, ENTQUAN, VARQUAN, ITV, and VBM), the two-construct model was estimated using LISREL-8. The model was rejected:  $\chi^2(df=19) = 178.59$  ( $p=0.00$ ), Goodness of Fit Index (GFI)=0.945, Tucker-Lewis Index (TLI; Tucker and Lewis 1973)=0.892, Comparative Fit Index (CFI; Bentler 1990)=0.927. The results obtained were closely examined, in particular the correlation matrix and the reliability of the individual measures. The measure NUM turned out to have very low correlations with three other measures of the construct 'variation at the product level' (ENTQUAN, VARQUAN, and ENTNUM). Not surprisingly, therefore, NUM's reliability is unacceptably low (0.225). It appears that the number of different vegetables bought during the one week period is not a good representation of variation. For that reason, it was decided to remove the measure NUM from the analysis.

After removal of NUM, the data were initially reanalyzed under the assumption of uncorrelated measurement errors. Although the indices of overall fit indicated that the two-construct model of measures of variation received considerable support ( $\chi^2(df=13) = 63.87$ ,  $p=0.000$ , GFI=0.977, TLI=0.956, CFI=0.972, the fit of the model could be improved through the addition of correlations between selected measurement errors, specifically between ITV and ENTQUAN, and between VBM and HHQUAN. The fit of the model in terms of the  $\chi^2$  improved from 63.87 to 48.11 ( $df=11$ ), justifying the setting free of these two

parameters. The model with correlated measurement errors is depicted graphically in Figure 5.2, and a detailed exposition of the results is given in Table 5.2.

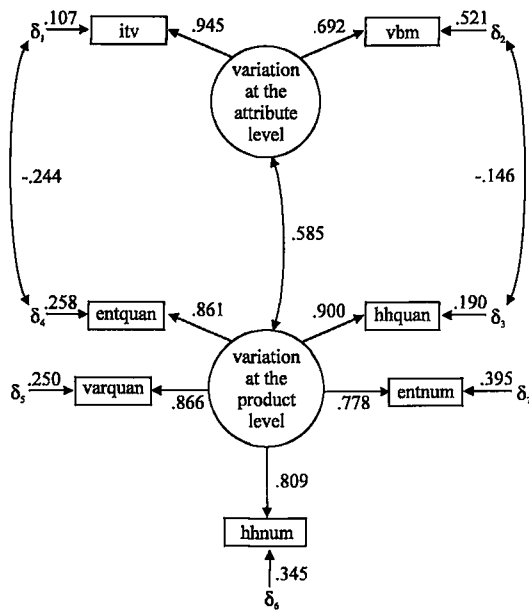


Figure 5.2. ULS parameter estimates of the final model.

As is evident from Table 5.2, the other fit indices also improved. Correlated errors reflect method or other biases. It is not surprising to find some correlated errors given the correspondence between some of the measures and the fact that the measures have been computed from the same data.<sup>4</sup>

### Within-construct convergent validity

The within-construct convergent validity of a construct refers to the extent to which the different measures hypothesized to represent it are related to that construct. A construct has convergent validity when (1) each of its measures has a factor loading ( $\lambda$ ) exceeding 0.50 and (2) the average variance extracted for a construct exceeds 0.50 (Steenkamp and Van Trijp

<sup>4</sup> A criticism of allowing correlated errors is that the major parameters of the model (in this case factor loadings and error variances) might be affected substantively. The substantive invariance of major parameters to the inclusion of correlated errors can be assessed by computing the correlation coefficient between the major parameter estimates of the model that included and the model that excluded correlated errors (Tanaka and Huba 1984). If the correlation coefficient is close to one, the major parameters are not affected substantively by the inclusion of correlated errors. In our study the correlation coefficient was 0.996, indicating substantive invariance of the results.

1991). Tables 5.2. and 5.3. reveal that for both constructs these two criteria are met. The factor loadings as well as the average variance extracted for a construct are all well above 0.50. This indicates that construct validity in the two-construct model is achieved.

Table 5.2. LISREL-8 ULS-parameter estimates; t-values are given in parentheses.

Parameter	LISREL estimate	t-value <sup>a</sup>	LISREL parameter	estimate	t-value <sup>a</sup>
$\lambda_1$ (ITV)	0.945	(13.62) <sup>b</sup>	$\theta_{\delta 1}$	0.107	( 1.23)
$\lambda_2$ (VBM)	0.692	(10.77)	$\theta_{\delta 2}$	0.521	( 8.43)
$\lambda_3$ (HHQUAN)	0.900	(18.10)	$\theta_{\delta 3}$	0.190	( 8.05)
$\lambda_4$ (ENTQUAN)	0.861	(17.18)	$\theta_{\delta 4}$	0.258	( 8.93)
$\lambda_5$ (VARQUAN)	0.866	(17.20)	$\theta_{\delta 5}$	0.250	( 8.09)
$\lambda_6$ (HHNUM)	0.809	(14.68)	$\theta_{\delta 6}$	0.345	( 9.72)
$\lambda_7$ (ENTNUM)	0.778	(14.58)	$\theta_{\delta 7}$	0.395	(10.18)
$\Phi_{\xi_1 \xi_2}$	0.585	(10.53)	$\theta_{\delta 1,4}$	-0.244	(-7.64)
			$\theta_{\delta 2,3}$	-0.146	(-4.84)
GFI	0.983				
TLI	0.962				
CFI	0.980				
$\chi^2$ (df=11)	48.11	(p=0.000) <sup>a</sup>			

<sup>a</sup> Note that the t-values (and Chi-square) are only approximates as they are calculated under the assumption of multi-variate normality.

<sup>b</sup> Parameters with t-values exceeding two in magnitude are normally judged to be different from zero (e.g. Jöreskog and Sörbom 1988).

### Reliability

The reliability of an individual measure ( $\rho_y$ ) and the reliability of a construct ( $\rho_\eta$ ) are represented by (Fornell and Larcker 1981):

$$(5.17) \quad \rho_y = \frac{\lambda_y^2}{\lambda_y^2 + \text{Var}(\epsilon_y)}, \text{ and } \rho_\eta = \frac{(\sum_{i=1}^p \lambda_{yi})^2}{(\sum_{i=1}^p \lambda_{yi})^2 + \sum_{i=1}^p \text{Var}(\epsilon_i)}$$

The results are reported in Table 5.3. With the exception of VBM, the reliability of the individual measures is high. Further, the construct reliabilities are very high. Thus, it can be concluded that the measures of variation achieve internal consistency within each construct.

Table 5.3. Evaluation of the reliability of the indicators and the constructs.

Construct/indicator	Individual Reliability	Construct Reliability	Average Variance Extracted
<b>Variation at the attribute level (<math>\xi_1</math>)</b>		0.810	0.686
ITV	0.893		
VBM	0.479		
<b>Variation at the product level (<math>\xi_2</math>)</b>		0.925	0.712
HHQUAN	0.810		
ENTQUAN	0.742		
VARQUAN	0.750		
HHNUM	0.655		
ENTNUM	0.605		

### Discriminant validity

A final test of the two-construct model concerns the validity of the discrimination between the two constructs. The discriminant validity concerns an investigation of whether ITV and VBM on the one hand, and HHQUAN, HHNUM, ENTQUAN, ENTNUM, and VARQUAN on the other hand do indeed measure different constructs and do not all relate to one single construct, variation in consumption. As the two-construct model has been shown to be consistent with the data, discriminant validity is confirmed by showing that the model is no longer consistent with the data if the correlation between the two constructs is forced equal to one (Judd, Jessor and Donovan 1986: 180), which would represent the one-construct model (Hildebrandt 1988).

As the one-construct model and the two-construct model are nested (i.e. the two-construct model contains all the parameters that are estimated in the one-construct model plus one additional parameter to be estimated namely  $\Phi$ ), discriminant validity was tested through the  $\chi^2$ -difference test (Dillon 1986). The difference in  $\chi^2$ -value (67.28) between the one-construct model ( $\chi^2=115.39$ ) and the two-construct model ( $\chi^2=48.11$ ) is highly significant ( $df=1$ ). Further, the reliability of ITV and VBM in the one-construct model is unacceptably low (0.307 and 0.193, respectively), and the factor loading of VBM is below the minimum level of 0.50 (0.439). This indicates that the one-construct model, with correlated errors between ITV and ENTQUAN, and between VBM and HHQUAN, should be rejected in favor of the two-construct model.

Thus, the test on the discriminant validity supports the hypothesis that 'variation at the product level' and 'variation at the attribute level' are distinct, although related ( $\Phi=0.585$ ; see Table 5.2), constructs.

### 5.5. Discussion

Reliable and valid measures for quantifying variation in consumption are a prerequisite for the analysis and understanding of variety-seeking behavior and related phenomena. The present study brought together various 'summary' measures that have been proposed to quantify temporal variety in a sequence of consumptions or purchases. Although these measures were proposed in the literature as representations of a single underlying construct (variation in consumption), we hypothesized that they can more accurately be classified into two distinct categories: those that quantify variation at the product level versus those that take into account the attribute composition of the brands switched to and from. The hypothesized two-construct model was empirically tested in terms of selected aspects of construct validity using LISREL. Results from the LISREL analyses provide empirical support for the hypothesized distinction between two subsets of measures.

The first subset consists of measures that tap the construct 'variation at the product level'. Measures belonging to this subset are the measures for concentration (ENTQUAN, ENTNUM, HHQUAN, and HHNUM) and the variance in quantities consumed (VARQUAN). These measures are easily computed from panel data and are frequently used in economic studies. A second subset of measures consists of those that serve as indicators for the construct 'variation at the attribute level'. In addition to variation in product choice, these measures (ITV and VBM) take into account the perceived dissimilarity among the brands switched to and from, and have mainly been used by consumer behavior researchers.

The present study suggests that in the choice situation investigated here (self-stated vegetable purchases for a one-week period ahead), the number of different products consumed during a particular period (NUM) may be too simple measure for variation in consumption. This measure was not substantially related to variation in consumption at the product level, nor to variation in consumption at the attribute level. Although the measure NUM has been used in several economic studies, the present analysis suggests that the results obtained from studies that use NUM as a measure for variation may not be directly comparable with results obtained from studies using other measures for variation in consumption.

The two distinct aspects of variation in consumption are correlated ( $\Phi=0.585$ ). This result seems to reflect the fact that variation in attribute levels can only be achieved through making a varied choice among products. Measures representing variation at the attribute level have greater face validity as they account for the intuitively appealing notion that a change from picnic ham to marmalade provides more variation in consumption than does a change

from picnic ham to gammon. Of the measures for variation at the attribute level, ITV is recommended due to its high reliability.

Measures representing variation in consumption at the product level have the drawback that they do not necessarily capture all nuances that are accounted for by the 'variation at the attribute level'-construct. On the other hand, they have the advantage of being easily obtainable at low costs. Also, in many situations, a researcher interested in variation or variety-seeking behavior will not have access to the perceptual data required for the calculation of the attribute-level measures for variation in consumption. Depending on the purpose of the study, the product-level measures may provide a sufficiently detailed picture of variation for being useful. This may be the case, for example, when the purpose is to monitor developments in variation in consumption or to analyze some of the basic aspects of variation in consumption (Meulenberg 1989).

Most of the measures can also be used to quantify variety-seeking behavior. For example, if for each individual switch the underlying motivation is known, the amount of variation brought about by variety-seeking behavior can be quantified for these selective switches only. For this purpose the attribute-level measures seem to have an advantage as they explicitly incorporate variety at the attribute level. Therefore these measures (e.g. ITV and VBM) may be expected to be more sensitive than the product-level measures. Of the product-level measures, the measures that quantify variation in terms of the number of different products chosen for variety-seeking motives may be most appropriate (HHNUM and ENTNUM) and even the number of variety switches (operationalized through NUM) might be appropriate for this purpose.

Some limitations of the present study need also be addressed. First of all, the validity of the measures was assessed at the level of different vegetables. As discussed in the previous chapter, variation and variety-seeking behavior in product choice behavior may be defined at different levels of abstraction. Therefore, it would be desirable to replicate the present findings at different levels of abstraction in choice behavior, such as at the level of brands or varieties of specific product types. A second important characteristic of the present study is that all participants had purchase sequences of approximately the same length. The more typical situation is that purchase or consumption data are available for a fixed period of time in which there may be variation among households in the number of purchases made. It is unclear how the present results would be affected by varying number of purchases across households, although the entropy and Hirschman-Herfindahl formulations seem particularly sensitive to varying number of purchases.

## CHAPTER SIX<sup>1</sup>

### DEVELOPMENT AND APPLICATIONS OF THE VARSEEK-SCALE

#### 6.1. Introduction

Variety-seeking in food choice behavior, the behavioral phenomenon of interest in the empirical part of this thesis, refers to those elements of observed variation in food consumption that are motivated by the utility inherent in variation per se, rather than the consequences of varied food consumption. This definition of variety-seeking behavior with respect to foods is relatively specific in terms of the action (variation in consumption), the target (food) and the context (for the stimulation level implied by the variation in consumption, rather than the instrumental or functional value of the food products). The principle of measurement correspondence (Ajzen and Fishbein 1977; Fishbein and Ajzen 1975; Ajzen 1987) states that the predictive ability for the phenomenon of variety-seeking behavior for foods could be enhanced by the use of personality measures defined at the same level of specificity (see also Kassarian and Sheffet 1991). As discussed in Chapter 3, many previous efforts in explaining variety-seeking behavior have adopted rather generalized personality scales. Consumer-specific scales for tapping the intrinsic desire for variety in product choice behavior have received only minor attention in the consumer behavior literature.

We proposed variety-seeking tendency as a consumer-specific personality trait that specifically taps consumers' intrinsic desire for variety in product choice. Variety-seeking tendency was defined as "the motivational factor that aims at providing variation in stimulation through varied consumption, irrespective of the instrumental or functional value of product alternatives". In the variety-seeking model (Chapter 4), variety-seeking behavior is clearly distinguished from the underlying trait of variety-seeking tendency (cf. Midgley and Dowling 1978; Hirschman 1980), implying that intrinsic desire for variety is positively related to variety-seeking behavior, but that other variables may also determine whether variety-seeking behavior will actually occur.

The purpose of this chapter is to develop a measurement instrument, the VARSEEK-scale, to quantify consumers' variety-seeking tendency with respect to foods. For this purpose, we will adopt the LISREL approach advocated by Steenkamp and Van Trijp (1991)<sup>2</sup>. LISREL 7 (Jöreskog and Sörbom 1988) analyses were conducted on the covariance matrix of

---

<sup>1</sup> This chapter integrates three articles that have been published in *International Journal of Research in Marketing* 8: 283-299 (Steenkamp and Van Trijp 1991), *European Review of Agricultural Economics* 19: 181-195 (Van Trijp and Steenkamp 1992) and *Appetite* 18:155-164 (Van Trijp, Lähteenmäki and Tuorila 1992).

<sup>2</sup> The reader is referred to Steenkamp and Van Trijp (1991) for a more elaborate discussion of each of the stages of scale development using the LISREL-approach.

the variables. The maximum likelihood estimation procedure was used unless otherwise indicated.

The structure of this chapter is as follows. Section 6.2. discusses the domain specification of and item generation for the construct of variety-seeking tendency with respect to food. Measurement purification is discussed in section 6.3. and cross-validation of the VARSEEK-scale is described in section 6.4. Section 6.5. discusses the stability assessment of the VARSEEK-construct and its measures. Section 6.6. discusses VARSEEK's nomological validity: its discriminant validity with respect to general and consumer-specific measures for OSL and its predictive validity for variety-seeking behavior. Section 6.6.4. discusses the socio-demographic profile of consumers high in variety-seeking tendency. Section 6.7. provides a formal test of the hypotheses (see section 4.9.1.) concerning person-related determinants of variety-seeking behavior. Section 6.8. gives conclusions and discussion of the results.

## **6.2. Domain specification and item generation**

Variety-seeking tendency with respect to food is theoretically defined as "the motivational factor that aims at providing variation in stimulation through varied food consumption, irrespective of the instrumental or functional value of the food alternatives." The VARSEEK-scale thus is specific for the domain of food products. It is conceived of as a domain-specific derivative of the more generalized personality trait of OSL, but differs from it in that it only refers to stimulation regulation through varied food consumption. As discussed in Chapter 4, variety-seeking tendency is hypothesized a unidimensional construct, even though the desire for variety in food consumption may be instigated by three different underlying psychological processes: boredom with the choice task, attribute satiation and curiosity.

At the first stage of item selection, a set of 120 items that related to the domain of variety-seeking tendency with respect to foods were generated through desk research, the results of two focus-group discussions, and 30 in-depth interviews with consumers concerning food choice and consumption behavior. The 120 items served as input to a qualitative item try-out. Six personal interviews were carried out in which subjects were encouraged to comment on the items while scoring. Based on these interviews, the initial set was edited. Items that caused problems or had similar contents were eliminated and some items were reformulated in line with the subjects' comments. The resulting set of 64 items served as input for the second stage of preliminary item try-out.

The 64 items were scored by a sample of 72 respondents on five-point Likert scales with all categories labelled, ranging from 'completely disagree' (=1) to 'completely agree' (=5). This scale was used throughout all subsequent phases of measurement development. Reliability analysis revealed that 26 items had a corrected item-total correlation above 0.50. These items were selected for further item analysis. Finally, based on the interviews, 16 new

items were developed. The resulting set of 42 items, all purportedly representing the underlying construct of consumers' variety-seeking tendency (VARSEEK), served as input for the measurement purification stage. The set comprised both positively and negatively worded statements

### 6.3. Measurement purification

The 42 items resulting from the previous stage of scale development were personally administered to a random sample of 159 female food purchasers, living in two large cities in the Netherlands. Reliability analysis was applied to these data, and seventeen items were selected on the basis of a corrected item-total correlation exceeding .60. Principal axis factoring of these 17 items yielded the following eigenvalues for the first three factors: 9.57, 1.24, and .95. The results strongly suggested a single underlying factor as the first factor explained more than 50% of the variation in the data, 16 items had loadings exceeding .60 on this factor (the 17th item had a loading of .58), and the plot of eigenvalues showed a distinct scree at two factors (Cattell 1966). The number of items was further reduced by selecting the 11 items that had a factor loading exceeding .70 on the first factor (cf. Armor 1974).

Subsequently, LISREL was applied to *test* the factor structure of the construct. The covariance matrix of the 11 items was used to test the unidimensionality of the scale. The fit of the (one-construct) model was unacceptable:  $\chi^2(44)=167.49$  ( $p<.001$ ),  $\chi^2/\text{df}$  ratio=3.81, goodness-of-fit index (GFI)=.82, Tucker-Lewis index (TLI)=.89.<sup>3</sup> The standardized residuals indicated that the problems were caused by three items. Nine standardized residuals, all involving one or two of these three items, were greater than  $|2.58|$ , and most of the other standardized residuals involving these items were also considerable. Further, no consistent pattern emerged (e.g., high negative standardized residuals with the other eight items and high positive values among themselves). These findings suggest that these items are not unidimensional with respect to the other items, but also do not constitute a separate factor. The measurement model was respecified by eliminating the three items. The resulting 8-item model yielded a good fit, indicating that a unidimensional measure for VARSEEK was obtained:  $\chi^2(20)=27.06$  ( $p=.13$ ),  $\chi^2/\text{df}$  ratio=1.35, GFI=.96, TLI=.99.

---

<sup>3</sup> The Tucker-Lewis index (Tucker and Lewis 1973) is less frequently applied in marketing than the Bentler-Bonett incremental index of fit (BBI) (Bentler and Bonett 1980). However, TLI is relatively independent from sample size and incorporates a penalty function against "overfitting", both of which are not the case for BBI (Marsh, Balla and McDonald 1988; McDonald and Marsh 1990).

#### 6.4. Cross-validation

Cross-validation of the unidimensional measurement instrument on new data is recommended because there is the possibility that one has capitalized on chance (Cudeck and Brown 1983). The new data may also be used to test the convergent validity of the items constituting the scale and the reliability of the measurement instrument. The eight-item measure for VARSEEK together with the three items that were deleted in the previous phase were administered to a new random sample of 151 female food purchasers, living in a large metropolitan area. The *a priori* hypothesis that the three 'offending' items should be deleted was confirmed. The fit of the 11-item model was again unacceptable:  $\chi^2(44)=240.96$  ( $p < .001$ ),  $\chi^2/\text{df}$  ratio=5.48, GFI=.76, TLI=.76, supporting the deletion of these items in the previous phase of construct validation.

The fit of the eight-item model was good:  $\chi^2(20)=53.18$  ( $p < .001$ ),  $\chi^2/\text{df}$  ratio=2.66, GFI=.92, TLI=.93. As might be expected, the fit indices were somewhat lower than in the previous phase but the decrement in fit was small. Moreover, the data tended to be leptokurtic, the multivariate coefficient of relative kurtosis being 1.50. The corrected<sup>4</sup>  $\chi^2(20)$  is 35.48 ( $p = .02$ ), and the corrected  $\chi^2/\text{df}$  ratio is 1.77. The value of GFI compares favorably with simulation results (Anderson and Gerbing 1984) and TLI is above .90 (Bentler and Bonett 1980). Confidence in the model is further enhanced by an analysis in which the meaning of the construct is kept invariant by constraining the  $\lambda$ 's in the cross-validation sample to be equal to the  $\lambda$ 's found in the first sample (cf. Cudeck and Browne 1983). The following values for the indices of fit were obtained:  $\chi^2(27)=69.75$  ( $p < .001$ ),  $\chi^2/\text{df}$  ratio=2.58, GFI=.899, TLI=.930, corrected  $\chi^2(27)=46.53$  ( $p = .012$ ), corrected  $\chi^2/\text{df}$  ratio=1.72. The difference in  $\chi^2$  between the unconstrained and constrained model after correction for kurtosis was a nonsignificant 11.05 ( $\text{df}=7$ ,  $p = .132$ ).

Thus, it can be concluded that the eight-item instrument is acceptably unidimensional. Convergent validity of the VARSEEK-items is also achieved as the overall fit of the model was good, all factor regression coefficients were highly significant ( $p < .001$ ), and the correlation of each item with the construct exceeded .50 (Hildebrandt 1987). The reliability of the construct is an adequate .92. The eight items of the resulting VARSEEK-scale are given in Table 6.1. These items are rated on five point Likert scales with all categories labelled, ranging from completely disagree (=1) to completely agree (=5).

---

<sup>4</sup> LISREL's ML parameter estimates are rather robust against moderate violations of the multivariate normality assumption, provided that the sample size exceeds 100 (Boomsma 1982; Gerbing and Anderson 1985), but this is not the case for the overall  $\chi^2$  test statistic and the asymptotic standard errors (Browne 1982; 1984). Using ML the overall  $\chi^2$  value may be corrected for deviations from multivariate normality by dividing the  $\chi^2$ , as estimated by ML, by the multivariate coefficient of relative kurtosis (Browne 1984).

Table 6.1. Items comprising the VARSEEK-scale.

1. When I eat out I like to try the most unusual items, even if I am not sure I would like them.
2. While preparing food or snacks, I like to try out new recipes.
3. I think it is fun to try out food items one is not familiar with
4. I am eager to know what kind of foods people from other countries eat
5. I like to eat exotic foods.
6. Items on the menu that I am unfamiliar with make me curious.
7. I prefer to eat food products I am used to (recoded).
8. I am curious about food products I am not familiar with.

6.5. Stability assessment

Many constructs are only relevant when they have stability over some period of time. Stability refers to the amount of (or absence of) temporal variability of the true scores of the construct and its measurement instrument (Wheaton et al. 1977). LISREL enables the researcher to estimate the stability coefficient, i.e., the correlation between the scores on the construct at two points in time, corrected for random and systematic error in the items, and to test a number of aspects of the factorial invariance of the construct through a sequence of tests (Alwin and Jackson 1981; Marsh and Horcevar 1985). Testing aspects of factorial invariance yields insight into possible causes of construct instability. Figure 6.1. shows the LISREL representation for stability assessment.

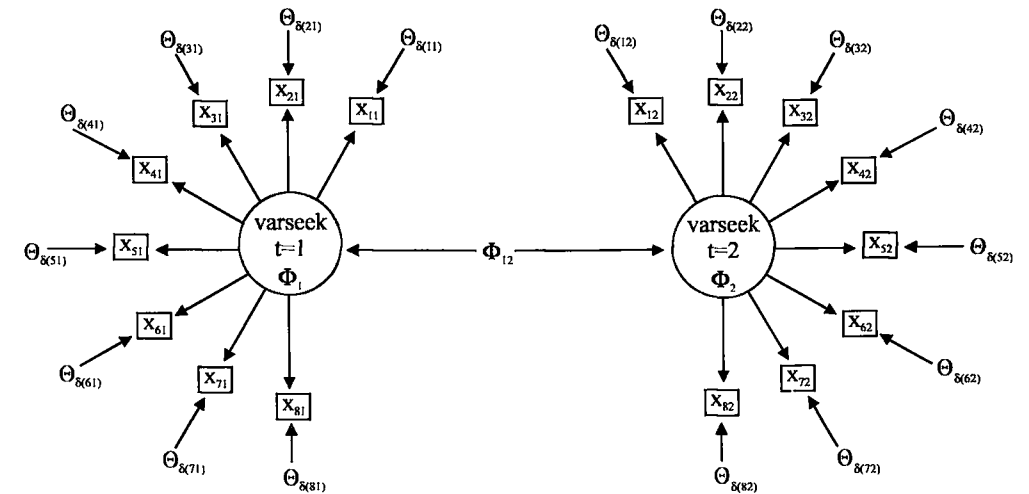


Figure 6.1. LISREL representation for stability assessment

As an important preliminary step, the researcher should test for the existence of systematic error in the items by comparing the fit of the unrestricted factor model, which allows for correlated errors between the same items over time, with the fit of the restricted model that does not allow for correlated errors. In LISREL-terminology this test implies the comparison of the following two models:

1. all  $\lambda_{ij}$  ( $i=1, \dots, 8; j=1, 2$ ) unconstrained,  
 $\theta_{\delta(i1)}$  uncorrelated with  $\theta_{\delta(i2)}$  for all  $i$  ( $i=1, \dots, 8$ )
2. all  $\lambda_{ij}$  ( $i=1, \dots, 8; j=1, 2$ ) unconstrained,  
 $\theta_{\delta(i1)}$  correlated with  $\theta_{\delta(i2)}$  for all  $i$  ( $i=1, \dots, 8$ )

If the difference in  $\chi^2$  is significant, subsequent analyses should be performed on the correlated-errors-model; otherwise one can proceed with the model of no correlations between errors. Subsequent analyses take the form of testing the difference in fit of a sequence of four nested models:

3.  $\lambda_{i1} = \lambda_{i2}$  for all  $i$  ( $i=1, \dots, 8$ )
4.  $\lambda_{i1} = \lambda_{i2}$  and  $\theta_{\delta(i1)} = \theta_{\delta(i2)}$  for all  $i$  ( $i=1, \dots, 8$ )
5.  $\lambda_{i1} = \lambda_{i2}$  and  $\theta_{\delta(i1)} = \theta_{\delta(i2)}$  for all  $i$  ( $i=1, \dots, 8$ ) and  $\Phi_1 = \Phi_2$
6.  $\lambda_{i1} = \lambda_{i2}$  and  $\theta_{\delta(i1)} = \theta_{\delta(i2)}$  for all  $i$  ( $i=1, \dots, 8$ ) and  $\Phi_1 = \Phi_2$  and  $\Phi_{12} = 1$ .

To examine the stability of VARSEEK, the eight items were administered to 96 students during class time. Two weeks later the eight items were administered to the same subjects, again during class time. Thirty-two students were lost to attrition, leaving 59 students for stability assessment. LISREL was applied to the covariance matrix of the 16 items. The model contained two scores for VARSEEK, one for  $t_1$  and one for  $t_2$ . Due to the small number of observations, the models were estimated using Unweighted Least Squares (ULS) (Jöreskog and Sörbom 1988). The asymptotic properties of ML only apply with large numbers, and ML is not robust in small samples (Boomsma 1982; Gerbing and Anderson 1985). No distributional assumptions are necessary with ULS. Table 6.2. give the results of the stability assessment for the VARSEEK-scale.

The fit of the model that allows for the existence of systematic error (Model 2) was significantly better than the fit of the model 1 with uncorrelated errors across time ( $\Delta\chi^2_d(8)=42.62, p<.001$ ). Thus, the hypothesis that item errors are independent from  $t_1$  to  $t_2$  should be rejected. The upward bias in the stability coefficient due to systematic error is small, however (.03). The other analyses were conducted with the correlated-errors-model.

The hypothesis that factor regression coefficients are invariant (Model 3 vs. Model 2) could not be rejected ( $\Delta\chi^2_d(7)=7.71, p=.37$ ). This means that the meaning of VARSEEK is stable. Further, the hypothesis of invariance of the factor regression coefficients as well as the error variances (Model 4 vs. Model 3) could not be rejected ( $\Delta\chi^2_d(8)=3.84, p=.87$ ). Likewise, the hypothesis of invariance of regression coefficients, error variances, and factor variances (Model 5 vs. Model 4) could not be rejected either ( $\Delta\chi^2_d(1)=.96, p=.34$ ). Thus, the

reliability of the individual items and the reliability of the construct were found to be invariant over time. The estimated reliability of the construct for this sample of students was .92, which is about the same as reported earlier for the cross-validation sample.

Table 6.2. Assessment of VARSEEK's stability

Model structure	Fit indices				stability coefficient
	$\chi^2$	$\chi^2/df$	GFI	TLI	
<i>Model 1:</i> uncorr. errors across time	179.97 df=103 p<.001	1.75	0.988	0.959	0.958
<i>Model 2:</i> corr. errors across time	137.35 df= 95 p=.003	1.45	0.991	0.975	0.932
<i>Model 3:</i> corr. errors across time, lambda's invariant	145.06 df=102 p=.003	1.42	0.981	0.977	0.931
<i>Model 4:</i> corr. errors across time, lambda's and error variances invariant	148.90 df=110 p=.008	1.35	0.979	0.981	0.931
<i>Model 5:</i> corr. errors across time, lambda's, error variances and factor variances invariant	149.86 df=111 p=.008	1.35	0.978	0.981	0.930
<i>Model 6:</i> corr. errors across time, lambda's, error variances and factor variances invariant, stability coefficient unity	159.41 df=112 p=.002	1.42	0.977	0.977	1.000

The final hypothesis, stating that in addition to the other aspects mentioned earlier, the stability coefficient equals unity (Model 6 vs Model 5) was rejected ( $\Delta\chi^2_d(1)=9.55$ ,  $p<.01$ ). The model with correlated errors, and lambda's, error variances, and factor variances invariant used to obtain the best estimate of VARSEEK's stability showed satisfactory fit: :  $\chi^2(111)=149.86$  ( $p<.01$ ),  $\chi^2/df=1.35$ , GFI=.98, TLI=.98;  $\chi^2$ , corrected for kurtosis: 137.49 ( $p=.05$ ). The stability coefficient was a high .93, showing that the simple test-retest correlation between the composite scores ( $r = .81$ ) underestimates the 'true' stability of VARSEEK. In this case, the attenuation due to random measurement error exceeds the upward bias in the test-retest correlation, due to systematic error in the items.

### 6.6. Nomological validity

Nomological validity of the VARSEEK-scale was assessed in a series of applications of the VARSEEK-scale. These comprise VARSEEK's convergent and discriminant validity vis-à-vis more general personality measures for OSL, as well as its predictive validity for variation in food consumption. Figure 6.2. represents the relevant relationships in the assessment of VARSEEK's nomological validity. Empirical evidence regarding each of these relationships will be discussed in the next sections.

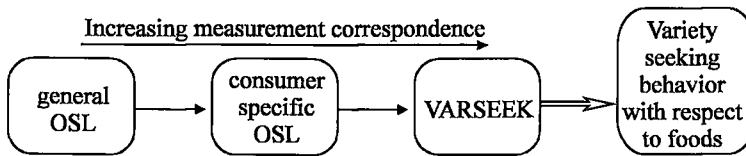


Figure 6.2. VARSEEK's relationships with variety-seeking behavior and general and consumer-specific measures for OSL.

VARSEEK's discriminant validity with respect to general and consumer-specific OSL-scales will be evaluated on the basis of evidence from three studies. Some basic characteristics of these studies will be briefly discussed here, but the reader is referred to the original sources for a more elaborate discussion. In the first study, Van Trijp and Steenkamp (1992) administered the VARSEEK-scale together with the Dutch version of Zuckerman's Sensation Seeking Scale (Feij and Van Zuilen 1984) to 191 male and female purchasers of food living in five small and medium sized cities in the Netherlands. All scales were scored on five-point Likert scales. In addition data were collected on four measures purportedly relating to variation in food consumption behavior (to be discussed in section 6.6.3). These measures were based on self-reported consumption of the number of different types of fresh fruit (out of a predefined list of 41 fruits) consumed at least four times a year (VARFRUIT), the number of types of sandwich fillings consumed at least once a month (VARFILLING), a coefficient of entropy (see Chapter 5) based on the number and share of different "bases" (carbohydrate deliverers) consumed with the hot meal during the last seven days (VARBASIS), and a similar entropy measure for vegetables consumed with the hot meal during the last seven days (VARVEGET). These measures capture essential characteristics of Dutch food consumption behavior. A composite measure (VARFOOD) for variation in food consumption was calculated as the average score across the four measures after standardization of each of the measures across subjects.

In the second study, as part of a larger research project on exploratory consumer behavior, Steenkamp and Baumgartner (e.g. 1992) administered the VARSEEK-scale together with CSI, NES and AST-II to 110 undergraduate students. In this study, all items were scored

on five-point scales ranging from -2 to +2 (with endpoints of strongly disagree/strongly agree, completely false/completely true, or strongly dislike/strongly like, as appropriate).

In the third study, Van der Lei (1994) administered the VARSEEK-scale together with the shortened 7-item version of the CSI-scale (Steenkamp and Baumgartner 1995) and the EBBT-scale (Baumgartner and Steenkamp 1994) to 151 Dutch undergraduate students. Both OSL-scales were scored on five point scales with end points labeled 'completely false/completely true' (CSI) or 'completely disagree/complete agree' (EBBT). In addition he collected several measures for quantifying variation in product choice behavior (to be discussed in section 6.7). Apart from the measures VARFRUIT discussed above (Van Trijp and Steenkamp 1992), he asked respondents to imagine that on the next 25 days during lecture breaks they would be selecting a drink and had the choice from among 13 soft drinks available in the campus cafeteria. Subjects were told that they had to make all 25 choices in advance. This procedure for measuring variety-seeking behavior has successfully been used in prior research on variety-seeking behavior (e.g. Kahn and Isen 1993). In addition, perceptual data were collected to allow the calculation of attribute-level measures for variety-seeking behavior (see Chapter 5). For each soft drink, subjects were asked to indicate which attributes, out of 12 possible, they thought were applicable to that soft drink. The aggregated data matrix was subjected to correspondence analysis and yielded a three-dimensional perceptual map accounting for 89.9% of the variance. This perceptual map allowed computation of attribute-level measures for variety-seeking behavior.

#### **6.6.1. VARSEEK in relation to general OSL measures**

In two studies, VARSEEK was related to a number of generalized personality scales. Van Trijp and Steenkamp (1992) collected data on the Dutch version of Zuckerman's (1979) Sensation Seeking Scale (SSS): "De Spanningsbehoefte-lijst" (Feij, Van Zuilen and Gazendam 1982) to assess the discriminant validity of the VARSEEK-scale. The Sensation Seeking Scale has a four dimensional structure. The reader is referred to section 2.3.2. for a description of the SSS subscales: Thrill and Adventure Seeking (TAS), Experience Seeking (ES), Disinhibition Seeking (DIS) and Boredom Susceptibility (BS).

Steenkamp and Baumgartner (1992) incorporated the VARSEEK-scale in their investigation into the psychometric properties of OSL scales. These data allow for an assessment of the relationships between VARSEEK and other generalized personality scales such as the revised version of the Arousal Seeking Tendency scale (AST-II; Mehrabian 1978), the Novelty Experiencing Scale (NES; Pearson 1970) and the Change Seeker Index (CSI; Garlington and Shimota 1964). Of these scales, NES has a multidimensional structure distinguishing between different sources of stimulation (internal vs external) and types of subjective experience (sensations vs cognitions). The reader is referred to section 2.3.2. for a more elaborate discussion of these scales. Table 6.3. shows the correlations of VARSEEK

with general personality measures for OSL<sup>5</sup>. Both in Van Trijp and Steenkamp's (1992) and Steenkamp and Baumgartner's (1992) study high internal reliability of the VARSEEK-scale was confirmed: coefficient  $\alpha = 0.888$  and  $0.912$  respectively.

Table 6.3. Correlations between the VARSEEK and (dimensions of) general personality scales for OSL.

(sub-) scale	N	# items	Cronbach $\alpha$	Pearson's $r$
SSS general	191	51	.875	.357 <sup>a</sup>
SSS-TAS	191	12	.831	.262 <sup>a</sup>
SSS-ES	191	14	.863	.268 <sup>a</sup>
SSS-BS	191	13	.666	.356 <sup>a</sup>
SSS-DIS	191	12	.735	.177 <sup>c</sup>
AST-II	110	32	.907	.380 <sup>a</sup>
CSI	110	95	.944	.194 <sup>c</sup>
NES	110	80	.948	.267 <sup>b</sup>
Internal Sensation	110	20	.886	.216 <sup>c</sup>
Internal Cognition	110	20	.915	.319 <sup>a</sup>
External Sensation	110	20	.896	.112
External Cognition	110	20	.871	.190 <sup>c</sup>

<sup>a</sup>  $p < .001$  <sup>b</sup>  $p < .01$  <sup>c</sup>  $p < .05$

Results from Table 6.3. support VARSEEK's discriminant validity with respect to the OSL scales. VARSEEK showed to be more strongly related to AST-II and SSS than to CSI and NES, with the exception of NES' subscale Internal Cognition Seeking. Contrary to expectations, VARSEEK appeared more strongly related to the internal than to the external sources of stimulation and more strongly to cognition seeking than to sensation seeking. Of the SSS-subcales, Boredom Seeking is most strongly related to VARSEEK ( $r=0.356$ ) reflecting that VARSEEK taps the underlying motivation of boredom.

<sup>5</sup> Data on the relationship with Zuckerman's SSS (N=191) come from the Van Trijp and Steenkamp (1992) study. The other data were kindly made available by Steenkamp and Baumgartner, for which the author expresses his gratitude.

### 6.6.2. VARSEEK in relation to consumer-specific OS� measures

As discussed in section 3.4, two consumer specific scales for OS� in the consumer context are available. Baumgartner and Steenkamp (1991) refined Raju's (1980) scale to use it as a personality measure for exploratory tendencies in the consumer context. Their modified 24-item scale was comprised of items from Raju's (1980) original scale for self-reported exploratory consumption behaviors and showed satisfactory unidimensionality. Baumgartner and Steenkamp (1994) developed the EBBT (Exploratory Buying Behavior Tendency)-scale. This scale comprises two dimensions each operationalized with 10 items: the Exploratory Acquisition of Products (EAP)-dimension and the Exploratory Information Seeking (EIS)-dimension.

Data on VARSEEK and the EBBT-scale come from Van der Lei's (1994) study. VARSEEK's internal reliability was confirmed in this study ( $\alpha = 0.916$ ). Data on the refinement of Raju's scale (Baumgartner and Steenkamp 1991) were collected in a large consumer panel (see also Chapter 7). These data were kindly made available by the Dutch market research agency NIPO from their 'Telepanel', consisting of a nationally representative sample of 1000 households in which 1476 individuals participated in data collection. These data were collected via an interactive computer procedure, using five-point Likert scales ranging from completely disagree to completely agree. Internal reliability of the VARSEEK-scale (Cronbach's  $\alpha$ ) was 0.896. Table 6.4. reports the Pearson product-moment correlations between VARSEEK and measures for OS� in the consumer context.

Table 6.4. Correlations between VARSEEK and consumer-specific measures for exploratory tendencies in the consumer context.

(sub-) scale	N	# items	Cronbach $\alpha$	Pearson's r
B&S* Modified Raju scale	1476	24	.895	.744 <sup>a</sup>
EBBT	151	20	.822	.411 <sup>a</sup>
EAP	151	10	.814	.670 <sup>a</sup>
EIS	151	10	.839	-.013 <sup>b</sup>

\* B&S: Baumgartner and Steenkamp's (1991) refinement of Raju's scale

<sup>a</sup>  $p < .001$  <sup>b</sup> n.s.

Table 6.4. reveals that VARSEEK is very strongly related to Baumgartner and Steenkamp's (1991) refinement of Raju's scale. It is also significantly related to the EBBT-scale and particularly to the Exploratory Acquisition of Products (EAP)-subscale. This finding is not surprising given the definition of this subdimension as: "a consumer's tendency to seek sensory stimulation in product purchase through risky and innovative product choices and

varied and changing purchase experiences" (Baumgartner and Steenkamp 1994: 6). This definition corresponds to our definition of variety-seeking tendency.

VARSEEK is uncorrelated to EBBT's subdimension of Exploratory Information Seeking (EIS), which is defined as: "a tendency to obtain cognitive stimulation through the acquisition of consumption-relevant knowledge out of curiosity". This would also be expected as this dimension of exploratory buying behavior does not relate to variety-seeking in product choice behavior and therefore is not captured in the construct of variety-seeking tendency. A formal test of the predictive validity of EBBT and its subdimensions vis-à-vis that of VARSEEK will be provided in section 6.7.

### **6.6.3. VARSEEK in relation to variation in behavior**

In several studies VARSEEK's predictive validity for variation in behavior and related exploratory tendencies in the consumer context has been investigated. The next sections will discuss VARSEEK's predictive validity for self-reported exploratory tendencies in the consumer context, for reported variation in food consumption and for exploratory tendencies in food consumption.

#### **Self-reported exploratory behaviors in the consumer context**

Raju (1980) developed a self-report behavior scale to measure exploratory consumption behavior. This scale, frequently applied in marketing studies, distinguishes between seven dimensions of exploratory consumer behavior (see Table 6.5). It is important to note, however, that the suggested seven-dimensional structure has been developed informally rather than on psychometric criteria. Studies that have attempted to verify the hypothesized structure on analytical criteria (e.g. Wahlers, Dunn and Etzel 1986; Baumgartner and Steenkamp 1991) have failed to find confirmation of the seven-dimensional structure. VARSEEK's predictive ability for explaining self-reported exploratory behavior tendencies in the consumer context, as operationalized in terms of Raju's scale, was investigated in the large consumer panel discussed in section 6.6.2.

Table 6.5. reveals that VARSEEK has considerable predictive validity for exploratory tendencies in the consumer context as operationalized through Raju's 39-item scale. As might be expected from VARSEEK's theoretical definition and in line with the results reported in section 6.6.2, VARSEEK has only limited predictive validity for the sub-dimensions relating to vicarious exploration (exploration through shopping, interpersonal communication and information seeking). These dimensions reflect exploratory information seeking behavior rather than exploratory product acquisition behaviors. Somewhat surprisingly, variety-seeking tendency appeared more strongly related to Raju's dimensions reflecting risk-taking (innovativeness and risk-taking) than to the dimensions reflecting variety-seeking behavior (repetitive behavior proneness and brand switching). We believe that this is due to the poor

construct validity of Raju's dimensional structure. Support for this argument is derived from data reported by Baumgartner and Steenkamp (1991), who found that the risk-taking and variety-seeking dimensions lack adequate discriminant validity. These researchers also found actual manifestations of variety-seeking behavior to be more closely related to the measures of the risk-taking dimensions than to the measures of the variety-seeking dimensions.

Table 6.5. Correlations between VARSEEK and exploratory tendencies in the consumer context as operationalized by Raju's (1980) scale. All significant at  $p < .001$ .

(sub-) scale	N	# items	Cronbach $\alpha$	Pearson's $r^a$
Raju's total scale	1476	39	.906	.695
innovativeness	1476	10	.811	.671
risk taking	1476	9	.829	.804
repetitive behavior proneness	1476	7	.686	.470 <sup>6</sup>
brand switching	1476	7	.778	.553
exploration through shopping	1476	7	.757	.312
interpersonal communication	1476	3	.422	.371
information seeking	1476	12	.767	.383

### Variation in food consumption

Van Trijp and Steenkamp (1992) related VARSEEK and the Dutch version of the Sensation Seeking scale to the four measures for variation in food consumption and a composite measure (VARFOOD), described in section 6.6. Table 6.6. shows the simple correlations of the four measures of variation in consumption with VARSEEK and SSS.

These results provide further support for VARSEEK's nomological validity. VARSEEK's correlations are significantly higher than the SSS correlations for three out of four measures ( $p < .05$ , one-sided, after Fisher  $r$ - $z$  transformation). Only for the number of sandwich fillings did SSS have a slightly higher correlation, but this difference was not significant.

<sup>6</sup> Note that high scores imply low repetitive behavior proneness.

Table 6.6. Simple correlations of VARSEEK and SSS with measures for variation in consumption. Source: Van Trijp and Steenkamp (1992) (N=191).

	VARSEEK	SSS
VARBASIS	0.330 <sup>a</sup>	0.212 <sup>b</sup>
VARVEGET	0.140 <sup>c</sup>	-0.009
VARFRUIT	0.370 <sup>a</sup>	0.209 <sup>b</sup>
VARFILLING	0.132 <sup>c</sup>	0.156 <sup>c</sup>
VARFOOD	0.388 <sup>a</sup>	0.227 <sup>a</sup>

<sup>a</sup>  $p < .001$       <sup>b</sup>  $p < 0.01$       <sup>c</sup>  $p < 0.05$

### Exploratory food consumption

As discussed earlier, Raju's (1980) scale measures general exploratory tendencies in the total consumer context, rather than for a specific product category. Therefore, a second study was conducted to assess VARSEEK's predictive ability within the food domain. In this study<sup>7</sup> an attempt was made to relate variety-seeking tendency to three main types of exploratory food consumption suggested by Price and Ridgway (1982): exploratory food purchase behavior, vicarious exploration and use innovativeness. Exploratory food purchase behavior may be accomplished by alternating among familiar but dissimilar food products or by choosing new and unfamiliar food products. Vicarious exploration in the food context may be accomplished by reading about, shopping for and talking about new or unfamiliar food products. The third main type of exploratory behavior, use innovativeness, may be achieved by using food products in new or different ways.

Data were collected from a representative sample of 807 Finnish consumers with primary responsibility for food purchases in their household. These subjects were approached by a commercial market research agency for a personal interview, during which data were collected on awareness of spread (butter and margarine) and cheese alternatives, on buying behavior and on the frequency with which these products were used. For cheese, information was collected on different varieties such as edam, camembert, and feta, whereas for spreads, information was collected on different brands of butter and margarine for use on bread, including low-fat and normal-fat alternatives. In addition, the interviewer handed out a short questionnaire to be collected later. This questionnaire consisted of items relating to consumers' variety-seeking tendency and use innovativeness for cheese as well as information on background variables.

<sup>7</sup> Results of which are reported in Van Trijp, Lähteenmäki and Tuorila (1992), *Appetite* 18: 155-164.

The large-scale nature of the data collection imposed some restrictions on the operationalization of the three dimensions of exploratory food consumption. Also, an attempt was made to relate these three dimensions specifically to actual consumption (although self-reported) of the two food products. For that reason, vicarious exploration was measured indirectly. Rather than measuring in detail the informational sources (e.g. written information, exploratory shopping behavior and communication with relevant others) that are consulted as well as their intensity, an output measure was adopted. Product awareness was used as a proxy measure for vicarious exploration, where it was assumed that a higher intensity of vicarious exploration with respect to the food products under investigation would reflect itself in higher product awareness. Product awareness was measured through both unaided and aided recall. First, each subject was asked to indicate the types of cheese that (s)he could recollect spontaneously. The number of spontaneously recalled cheese types served as the measure of unaided recall. Subsequently, the subject was presented with a precoded list of 28 types of cheese covering the Finnish market supply, including local and foreign varieties of cheese. For each variety the subject was asked to indicate whether or not (s)he was aware of the existence of that variety (aided recall). Only aided recall was recorded for spreads; for this the subjects were confronted with a list of 15 brands.

Purchase exploration reflects the alternation among familiar but dissimilar items and the choice of new and unfamiliar food items. The extent to which respondents use a variety of different items was measured post hoc as the number of different items from the precoded list that the respondent has used at least once during the past half-a-year (referred to as "purchase (1/2 yr)" in Table 6.7), possible scores thus ranging from 0 to 15 and from 0 to 28 for spread and cheese, respectively. Alternation among the items was operationalized in terms of self-reported consumption frequencies. For each of the precoded alternatives, respondents reported the use frequency by choosing one of the following categories: "daily", "3-4 times a week", "1-3 times a week", "less frequently", and "almost never". Daily usage (cf. Table 6.7) was measured as the number of alternatives that the subject used daily. In addition, weekly usage (cf. Table 6.7) was operationalized as the number of product alternatives used at least once a week. For each of these indicators, higher scores reflect higher variation in the consumption of spread and cheese.

Use innovativeness as a dimension of exploration in food consumption was measured only for cheese. Use innovativeness reflects the use of adopted products in new or different ways. A wide variety of potential use applications for cheese may be distinguished, but again the data collection procedure adopted allowed only for the operationalization of a limited number of use applications. Use innovativeness was operationalized through three statements relating to the willingness to use cheese for cooking, with wine, and for entertaining guests. Ratings on five-point Likert scales ("completely disagree" to "completely agree") for the three separate items were added up into a single measure for use innovativeness (Cronbach's  $\alpha = 0.65$ ).

Based on the 33 and 67 percentiles of the distribution of VARSEEK-scores, subjects were divided into three subsamples: consumers high, medium and low in variety-seeking tendency. Differences between subgroups were tested using one-way analysis of variance and the Student-Newman-Keuls test for multiple group comparisons (Table 6.7.).

Table 6.7. Comparison of low, medium and high variety-seeking tendency consumers in terms of exploratory tendencies in consumption of spreads and cheese. Findings with the same superscript not significantly different (SNK-test;  $p < .05$ ).  $N=807$ .

	VARSEEK score			F(2,804)	sign.
	Low	Medium	High		
SPREADS					
<i>Purchase exploration</i>					
-purchase (1/2 yr)	3.64 <sup>a</sup>	3.72 <sup>a</sup>	4.34 <sup>b</sup>	6.36	< .01
-daily usage	1.36	1.22	1.32	0.79	.45
-weekly usage	1.93	1.77	1.99	1.53	.22
<i>Vicarious exploration</i>					
-aided recall	8.74 <sup>a</sup>	9.70 <sup>b</sup>	10.04 <sup>b</sup>	11.64	< .01
CHEESE					
<i>Purchase exploration</i>					
-purchase (1/2 yr)	5.49 <sup>a</sup>	7.03 <sup>b</sup>	9.79 <sup>c</sup>	56.61	< .01
-daily usage	0.98	1.24	1.47	2.71	.07
-weekly usage	2.51 <sup>a</sup>	3.20 <sup>b</sup>	4.18 <sup>c</sup>	19.71	< .01
<i>Vicarious exploration</i>					
-unaided recall	6.45 <sup>a</sup>	7.61 <sup>b</sup>	9.00 <sup>c</sup>	13.32	< .01
-aided recall	13.24 <sup>a</sup>	16.34 <sup>b</sup>	19.31 <sup>c</sup>	43.42	< .01
<i>Use innovativeness</i>					
-summed score	11.60 <sup>a</sup>	12.65 <sup>b</sup>	13.76 <sup>c</sup>	68.53	< .01

Table 6.7. lends additional support to the notion that consumers can be meaningfully classified with respect to their intrinsic desire for variety in food consumption by the VARSEEK scale. Consumers with a higher variety-seeking tendency showed more exploratory behavior tendencies for food choices in terms of variation in purchase behavior, vicarious exploration and use innovativeness. An important point to note, however, is that the exploratory tendencies were reflected more clearly in cheese than in spread choice behavior. Only moderate cross-product consistency in variation in spread and cheese choice behavior was found ( $r=0.34$ ;  $p<.01$ ,  $r=0.44$ ;  $p<.001$  and  $r=0.37$ ;  $p<0.01$ , for variation in

purchase behavior, weekly usage and daily usage of spread and cheese respectively). These results are in line with Rozin and Markwith (1991), who found similar levels and suggest that variation in choice behavior is in part a product-specific phenomenon. This important issue of the product-specific nature of variety-seeking behavior will be discussed in more detail in Chapter 7.

#### 6.6.4. VARSEEK in relation to socio-demographics

Table 6.8. shows scores on variety seeking tendency in relation to a number of socio-demographic characteristics.

Table 6.8. VARSEEK and socio-demographic characteristics N=1124. For each socio-demographic characteristic, levels sharing the same subscript are not significantly different at  $p < .05$  (SNK-test).

Variable	N	VARSEEK	F-value	sign
<i>Social class</i>				
A (high)	176	26.6 <sup>a</sup>	7.42	< .001
Bb	248	26.3 <sup>a</sup>		
Bo	256	25.3 <sup>ab</sup>		
C	363	24.1 <sup>c</sup>		
D (low)	78	24.4 <sup>bc</sup>		
<i>Family income (Dfl)</i>				
< 39,000	359	24.7 <sup>a</sup>	10.68	< .001
39-63,000	442	24.7 <sup>a</sup>		
> 63,000	318	26.6 <sup>b</sup>		
<i>Gender</i>				
male	560	24.6 <sup>a</sup>	11.03	< .001
female	564	25.9 <sup>b</sup>		
<i>Education</i>				
lower	364	23.5 <sup>a</sup>	24.78	< .001
middle	559	25.8 <sup>b</sup>		
higher	201	27.0 <sup>c</sup>		
<i>Age</i>				
< 40 yr	456	25.7 <sup>a</sup>	3.50	.030
40-65	486	25.2 <sup>ab</sup>		
> 65 yr	182	24.3 <sup>b</sup>		
<i># inhabitants</i>				
≥ 100,000	301	25.8 <sup>a</sup>	3.44	.032
20,000-100,000	494	25.4 <sup>ab</sup>		
< 20,000	329	24.6 <sup>b</sup>		

The results reported in Table 6.8. are based on the data obtained from the computerized panel (see section 6.6.2. and Chapter 7) that allow for a comparison of socio-demographic characteristics of high and low variety-seeking. For 1124 respondents data were available on both VARSEEK and socio-demographics.

Variety-seeking tendency was higher among female than among male consumers. High variety-seeking consumers had a higher education, were more likely to belong to higher social classes and were more likely to be found among households with higher incomes. Finally, there was a tendency for high variety-seeking consumers to be somewhat younger and to live in larger cities. No differences were found for size of the household, the number of children in the household and Nielsen district.

These results are in line with Van Trijp (1992) who compared socio-demographic characteristics of Dutch and Finnish female consumers high and low in variety-seeking tendency. He found very similar patterns across these two countries. These results suggest that the socio-demographic characterization of the high variety-seeking tendency-consumer generalizes across gender and cultures.

## 6.7. Hypothesis testing

Now that we have extensively assessed the construct validity of the VARSEEK-scale, we are in a position to test Hypotheses 1 and 2 that concern person-related determinants of variety-seeking behavior (see section 4.9.1). The hypotheses are repeated below.

- H1. Variety-seeking behavior is more likely to occur among consumers with a higher variety-seeking tendency.
- H2. Personality measures that specifically tap variety-seeking tendency will have higher predictive validity for actual manifestations of variety-seeking in product choice behavior than both:
  - a. general personality scales for OSL, and
  - b. domain-specific scales for measuring exploratory tendencies in the consumer context.

The results reported in section 6.6.3. already lend substantial support for Hypothesis 1. The data from Van der Lei (1994) allow for an integral test of the two hypotheses. In addition to VARSEEK, Van de Lei's (1994) study incorporated a general personality measure for OSL (CSI) and a consumer-specific measure for OSL (EBBT). CSI is a prominent general measure for OSL (see Garlington and Russell 1983 for an overview of applications). The version of the CSI-scale used here is the shortened 7-item CSI-scale that has been validated by Steenkamp and Baumgartner (1995). As discussed in section 3.4.2, the EBBT-scale

(Baumgartner and Steenkamp 1994) is a consumer-specific measure for OSL in the consumer context. In addition, several measures for variety-seeking behavior were calculated: the self-report measure VARFRUIT and variety measures (see Chapter 5) calculated from the soft drink choice data (see section 6.6). Hypothesis 2 is supported if VARSEEK is more strongly related to these measures for variety-seeking behavior than both the CSI and the EBBT-scale. The results are reported in Table 6.9. The reader is referred to Chapter 5 for the terminology and exact formulation of the measures.

Table 6.9. Correlations between VARSEEK, CSI, EBBT and its subdimensions EAP and EIS with variety-seeking behavior (N=152).

	CSI	EBBT		VARSEEK	
		EAP		EIS	
VARFRUIT	.147 <sup>d</sup>	.307 <sup>a</sup>	.206 <sup>c</sup>	.034	.333 <sup>a</sup>
HHNUM	-.092	.118	.144 <sup>d</sup>	.110	.169 <sup>c</sup>
ENTNUM	-.086	.106	.114	.078	.140 <sup>d</sup>
ITV	-.093	.158 <sup>d</sup>	.158 <sup>d</sup>	.089	.275 <sup>a</sup>
VBM	-.024	.165 <sup>c</sup>	.148 <sup>d</sup>	.063	.218 <sup>b</sup>

<sup>a</sup>  $p < .001$     <sup>b</sup>  $p < .01$     <sup>c</sup>  $p < .05$     <sup>d</sup>  $p < .10$  all two-sided

Table 6.9. reveals that VARSEEK is significantly ( $p < .01$ ) related to all five measures for variety-seeking behavior. This finding lends additional support for Hypothesis 1. From the present evidence and that reported in section 6.6. we conclude that Hypothesis 1 is supported.

Hypothesis 2 states that VARSEEK is more strongly related to variety-seeking behavior than a) the general OSL measure (CSI) and b) the consumer-specific OSL measure (EBBT). These two elements of the hypothesis can be formalized in testing whether the correlation of VARSEEK with each of the variety measures is significantly (one-sided test) higher than the correlations of the other two personality measures, taking into account VARSEEK's correlation with these other personality measures (for CSI:  $r = .320$ ;  $p < .001$ ; see Table 6.4. for correlations with EBBT and its subscales). VARSEEK outperforms CSI on VARFRUIT ( $p < .05$ ) and all other variety measures ( $p < .01$ ). On the basis of this evidence we conclude that H2a: VARSEEK outperforms general personality measures for OSL, is supported.

VARSEEK correlates higher than EBBT and its subscales on all variety measures. For EBBT, this difference in correlation is statistically significant for VARFRUIT ( $p < .10$ ) and ITV ( $p < .01$ ). VARSEEK significantly outperforms the EAP-subscale on ITV only ( $p < .05$ ) and the EIS-subscale on VARFRUIT ( $p < .05$ ), ITV ( $p < .10$ ) and VBM ( $p < .10$ ). On the basis of this evidence, the hypothesized predictive superiority of VARSEEK vis-à-vis

EBBT is only weakly supported. On most of the variety-seeking measures no significant differences are found, but the hypothesis is supported for ITV, the most detailed measure for quantifying variation in behavior.

## **6.8. Conclusions and discussion**

The present chapter discussed the development of a scale for measuring consumers' variety-seeking tendency. As the empirical part of this chapter focuses on variety-seeking behavior with respect to foods, VARSEEK was developed as a domain-specific instrument in the context of food consumption. The results of the construct validation process for VARSEEK reveal that it has a number of desirable psychometric properties, both in terms of its internal structure and its nomological validity. It is a unidimensional scale with a high convergent validity of its items and a high reliability of 0.92. VARSEEK's stability across a two week time span is high (0.93), although the assessment of its stability across a longer time span and in other (than student-) populations is left for future research. VARSEEK's position in the nomological net was supported. Its correlations with antecedents (general OSL and consumer specific OSL) and consequences (variation in behavior) are consistent with those hypothesized in the nomological net.

Two hypotheses with respect to person-related determinants of variety-seeking behavior were empirically tested. Consistent support was found for Hypothesis 1, stating that consumers higher in variety-seeking tendency are more likely to engage in variety-seeking behavior. Mixed support was found for Hypothesis 2 stating that variety-seeking tendency would have higher predictive validity for variety-seeking behavior than both a) general personality scales for OSL and b) consumer-specific personality scales for OSL in the consumer context. Strong support was found for variety-seeking tendency's predictive superiority vis-à-vis CSI as a general measures for OSL (H2a). Hypothesis 2b was only weakly supported. VARSEEK consistently outperforms EBBT and its subscales on the Index of Temporal Variety (ITV) one of the more sophisticated measures for variety-seeking behavior. Some additional support was found relative to the overall EBBT-scale and the EIS-subscale.

The results reported in this chapter indicate that VARSEEK is a valid instrument ready for use in assessing consumer's variety-seeking tendency with respect to foods in applied settings. Insight into consumers' variety-seeking tendency, as provided by the VARSEEK-scale, may have several implications for the development of marketing strategies, especially for product- and communication policies. In light of its socio-demographic profile, the segment of HVS-consumers may be an interesting segment to target as they are likely to be the early innovators, they are characterized by relatively high income, education and social class, and they are likely to stimulate imitation.

## CHAPTER SEVEN<sup>1</sup>

### DETERMINANTS OF VARIETY-SEEKING BEHAVIOR

#### 7.1. Introduction

In the review and discussion of previous work on variety-seeking behavior (Chapter 3), two basic approaches were identified: the implicit approach and the explicit approach. Both of these approaches have specific shortcomings associated with them. The most prominent shortcoming of the implicit approach concerns the measurement of the dependent variable (i.e. variety-seeking behavior). The fact that the consumption histories on which models in the implicit approach base their parameter estimates do not typically allow for distinguishing true variety-seeking behavior from derived varied behavior may seriously threaten the validity of the variety-seeking parameters obtained. A major shortcoming of previous studies in the explicit approach is that they have exclusively focused on either individual difference variables or context factors as an explanation for variety-seeking behavior. These studies thus ignore the fact that individual difference variables and context factors may combine and interact to determine whether or not variety-seeking behavior will occur.

Prior research (e.g. Givon 1984; Raju 1984; Kahn, Kalwani and Morrison 1986; Mazursky, LaBarbera and Aiello 1987; Bawa 1990; Van Trijp and Hoyer 1991) strongly suggests that the occurrence of variety-seeking behavior is under the joint control of individual difference variables *and* characteristics of the choice context. Thus, even among consumers with a high variety-seeking tendency, different choice contexts or product categories will evoke different levels of variety-seeking behavior (cf. Hoyer and Ridgway 1984). A full understanding of variety-seeking behavior would require consideration of the joint influence of individual difference and context-specific factors on variety-seeking behavior, something marketing studies to date have largely ignored. A notable exception is Raju (1984), who attempted to explain exploratory brand switching through four factors: OSL, brand awareness, deal proneness and product category. Unfortunately, Raju's (1984) study is not very specific in terms of which characteristics make certain product categories more suitable for variety-seeking behavior than others. As a consequence, Raju's (1984) results do not allow for a generalization beyond the examined product categories.

The variety-seeking model (see e.g. Figure 4.4) explicitly incorporates the joint effect of individual difference variables and product-related characteristics. The purpose of this chapter is to investigate empirically determinants of variety-seeking behavior. Previous work

---

<sup>1</sup> This chapter integrates two papers, presented at the EMAC Conference 1990 (Van Trijp and Hoyer 1991) and at a special session of the 1994 ACR Conference in Boston (Van Trijp, Hoyer and Inman 1994), and an article that appeared in *Appetite* 22, 1-10 (Van Trijp 1994).

is extended by specifically distinguishing between intrinsically motivated (i.e. variety-seeking behavior) and extrinsically motivated (i.e. derived) variation in behavior. Specific hypotheses are empirically tested concerning individual difference variables and product-related characteristics that interact to determine in which situations and product categories variety-seeking behavior is more likely to occur vis-à-vis repeat purchasing and derived varied behavior.

The structure of this chapter is as follows. Section 7.2. summarizes the hypotheses that are empirically tested. The reader is referred to Chapter 4 for a more elaborate discussion of the rationale underlying each of these hypotheses. Section 7.3. describes the research methodology, and results are reported in section 7.4. Section 7.5. provides the discussion of the results.

## 7.2. Hypotheses for determinants

In Chapter 4, specific hypotheses concerning determinants of variety-seeking behavior were derived from the variety-seeking model. A selection of those hypotheses will be tested empirically in this chapter. This section will only briefly summarize the relevant hypotheses, which have been substantiated in Chapter 4. The hypotheses arise from the notion that although variety-seeking tendency is a general drive, it is moderated by product-specific situations (cf. Hoyer and Ridgway 1984). In other words, we conceptualize variety-seeking behavior as a product-specific phenomenon, the occurrence of which depends on the individual difference characteristic of variety-seeking tendency, product-related characteristics<sup>2</sup> and their interaction. We suggest specific product-related characteristics that stimulate variety-seeking behavior vis-à-vis repeat purchases and extrinsically motivated switches and make a direct comparison between switches that result from the variety-seeking motive and both repeat purchases and extrinsically motivated switches.

### *Variety-seeking tendency*

Our first hypothesis concerns the individual difference variable of variety-seeking tendency and represents an attempt to replicate the major finding from the previous chapter. However, in the present study we seek to substantiate it relative to both repeat purchases and derived switches.

H<sub>1</sub>: Individuals with a higher variety-seeking tendency are more likely to engage in variety-seeking behavior, both relative to repeat purchasing and extrinsically motivated switching.

---

<sup>2</sup> As discussed in section 4.9.2. the term product-related characteristics is used for convenience, to indicate that these characteristics are product (or category)-specific rather than being specific for an individual.

However, as discussed in section 4.9, we expect this relationship to be moderated by product-related characteristics, which determine whether variety-seeking tendency is expressed in variety-seeking behavior for a specific product category. The variety-seeking model (Chapter 4) suggests that the product-related characteristics will influence the likelihood of variety-seeking behavior irrespective of the level of variety-seeking tendency (i.e. a main effect). In addition, in Chapter 4 we hypothesized that these product-related characteristics will be particularly influential among consumers with a high variety-seeking tendency (i.e. an interactive effect). More specifically, through their association with extrinsic motivation in the choice task, we hypothesized that for consumers with a high variety-seeking tendency, these product-related characteristics operate as controlling factors, limiting the expression of this tendency into actual variety-seeking behavior. Conversely, consumers with a low variety-seeking tendency will not be very likely to engage in variety-seeking behavior regardless of the presence of extrinsic pressures on the choice task. Thus, we propose two hypotheses for each characteristic discussed below: one for the product-related characteristic's main effect and a second for the interaction of the characteristic with variety-seeking tendency.

### ***Product-Related Characteristics***

Although many factors may have a controlling effect on choice behavior, influencing or pressuring product choice in a particular direction (cf. Hoyer and Ridgway 1984), the present study focuses on four product-related characteristics in particular: level of consumer category involvement (H10)<sup>3</sup>, perceived differences among the alternatives on attributes that contribute to the value derived from product-related characteristics (H8), hedonic features of the product (H4), and brand loyalty (H7). Specifically (see section 4.9.2), we hypothesize that, relative to both repeat purchases and extrinsically motivated switches:

#### ***Category involvement***

- H<sub>2</sub>: Variety-seeking behavior is more likely to occur for products that evoke lower levels of involvement.
- H<sub>3</sub>: The difference in variety-seeking behavior between those with a high and a low variety-seeking tendency will be greater in situations where involvement is lower.

#### ***Perceived Differences Among Alternatives***

- H<sub>4</sub>: Variety-seeking behavior is more likely to occur in situations where smaller differences are perceived on attributes that contribute substantially to value derived from product-related characteristics.
- H<sub>5</sub>: The difference in variety-seeking behavior between those with a high and a low variety-seeking tendency will be greater in situations where smaller differences are perceived

---

<sup>3</sup> Number in brackets refer to the numbering of Hypotheses in Chapter 4.

among alternatives on attributes that contribute substantially to the value derived from product-related characteristics.

*Hedonic Features of the Product.*

H<sub>6</sub>: Variety-seeking behavior is more likely to occur for hedonic products.

H<sub>7</sub>: The difference in variety-seeking behavior between those with a high and a low variety-seeking tendency will be greater for product categories which are high in hedonic characteristics.

*Brand Loyalty.*

H<sub>8</sub>: Variety-seeking behavior is more likely to occur when brand loyalty (as defined by strength of preference and purchase pattern) is lower.

H<sub>9</sub>: The difference in variety-seeking behavior between those with a high and a low variety-seeking tendency will be greater in situations where brand loyalty (as defined by strength of preference and purchase pattern) is low.

### 7.3. Methodology

#### 7.3.1. Subjects and Stimuli

The present study is based on a computerized panel<sup>4</sup>, composed of a representative sample of 1000 Dutch households based on age, income, region of the country, family size, and education. Panel members participated on a weekly basis during a 15 week period. Four frequently purchased products were included in the study: beer, coffee, hand rolled tobacco, and cigarettes.

The use of a consumer panel over time to examine variety-seeking behavior is considered particularly appropriate because the full extent of this phenomenon is difficult to capture in one-time experimental sessions. Also, it has been noted in the exploratory behavior literature that curiosity related phenomena (such as variety-seeking) can most meaningfully be investigated with reference to the subject's natural environment (Wohlwill 1981; Russell 1983). In other words, in a laboratory setting it might be difficult to capture and replicate the various product and situational factors which may instigate variety-seeking behavior. Very few studies on variety-seeking behavior have addressed this aspect of external validity of laboratory findings. A notable exception is a study by Simonson and Winer (1992) who replicated Simonson's (1990) experimental result that purchase quantity influences variety-seeking behavior intensity in a panel data study.

---

<sup>4</sup> The data were kindly made available by the Dutch market research agency NIPO.

### **7.3.2. Procedure**

Data collection from the Telepanel is fully computerized. Households participating in the panel were provided with a personal home computer and modem which was free for personal use provided that panel members logged in to the central computer every weekend. After logging in, the questionnaire appeared on the screen, one question at a time. When the questionnaire is completed, the data are transmitted directly to the central computer and can be processed immediately when required. Data on the predictor variables were collected with a subset of the panel members following the 15 week tracking period.

### **7.3.3. Measurement**

#### ***Dependent variables***

For each of the four products, panel members were asked in retrospect whether or not they had purchased the product during the previous week. If the answer was 'yes', they were presented with a list of brands available in the market and asked to indicate which brand had been purchased. The reported brand name was then compared with the last brand purchased and, in the event of a brand switch, the computer interactively asked for the reason. The alternative response categories were thirteen motives for brand switching identified in a pilot study. In this pilot study only open-ended responses were collected from panel member. These open responses were content analyzed and classified into the 13 categories. In the main study, an open-ended response was requested if none of the precoded motives fit the subject's motive for switching. The thirteen precoded motives relate to four underlying choice mechanisms: situational/normative motives, reversion motives, problem solving motives and variety-seeking motives (cf. Van Trijp and Hoyer 1991) and are listed in Table 7.1.

Thus, for each purchase, the procedure allows for the determination of whether it was a repeat purchase, an intrinsically motivated switch (variety-seeking behavior) or an extrinsically motivated switch (derived varied behavior). The present study focuses on variety-seeking behavior versus derived varied behavior and repeat purchase behavior. Therefore, data are analyzed at the level of variety-seeking motives ('Just wanted to try the new product', 'wanted to try something else, just for a change') versus extrinsic motives for brand switching (e.g. 'usual brand was out of stock', 'new brand was on sale' etc) and repeat purchases. Across the total panel, percentages of brand switching were 11.2, 10.3, 4.8, and 4.3% for beer, coffee, cigarettes, and hand rolled tobacco respectively, of which 26.0, 13.4, 16.1 and 16.5% were classified by respondents as variety-seeking behavior.

Table 7.1. Precoded motives for brand switching.

---

**Variety-seeking motives**

- 1- I just wanted to try the new product
- 2- I just wanted to try something else, just for a change

**Situational/normative motives***Situational:*

- 3- I bought in another outlet than I usually do
- 4- My usual brand was out of stock

*Normative:*

- 5- This brand was recommended to me
- 6- I bought this brand for guests/someone else

**Problem solving motives***Product-related:*

- 7- Didn't like the brand I was using
- 8- New brand was differently packaged
- 9- New brand is a different type of product

*Price-related:*

- 10- The brand I used before, was too expensive
- 11- New brand is cheaper
- 12- New brand was on sale

**Habit**

- 13- I reversed to the brand I usually buy
- 

***Predictor variables***

Five major predictor variables were measured. It is important to note that we were permitted to submit only a limited number of questions to only a subset of the commercial computerized panel. As a result it was necessary to select a few items with high reliability to measure each construct. Unless stated otherwise, all items were scored on seven-point labeled Likert scales ranging from 'completely disagree' (=1) to 'completely agree' (=7).

*Variety-seeking Tendency.* Consumers' variety-seeking drive was operationalized through the eight item VARSEEK-scale, discussed in Chapter 6. Items were scored on five-point Likert scales. High scale reliability was supported in this study: Cronbach's alpha = .90.

*Involvement.* The items employed to assess product category involvement were selected on the basis of a pre-test. Based on a survey of the involvement literature, a set of 14 items were developed which appeared to tap the involvement construct. A group of pretest subjects were then asked to rate a subset of 36 product categories in terms of each of the 14 items. These items were mixed with items for other constructs in order to reduce the transparency of the questionnaire. From an analysis of these responses, a combination of three items was determined to measure the construct reliably: 'Compared to other products, this product is important to me', 'I'm not interested in this product' (reversed), and 'When I buy a brand

from this product category, I choose very carefully.' The reliability of these items for the main study was 0.69.

*Perceived Differences Between Brands.* The same pretest was employed to develop items for perceived differences between brands. In this case, eight items were developed and tested. The three items which provided the highest reliability were used in the main study: 'Differences among the brands are large' (reversed), 'Differences among brands are hard to judge' and 'The best brand is hard to judge.' Cronbach's alpha for the main study was 0.67.

*Hedonic Features.* Items to measure hedonic features were also selected based on the previously described pretest. Two items which provided the highest reliability were selected from a set of seven for use in the main study: 'I buy this product because it gives me a good feeling', and 'I buy this product for the pleasure it gives me'. Cronbach's alpha in main study was 0.80.

*Brand loyalty.* According to Jacoby and Chestnut (1978), brand loyalty is a function of two important aspects: repeat purchase and an underlying preference for the brand. Accordingly, brand loyalty was measured through two items. Repeat purchase over time was measured through the item: 'Out of ten times how often do you buy the brand you just indicated as your favorite brand?.' Strength of preference was measured through the item 'How strong is your preference for your favorite brand compared to the other brands?', scored on a six point scale ranging from 'no preference at all' to 'very strong preference'.

*Interactive Effects.* Interactive effects were coded for variety-seeking tendency with the subjective product characteristics. Interactive effects were coded as dummy variables. The median was used as cut-off point. Scores above the median were coded 1 for VARSEEK, low involvement, small perceived differences, hedonic features and low brand loyalty. Subsequently dummy variables were constructed for the interactive effects between variety-seeking tendency and each of the product-related determinants.

#### **7.3.4. Data analysis**

For hypothesis testing, only those panel members were considered that provided data on purchase history, individual difference characteristics and product-related characteristics. Since variety-seeking behavior is defined as an individual x product interaction, the data were analyzed across product categories. Out of a total number of almost 7500 reported purchases, 510 brand switches were observed, of which 88 were variety switches. Data analysis focused on differences between predictor variables for repeat purchase behavior and the two different types of brand switching, variety-seeking behavior (i.e., intrinsic) and derived switching behavior (i.e., extrinsic). In addition to the dummy coded independent variables, product category was added as a covariate to account for the influence of unmeasured category variables.

Since the dependent variable is qualitative (i.e., variety switch, derived switch, or repeat purchase), the multinomial logit formulation (e.g., Maddala 1987) was employed to predict the type of switch. In the multinomial logit model with three choice conditions, we let  $P_V$ ,  $P_D$ , and  $P_R$  be the probabilities that a choice is a variety switch, a derived switch, or a repeat purchase, respectively, where  $P_V + P_D + P_R = 1$ . A vector,  $\mathbf{x}$ , of the independent variables (i.e.,  $\mathbf{x} = \{\text{variety-seeking tendency, involvement, etc.}\}$ ) is then constructed for each choice. The multinomial logit is formed by expressing the probabilities in binary form, using one of the switch types as a baseline (i.e., with its parameters set to zero), and estimating a coefficient for each independent variable in  $\mathbf{x}$ . Since our hypotheses involve the comparison of variety switches to repeat purchases and derived switches, we use variety switches as the baseline<sup>5</sup>:

$$(7.1) \quad F_R = P_R / (P_R + P_V) \\ = b_{R1} \text{ VARIETY} + b_{R2} \text{ INVOLVEMENT} + b_{R3} \text{ PERCEIVED DIFF} + \\ b_{R5} \text{ HEDONIC FEATURES} + b_{R4} \text{ LOYALTY}$$

$$(7.2) \quad F_D = P_D / (P_D + P_V) \\ = b_{D1} \text{ VARIETY} + b_{D2} \text{ INVOLVEMENT} + b_{D3} \text{ PERCEIVED DIFF} + \\ b_{D4} \text{ HEDONIC FEATURES} + b_{D5} \text{ LOYALTY}$$

and since  $P_V + P_D + P_R = 1$  we can solve for  $P_R$  and  $P_D$  in terms of  $F_R$  and  $F_D$ :

$$(7.3) \quad P_R = [P_R + (1 - P_R - P_D)] F_R = F_R - P_D F_R$$

$$(7.4) \quad P_D = [P_D + (1 - P_R - P_D)] F_D = F_D - P_R F_D$$

and it is straightforward to show that

$$(7.5) \quad P_R = F_R (1 - F_D) / (1 - F_R F_D)$$

$$(7.6) \quad P_D = F_D (1 - F_R) / (1 - F_R F_D)$$

Unfortunately, the number of variety switches in our data (88), is rather small. McFadden (1974) warns that the small-sample properties of the maximum likelihood estimators are not

<sup>5</sup> The multinomial logit model used here and the multinomial logit model (McFadden 1974) used extensively in scanner data research (e.g., Guadagni and Little 1983), while somewhat similar in form, differ in an important respect. In McFadden's formulation, the attribute levels vary across alternatives (usually brands) and a common parameter is estimated for each attribute relative to a baseline brand. The number of parameters is therefore equal to the number of attributes. Here, the attribute levels are the same for each alternative (switching condition) and a separate parameter is estimated for each attribute for two switching conditions (i.e., repeat purchasing and derived) relative to a baseline group (i.e., variety switches). Because of this, the number of parameters is the number of attributes times the number of alternatives minus 1 (i.e., 11 attributes X (3-1) switching types).

fully understood. Following Bunch and Batsell's (1989) recommendation for small samples, a bootstrapping procedure (Efron 1982) was utilized to test the hypotheses. Bootstrapping has been employed by other researchers in marketing to overcome a small sample size (e.g., Lattin and McAlister 1985; Bone, Sharma, and Shimp 1989; Inman and McAlister 1993). Teebagy and Chattergee (1989) show how bootstrapping techniques can be applied in situations where the dependent variable is categorical.

Through intensive computation, bootstrapping enables one to construct an estimate of a parameter's distribution and to test hypotheses. Given a sample of size  $n$  drawn from a population with an unknown distribution, one can construct a bootstrap estimate of the distribution's standard deviation (Efron 1979). To do this, one draws many successive samples with replacement from the original sample. One then serially estimates the parameters from this model and uses the standard deviation of these parameter estimates as an estimate of the population standard deviation of the construct. According to Efron (1979), 100 bootstrap samples is sufficient to construct an estimate of the population standard deviation.

Following the general approach of Teebagy and Chattergee, 100 samples (with replacement) were serially drawn of 88 observations from each switching group. Then, the multinomial logit model was used to generate parameter estimates for each sample and the parameter estimates were saved. Finally, to test the statistical significance of each parameter, we performed a  $t$ -test (against zero) of the mean of the resulting distribution of each parameters' estimates. This process enabled us to test hypotheses regarding the relationship between the variety switches to both the repeat purchases and the derived switchers. For example, to test the effect of involvement, the multinomial logit involvement parameter was sequentially estimated for each of the 100 samples. Focusing on the variety switches/repeat purchase comparison, the resulting distribution of estimates has a mean of 0.2066 and a standard deviation of 0.2317. Recall that this standard deviation is an estimate of the population standard deviation. The  $t$ -test of this mean against zero is therefore  $0.2066/(0.2317/10)$ , where 10 is the square root of the sample size. This results in a  $t$  of 8.91,  $p < .01$ .

#### **7.4. Results**

For each of the four product categories, Table 7.2. shows the relative importance of the precoded motives as reported reason for brand switching. It reveals considerable differences across product categories both in terms of switching intensity and the dominant motives underlying switching behavior. As such, it provides support for Howard's (1989) contention that for routinized response behavior, which is likely to characterize the product categories under investigation, choice is largely under the control of price, availability and variety-seeking tendency. However, Table 7.2. also reveals considerable differences among product categories with respect to the relative importance of variety-seeking motives as an underlying

cause for brand switching. For beer, variety-seeking tendency appears a more dominant motivator than for the other products. Our research efforts primarily focus on the product related characteristics that may provide an explanation for these observed differences as well as for the observed between-subject differences in variety-seeking behavior.

Table 7.2. Relative importance of the motives for brand switching (percentages)

motive	beer	hand rolled tobacco	cigarette	coffee
<i>Variety-seeking</i>				
something new	13.4	10.2	9.2	7.7
just for change	12.6	6.3	6.9	5.7
<i>Situational/normative</i>				
<i>Situational</i>				
different outlet	17.4	32.3	16.2	22.9
out of stock	7.2	12.6	16.9	4.8
<i>Normative</i>				
recommended	3.5	3.9	6.9	4.5
for someone else	5.2	6.3	10.0	1.3
<i>Problem solving</i>				
<i>Product</i>				
didn't like it	2.7	11.0	10.0	6.3
packaging	1.7		0.4	
different type	9.7		2.3	6.6
<i>Price</i>				
too expensive	4.0	1.6	0.8	2.5
cheaper	6.2	9.4	2.3	5.4
on sale	2.5		1.5	19.0
<i>Habit</i>				
reversion	10.2	4.7	8.5	7.5
<i>Other</i>				
no special reason	3.5	1.6	8.5	5.4
number of switches	402	127	130	558
% of switching <sup>1</sup>	11.2	4.3	4.8	10.3

<sup>1</sup> Percentage of brand switches = number of switches/total number of purchases.

Table 7.3 presents the mean parameter estimates based on the bootstrap procedure for the variety switches relative to derived switches and repeat purchase groups. A positive parameter indicates that a high value on this variable is more likely to result in variety-seeking behavior, while a negative value suggests the opposite. For example, the positive

parameter estimate for low involvement (in both the repeat purchase and derived switching groups) indicates that a person who is low in involvement will be more likely to engage in variety-seeking behavior.

Table 7.3. Multinomial Logit Parameter Estimates For Variety Switches Relative to Repeat Purchases and Derived Switches

	Variety switches relative to	
	Repeat Purchases	Derived switches
MAIN EFFECT		
Intercept	1.748*	0.996*
Varseek	0.699*	0.565*
Low Involvement	0.207*	0.193*
Small Perceived Differences	0.044**	-0.033
Hedonic Features	0.180*	0.177*
Low Brand Loyalty	0.543*	0.384*
Product Category	-2.239*	-1.450*
INTERACTIONS		
Varseek x Low Involvement	1.031*	0.868*
Varseek x Small Perceived Differences	-0.376*	-0.359*
Varseek x Hedonic Features	2.314*	0.621
Varseek x Low Brand Loyalty	-0.032	-0.032
Varseek x Product Category	-0.270*	-0.232*

\*  $p < .01$  \*\*  $p < .05$

*Variety-seeking Tendency.* Hypothesis  $H_1$  replicates previous work on variety-seeking behavior, predicting that individuals who have a higher variety-seeking tendency are more likely to engage in variety-seeking behavior vis-à-vis either repeat purchases or derived switches. As shown in Table 7.3, the results provide support for this hypothesis. On average, variety switchers have a higher variety-seeking tendency than repeat purchasers ( $t=8.70$ ,  $p < .01$ ) and derived switchers ( $t=5.47$ ,  $p < .01$ ).

*Involvement.* Hypothesis  $H_2$  predicts that variety-seeking is more likely to occur in product categories where involvement is lower. From Table 7.3, our results show that variety-seeking is more likely to occur when consumers are less involved with the product category, relative to both repeat purchasing ( $t= 8.91$ ,  $p < .01$ ) and derived switching ( $t=8.76$ ,  $p < .01$ ). Thus, hypothesis  $H_2$  is supported.

Hypothesis  $H_3$  predicts an interaction between variety-seeking tendency and involvement (i.e., that the difference in the intensity of variety-seeking behavior between individuals with a high variety-seeking tendency and those with a low variety-seeking tendency will be more pronounced in low involvement choice situations). Support for the hypothesis was in evidence, as the interaction between variety-seeking tendency and involvement is significant for the comparisons with repeat purchases ( $t=6.21$ ,  $p<.01$ ) and derived switches ( $t=4.57$ ,  $p<.01$ ).

*Perceived Differences Between Brands.* Hypothesis  $H_4$  predicts that variety-seeking is more likely to occur in cases where consumers perceive little difference between brands in a product category. Mixed support for this hypothesis is found, as variety-seeking is more likely relative to repeat purchases ( $t=2.46$ ,  $p<.01$ ), but not relative to derived switches. This finding suggests that small perceived differences between brands not only reduces 'switching costs' with respect to intrinsically but also for extrinsically motivated switching behavior.

Hypothesis  $H_5$  proposes an interaction between perceived brand differences and variety-seeking tendency (i.e., the difference between individuals with a higher variety-seeking tendency and those with a low variety-seeking tendency will be pronounced when perceived brand differences are small). The interaction is significant, but the sign was opposite what was expected. Thus, the hypothesis is not supported. This finding seems to suggest that we have not been fully successful in only capturing perceived attribute differences that substantially relate to value derived from product-related characteristics. For perceived differences on attributes that primarily relate to perceptual rather than preferential differentiation among alternatives, this finding would be expected (cf. Hypotheses 8a and 9a in section 4.9).

*Hedonic Features.* Hypothesis  $H_6$  predicts that variety-seeking behavior is more likely to occur when consumers derive greater hedonic or affective characteristics from the product category. As shown in Table 7.3, this pattern is found relative to both the repeat purchases ( $t=8.71$ ,  $p<.01$ ) and the derived switches ( $t=9.75$ ,  $p<.01$ ), supporting the hypothesis.

Further, mixed support is found for hypothesis  $H_7$ , which predicts an interaction between variety-seeking tendency and hedonic characteristics of the category. This hypothesis is supported in the case of repeat purchases ( $t=9.78$ ,  $p<.01$ ), but not relative to the derived switches.

*Brand Loyalty.* Consistent with hypothesis  $H_8$ , variety switches are found to occur more frequently when brand loyalty is low, both relative to repeat purchasing ( $t=23.71$ ,  $p<.01$ ) and derived switching ( $t=16.32$ ,  $p<.01$ ). However, no support is found for the hypothesized interaction ( $H_9$ ) between variety-seeking tendency and brand loyalty.

*Product Category.* The product category main effect and the interaction between category and variety-seeking tendency are significant relative to repeat purchases and derived switches. This suggests that not all relevant category-level variables were measured and

points out the need for additional research into the category-level determinants of brand switching.<sup>6</sup>

In sum, all parameters for the variety switches relative to the repeat purchases are statistically significant with the exception of the variety-seeking tendency x brand loyalty interaction. Further, all have the hypothesized sign with the exceptions of the variety-seeking tendency x perceived brand differences and the variety-seeking tendency x brand loyalty interactions. A similar pattern emerges for the comparison of the variety switches to the derived switches. All parameters are statistically significant except for the perceived differences main effect and the variety-seeking tendency x hedonic characteristics and the variety-seeking tendency x brand loyalty interactions.

### **7.5. Discussion**

This chapter addressed two limitations of previous research efforts on explaining variety-seeking behavior. The measurement problem was addressed by identifying consumers' underlying motives for brand switching, thus allowing us to differentiate variety-seeking behavior from extrinsically motivated brand switching. Using an innovative data collection procedure, we tested hypotheses regarding category-level explanatory variables that potentially provide more insight into when and why variety-seeking behavior is more likely to occur. These hypotheses directly resulted from the variety-seeking model developed in Chapter 4, and as the variety-seeking model cannot be integrally tested, support for these hypotheses provides indirect support for the variety-seeking model. Consistent with previous research (see also Chapter 6), consumers' variety-seeking tendency was found to be related to variety-seeking behavior. However, consistent with the variety-seeking model, the addition of the category-level characteristics of involvement, perceived differences among brands, hedonic features, and brand loyalty resulted in a greater understanding of the phenomenon. The interactions between variety-seeking tendency and some of the product-related determinants suggest that the choice context can have a controlling effect on the expression of variety-seeking behavior. In such circumstances, even consumers with a high level of variety-seeking tendency may not engage in variety-seeking behavior.

The results of the present study provide empirical support for the variety-seeking model's assumption that this behavior does not occur for all products to the same extent and confirm the role of product-related characteristics as a determinant of variety-seeking

---

<sup>6</sup> The statistical procedure used, CATMOD in SAS, treats the independent variables as categorical. Thus, a significant product effect indicates an overall effect for product category, similar to an ANOVA. Alternatively, dummy variables could have been added for each product category, but as this was not the focus of our research, we chose the first approach for controlling for unmeasured category-level effects.

behavior. This suggests that for a fuller understanding of the phenomenon of variety-seeking behavior, the context in which choice occurs needs to be taken into account in addition to individual difference variables. The results support the central notion of the variety-seeking model that variety-seeking behavior is a product-specific phenomenon, the occurrence of which depends on individual difference characteristics, product characteristics, and their interaction. This may partly explain why previous studies relating the variety drive directly to manifestations of variety-seeking behavior found only small effect sizes. Since consumers may differ in their perception of product-related characteristics of the product category (e.g. perceived differences, involvement etc), the relationship between variety drive and variety-seeking behavior is likely to be moderated by these product-related characteristics.

The variety-seeking model emphasizes the importance of distinguishing true variety-seeking behavior from extrinsically motivated switching behavior (i.e. derived varied behavior). Results of the present study reveal that most of the parameters comparing variety switches to derived switches are statistically significant, supporting the central assumption of the variety-seeking model that variety switches and derived switches are inherently different and should be examined separately. Interestingly, on almost every explanatory variable, derived switchers appeared to take a position between variety switchers and repeat purchasers (i.e., the derived switch parameter's absolute value is less than that of the repeat purchase parameter). In fact, our results suggest that the majority of observed switching behavior may be extrinsically motivated rather than true variety-seeking behavior (less than 20% of the switches in our study were reported as motivated by variety-seeking). Such a situation seriously impacts the validity of the variety-seeking parameters, a problem noted by Kahn, Kalwani and Morrison (1986).

Throughout our work, we have emphasized that variety-seeking behavior should be studied in the context of a broader perspective on consumer choice behavior. Despite the fact that variety-seeking behavior is an intriguing phenomenon worth studying in its own right, in real-life situations it does not occur in isolation. Rather, it is only one of the many choice mechanisms that compete and interact in guiding consumers' choice behavior (Sheth and Raju 1974). Depending on characteristics of the choice context, each choice mechanism may carry different weight as a determinant of actual choice behavior. Our results suggest some of the characteristics that determine whether or not variety-seeking behavior will be a dominant choice mechanism. Future research might extend this approach to other choice mechanisms (e.g. situational/normative motives and problem-solving motives) to identify under which circumstances these are more or less likely to be a determinant consideration in choice behavior.

It is important to note some limitations of this study. First, we have identified and tested only a subset of the many product characteristics that may mediate the relationship between variety-seeking tendency and actual variety-seeking behavior. Despite the fact that their selection was based on previous research in the area, they are not exhaustive. The significant

effect of product category after inclusion of the other predictor variables suggests that not all relevant category-level variables were measured. Future research might examine additional variables that will predict when true variety-seeking behavior will occur, including non-product related characteristics such as mood (Kahn and Isen 1993), purchase strategy (Simonson 1990) and display format (Simonson and Winer 1992).

A second limitation is that only four product categories were examined, all of which are relatively frequently purchased products. The selected product categories are not representative for the full domain of consumer decisions. For example, the four product categories under investigation reflect rather homogeneous categories of brands. In terms of the three underlying motivations for variety-seeking behavior identified in Chapter 4, these product categories emphasize boredom with the choice task and curiosity rather than attribute satiation. It might be expected that attribute satiation would play a far more important role in product categories which are characterized by a wider diversity of flavors such as soft drinks, yogurts, restaurants, and vegetables. Although the choice of product categories leaves the confirmation of hypotheses unaffected, future research will be needed to confirm the present findings across a wider variety of product categories and to identify additional category level variables that may affect variety-seeking behavior intensity.

Also, it might be argued that the specific choice of product categories may partly account for the low incidence of variety-seeking behavior<sup>7</sup>. The product categories under investigation typically reflect 'sin' products. It might be argued that for such products, the consumption in itself already provides substantial stimulation, thereby reducing the need for variety-seeking behavior as a means of increasing stimulation. If one is willing to accept the assumption that the anticipated stimulation at the moment of consumption extends to the purchase stage, this might affect the level of variety-seeking behavior intensity found in this study. However, whether or not this occurred and if so what extent is an empirical matter that has yet to be addressed.

The present study analyzed variety-seeking behavior in a commercial panel. The obvious external validity advantages of this approach come at certain costs. First, the present approach requires consumers to verbalize their underlying motivation for brand switching. It has been suggested that subjects are not necessarily accurate in self-reporting the true underlying causes of their behavior (e.g Nisbett and Wilson 1977). Despite the fact that many of the switching motives are quite straightforward (e.g. "out-of-stock", "different outlet chosen") it remains unclear to what extent consumers have 'made up' underlying reasons in an attempt to find sufficient justification for their brand switching behavior. If this were the case, it might be argued that extrinsic motivations for switching may be used more frequently in this process, as we believe that the variety-seeking motives ("just wanted to try the new product" and "just wanted to try something else, just for a change") provide relatively little

---

<sup>7</sup> This point was brought up during the presentation of this study at the ACR-Conference.

perceived justification. By their very definition, these variety motives do not find justification beyond the sheer value inherent in the switching process per se. In such instances, the number of variety switches would be underestimated in the present procedure. This aspect of the data collection procedure would be an interesting issue for future research.

In addition, consumers are asked to report their purchases in the product category during the last week. In the present situation, only 6 percent of the observations were multiple purchases. In those instances, only the first reported purchase and its underlying motivation was considered in the analysis and in all cases this was a repeat purchase. Consideration of these 'secondary' purchases might influence the result. However, given their relative infrequent occurrence, we expect this influence to be minimal. A final limitation of the use of a commercial panel is that several of the predictor variables were limited to only a few indicator measures. The selection of the items was based on previous research in which these items showed satisfactory reliability, and these reliabilities were supported in our study. Nevertheless, this limitation may explain the mixed results for the product-related characteristic of perceived differences among alternatives. Here we attempted to stress perceived differences on preferential rather than perceptual attributes but the results of this study suggest that we were not necessarily successful.

A final limitation of the present study may be that we examined variety-seeking behavior for each of the product categories separately. Recent work by Menon and Kahn (1994) suggests that consumers' variety-seeking intensity in a product category may be moderated by the level of stimulation provided in another product category, particularly in instances where the product decisions are made simultaneously. In conjunction with our results, this 'variety-seeking complementarity' among product categories offers interesting directions for future research. For instance, a purchase in a category in which variety-seeking is likely to be rather low (e.g., large perceived differences, high involvement, high brand loyalty) may *cause* increased variety-seeking in another category that is more susceptible to variety-seeking (e.g., few perceived differences, low involvement, low brand loyalty). A choice experiment or a scanner data-based shopping basket study would allow examination of this interesting possibility.

## CHAPTER EIGHT

### SUMMARY AND CONCLUSIONS

The primary objectives of the present work are (1) to review the marketing and psychological literature on variety-seeking behavior, (2) to develop a formal model for variety-seeking in product choice behavior and (3) to investigate elements of the proposed model empirically. The present approach specifically focuses on temporal variety-seeking behavior and addresses some of the key issues that have received inadequate attention in previous work on temporal variety-seeking behavior. The main conclusions of the present work will be summarized and discussed in this chapter, and directions for future research in this area will be suggested.

#### **Limitations of previous work on variety-seeking behavior**

Despite the fact that during the last few years variety-seeking behavior has received considerable research attention in the marketing literature, there are a number of issues that have not been adequately addressed. To a considerable extent this appears to be due to inadequate and inconsistent use of the terminology in this research area (McAlister and Pessemier 1982; Kahn, Kalwani and Morrison 1986). In particular the term variety-seeking behavior has been used rather informally to denote a number of different phenomena. This seriously hampers theoretical progress in this area as it makes it difficult to directly compare results from different studies and to integrate them into a comprehensive theory for variety-seeking behavior. Therefore, in the present work much attention is given to the terminology being adopted. The term *variety-seeking behavior* is reserved for those instances of consumer switching behavior that are motivated by the utility inherent in variation per se. The present approach thus explicitly distinguishes variety-seeking behavior from *derived varied behavior*, that is motivated by the more or less delayed consequences of switching behavior rather than the utility inherent in switching behavior per se.

Apart from theoretical inconsistencies in the definition of variety-seeking behavior, much of the previous research has also fallen short in the measurement of this type of behavior. Despite the fact that the distinction between true variety-seeking behavior and derived varied behavior has played a prominent role in conceptual analyses of the phenomenon, both in the psychological (e.g. McReynolds 1971a; Deci 1975) and the marketing literature (McAlister and Pessemier 1982; Hoyer and Ridgway 1984; Raju 1984; Mazursky, LaBarbera and Aiello 1987), few studies on variety-seeking behavior that have incorporated it into empirical analysis. Again, the neglect of this distinction in empirical investigations of the phenomenon seriously hinders theoretical progress in the area, as many of the results attributed to variety-seeking behavior may be confounded by elements of derived varied behavior.

In the marketing literature, variety-seeking behavior has been studied from two basic approaches. The implicit approach takes observed variation in purchase or consumption histories as a starting point of their attempts to derive insight into variety-seeking behavior. The explicit approach, on the other hand, takes the individual and psychological processes as a starting point of their analyses in an attempt to explain why and when variety-seeking behavior is likely to occur. Both of these approaches have specific strengths and weaknesses. One of the main strengths of the implicit approach is that these studies model variety-seeking behavior from "real-life" consumption data and thereby implicitly consider variety-seeking behavior in the broader context of consumer choice behavior. However, these studies have also specific problems associated with them. One of the most prominent weaknesses concerns the measurement of true variety-seeking behavior. Many of the models suggested within this approach do not allow for a formal distinction between true variety-seeking behavior and derived varied behavior. Therefore, the variety-seeking parameters obtained from these models primarily distinguish repeat purchasing from variation in behavior, without providing insight into the nature of the observed variation in behavior (true variety-seeking behavior versus derived varied behavior). As a result, many of these models are primarily descriptive in nature without providing a detailed insight into the nature of true variety-seeking behavior. The models developed within this approach are becoming increasingly sophisticated, progressing in a direction that in the long-run may allow for a better distinction between variety-seeking behavior and derived varied behavior.

Studies within the explicit approach take the underlying psychological processes for variety-seeking behavior as their point of departure. Building on the psychological theories of exploratory behavior, most of these studies have focused on personality characteristics as an explanation for individual differences in variety-seeking behavior intensity. Only recently have these studies begun to consider choice-context related determinants of variety-seeking behavior. Both person-related and context-related determinants have been shown to influence the intensity of variety-seeking in product choice behavior. Thus, these studies are likely to provide a more detailed insight into the psychological processes that may explain why and when variety-seeking behavior will occur. However, studies within the explicit approach also have specific weaknesses associated with them. Many of these studies have used stated behavior rather than actual manifestation of variety-seeking behavior in product choice. Also, the fact that many of these studies have been conducted in controlled experimental settings makes it difficult to capture the phenomenon within the broader context of other consumer choice mechanisms that compete and interact with the desire for variety in determining actual choice behavior.

Valid measures for variation in consumption behavior are a prime concern to both approaches to variety-seeking behavior. Although several measures have been proposed, the issue of their validity assessment has largely been ignored. This lack of established validity is problematic as it directly influences the validity of the results obtained, and renders a direct

comparison of results from various studies very difficult. Chapter 5 critically reviews measures for variation in consumption that have been proposed in the economics and marketing literatures and provides an empirical investigation into their validity. It is shown that rather than relating to one single underlying construct (variation in consumption), the measures can more accurately be classified into two distinct categories: those that quantify variation at the product level versus those that take into account the attribute composition of the brands switched to and from.

## Main contributions of the present study

### *The variety-seeking model*

The primary aim of the present study is to fill the gaps identified in previous work on temporal variety-seeking behavior. The variety-seeking model developed for this purpose explicitly distinguishes between a static and a dynamic component in consumer evaluation processes of product alternatives. In line with most of the previous research on the phenomenon, variety-seeking behavior is attributed to feedback mechanisms from previous consumption and purchasing, implying that it exerts its influence through the dynamic component of consumers' evaluation processes. The more static component, on the other hand, reflects the consumer's long-term preference for choice alternatives and captures both instrumental and hedonic product attributes.

The variety-seeking model allows for a more detailed analysis of the underlying processes of variety-seeking behavior, which relate to changes in perceived hedonic value of choice alternatives under the influence of previous consumption or purchase behavior. Three such underlying psychological processes are identified. *Boredom* with the choice task is a product-specific decrease in perceived hedonic value of the previously chosen alternative. As a result, the attractiveness of the previously chosen alternative decreases relative to that of all other choice alternatives. In such a situation, another alternative, for which the consumer's unconditional or long-term preference is lower than for the previously chosen alternative, may conditionally become more attractive. Switching behavior in response to this process is a first type of variety-seeking behavior identified in the variety-seeking model (cf. Jeuland 1978). In addition to boredom as an item-specific phenomenon, perceived hedonic value may also decrease under the influence of previous consumption in an attribute-specific manner. Over time, consumers may get satiated not only with repeated consumption of the same item, but also more specifically with certain attributes repeatedly delivered by the product. This process is well documented for sensory attributes, where it is referred to as 'sensory specific satiety' (LeMagnen 1967; Rolls 1986). In such instances, the consumer's evaluative judgment of one or more hedonic attributes changes under the influences of previous consumption. This phenomenon of *attribute satiation* is identified as the second psychological process underlying variety-seeking behavior (cf. McAlister 1982).

Whereas the previous two underlying processes emphasize the reduction in relative attractiveness of the previously chosen alternative vis-à-vis other alternatives, curiosity as an underlying motivation for variety-seeking behavior emphasizes the increase in absolute attractiveness of an alternative *not* chosen on the previous consumption occasion. Curiosity, the desire to close the information gap between what is known and what one wants to know (Loewenstein 1994), may increase the perceived value of one or more alternatives that have not been chosen on the previous occasion. Switching behavior instigated by the desire to solve product *curiosity* is identified as the third underlying process for variety-seeking in product choice behavior.

The three underlying processes share an important characteristic, namely that they all relate to the stimulation level experienced in choice behavior. Each of these three psychological processes is the result of a discrepancy between the Actual Stimulation Level (ASL) experienced in life and the Stimulation Level that is Optimal (OSL) for the consumer in question. Boredom and attribute satiation reflect sub-optimal levels of stimulation experienced in life (ASL) and variety-seeking behavior in response to these processes is a means of bringing ASL into closer correspondence with OSL. Curiosity on the other hand, is characterized by a mildly supra-optimal level of ASL and variety-seeking behavior to solve curiosity is a means of reducing ASL to bring it into closer correspondence with OSL. Correspondence between OSL and ASL is associated with positive affect. This idea is central to the concept of "Value derived from variety" that summarizes the utility derived from the three types of variety-seeking behavior discussed above. As each of these processes aims at bringing ASL into closer correspondence with OSL, variety-seeking behavior is an inherently pleasurable activity.

#### *Variety-seeking behavior as a trade-off*

The variety-seeking model states that in actual choice behavior, consumers base their choices on total expected value of consumption of an alternative. This total value assessment comprises a static and a dynamic component, referred to as expected value derived from product-related characteristics (reflected in the hedonic and instrumental long-term value of choice alternatives) and expected variety value (in response to boredom, attribute satiation and curiosity) respectively. In its basic form the variety-seeking model states that at choice occasion  $t$ , the consumer's decision to switch from alternative  $i$  consumed at  $t-1$  to any other alternative  $j$  in the choice set depends on an implicit or explicit comparison of the total expected value of alternatives  $i$  and  $j$ . If the total expected value associated with consumption of alternative  $j$  is higher than that of consuming alternative  $i$  again, the consumer is expected to switch. In many instances, the consumer decision to switch or not will depend on a trade-off between the two sources of total expected value. One of the contributions of the variety-seeking model is that it makes this trade-off explicit, thereby putting variety-seeking behavior into the broader context of consumer choice behavior rather than treating it in isolation.

Variety-seeking behavior is conceived of as one of the consumer choice mechanisms that competes and interacts with other relevant choice mechanisms (summarized in value derived from product-related characteristics) in determining choice behavior. Only when the variety-value inherent in switching behavior is the decisive motivator for variation in behavior, is the behavior referred to as true variety-seeking behavior. When the value derived from product-related characteristics is decisive, variation in behavior is referred to as derived or extrinsically motivated varied behavior.

By considering variety-seeking behavior in the broader context of consumer choice behavior, the formulation of the variety-seeking model not only allows for a formal classification of observed variation in behavior as either variety-seeking behavior or derived varied behavior, it also provides an explicit framework to structure determinants in choice behavior that may either stimulate or reduce the occurrence of variety-seeking in actual product choice behavior.

### *Determinants of variety-seeking behavior*

In terms of determinants of variety-seeking behavior, the present work extends previous work by considering product-related determinants and their interaction with the person-related determinants are also considered. Central to the hypothesized interaction between person- and product-related determinants is the notion that product-related determinants operate as controlling factors on consumer choice behavior. Building on cognitive evaluation theory (e.g. Deci and Ryan 1985), the variety-seeking model suggests that these product-related determinants put extrinsic pressure on consumer choice behavior, thereby pressuring choice in a certain direction and reducing the consumer's perceived freedom in choice. As a consequence, the controlling factors are hypothesized to limit the expression of the intrinsic desire for variety in consumers who otherwise would be quite likely to engage in variety-seeking behavior. The present approach suggests that consumers with a high intrinsic need for variety will be particularly sensitive to controlling factors in choice behavior, and in addition to main effects for person-related and product-related determinants, hypothesizes that the product-related determinants will interact with consumers' variety-seeking tendency.

### *Person-related determinants of variety-seeking behavior*

Two hypotheses regarding the main effect of person-related determinants of variety-seeking behavior were empirically tested. The first hypothesis states that consumers with a higher variety-seeking tendency are more likely to engage in variety-seeking behavior than those with a lower variety-seeking tendency. A domain-specific scale, VARSEEK, was developed that specifically taps variety-seeking tendency with respect to foods. The construct validity of the measurement instrument was investigated extensively and confirmed. The nomological validity of the VARSEEK-scale was also confirmed, both in terms of more general personality scales to which it is hypothesized to relate (general OSL and OSL in the consumer

context) and in terms of manifestations of variety-seeking behavior (both self-report measures and actual behavior). VARSEEK's relationship with variety-seeking behavior confirms that variety-seeking tendency is an important determinant of variety-seeking behavior. Confidence in VARSEEK's predictive validity was further enhanced in a large scale study on consumer panel data that explicitly allowed for the distinction between true variety-seeking behavior and derived varied behavior. On these "real-life" choice data, the role of VARSEEK as a determinant of variety-seeking behavior was confirmed, both relative to repeat purchases and derived brand switches.

Our second hypothesis with respect to person-related determinants of variety-seeking behavior states that VARSEEK, as a measure specifically tapping consumers' variety tendency with respect to foods, should have higher predictive validity than both (a) general measures for OSL and (b) consumer specific measures for OSL, when the purpose is to predict variety-seeking in food consumption. The rationale behind this hypothesis is the "principle of measurement correspondence" (Ajzen 1987), which states that higher predictive validity will be achieved when the predictor concept (e.g. personality variables) is measured at the same level of specificity as the behavior purportedly being predicted. Consistent support was found for VARSEEK's predictive superiority vis-à-vis a general personality measure for OSL (CSI; Steenkamp and Baumgartner 1995). However, only weak support was found for VARSEEK's predictive validity vis-à-vis a measure for OSL in the consumer context (EBBT; Baumgartner and Steenkamp 1994), in particular with respect to EBBT's subscale for Exploratory Acquisition of Products (EAP). In its definition, "a consumer's tendency to seek sensory stimulation in product purchase through risky and innovative product choices and varied and changing purchase experiences" (Baumgartner and Steenkamp 1994: 6), the EAP-subscale bears high similarity with our concept of variety-seeking tendency. Empirical results reveal that the two constructs are closely related, as is evidenced by their bivariate correlation of 0.670 ( $p < .001$ ). Although VARSEEK has a slight predictive advantage when the purpose is to predict variation in food choice behavior, the size of this advantage is not likely to compensate for the food-specific nature of the VARSEEK-scale. Although future confirmation is required, it seems that the more general nature of EAP would make this subscale a promising alternative for the VARSEEK-scale when the purpose is to predict variety-seeking in product choice behavior outside the domain of foods.

#### *Product-related determinants of variety-seeking behavior*

Context factors as a determinant of variety-seeking behavior intensity have only recently begun to attract attention in the marketing literature. Examples include purchase strategy (Simonson 1990), display format (Simonson and Winer 1992), consumers' mood during decision making (Kahn and Isen 1993) and context variation (Menon and Kahn 1994). The present study extends this stream of research by deriving and testing specific hypotheses for what we refer to as "product-related" determinants of variety-seeking behavior. These

hypotheses follow from the variety-seeking model's assumption that whether or not variety-seeking behavior will occur depends of the magnitude of the variety value inherent in switching behavior relative to the magnitude of the difference in value derived from product-related characteristics (hedonic and instrumental value) associated with the alternatives switched from and to. Product-related determinants of variety-seeking behavior may exert their influence through both of these value-components. Consequently, the variety-seeking model suggests three classes of product-related determinants:

1. those that affect value derived from variety
2. those that affect the difference in value derived from product-related characteristics
3. those that simultaneously affect value derived from variety and difference in value derived from product-related characteristics

The present work further extends previous work in this area in that it not only considers the main effect of these product related determinants of variety-seeking behavior, but in addition hypothesizes that these product-related determinants will interact with the person-related determinants. Consumers low in variety-seeking tendency are not likely to derive value from variety and thus are not likely to engage in variety-seeking behavior, irrespective of the product-related characteristics. Consumers high in variety-seeking tendency, on the other hand, are quite likely to express their intrinsic desire into actual variety-seeking behavior *unless* product-related determinants exert a controlling effect on the choice task.

Several hypotheses with respect to product-related determinants of variety-seeking behavior and their interaction with variety-seeking tendency were empirically tested in a large-scale consumer panel. In addition to recording brand choice behavior over time, the data collection procedure also identified underlying motivations for brand switching, thus allowing for a distinction between true variety-seeking behavior and derived varied behavior. The data collection procedure adopted thus permitted a test of the hypothesized determinants of variety-seeking behavior relative to both repeat purchasing *and* derived varied behavior. Empirical support was found for the hypotheses with respect to low product-category involvement, small perceived differences among the choice alternatives, low brand loyalty and high hedonic features as product-related determinants that stimulate variety-seeking behavior vis-à-vis repeat purchasing and derived varied behavior. All of these characteristics distinguished variety-seeking behavior in a statistically significant sense, with the exception of small perceived differences relative to derived switching behavior. Mixed support was found for the hypothesized interactive effects. Consistent support was found for the hypothesized interactive effect between variety-seeking tendency and low involvement. In addition, relative to repeat purchasing, support was found for the hypothesized interactive effect between variety-seeking tendency and high hedonic features of the product category as a determinant of variety-seeking behavior. The direction of the interactive effect between variety-seeking tendency and small perceived differences was opposite to the hypothesized

direction. Overall, the results of the present study provide considerable evidence for the variety-seeking model's central notion that variety-seeking behavior is under the joint influence of person-related determinants, product-related determinants and their interaction.

### *Concluding remarks*

Meaningful investigation of variety-seeking behavior intensity requires an a priori specification of a set of choice alternatives among which the phenomenon is being investigated. This researcher-based demarcation of the relevant choice set is to some extent arbitrary and can be made at different levels of abstraction of product definitions. For example, variety-seeking behavior may be investigated at the level of different product types within a particular product category, such as different types of vegetables, fruits, drinks (coffee, tea, beer, soft drinks etc), or desserts (e.g. ice cream, flavored yogurt etc). However, the phenomenon can also meaningfully be explored at the level of different items within a product type (e.g. different flavors of yogurt, different brands of beer etc.). The level of abstraction at which variety-seeking behavior is investigated will influence the relative importance of the different underlying psychological processes for variety-seeking behavior and consequently the variety-seeking behavior intensity observed. The variety-seeking model attempts to account for these differences in variety-seeking behavior intensity through the incorporation of product-related determinants that may generalize across product levels. Perceived differentiation among the alternatives in the choice set to a large extent accounts for these differences. For example, at the level of product types within a particular product category, alternatives in the consumer's choice set are likely to have a considerable degree of perceptual variation, while all being capable of satisfying the identified need adequately (i.e. low preferential differentiation). At this level, all three underlying psychological processes for variety-seeking are likely to contribute to the stimulation of variety-seeking behavior. On the other hand, at the level of brands within a narrowly defined product type (e.g. coffee or cigarettes), the perceived perceptual differentiation among alternatives is likely to be considerably smaller. In such instances, attribute satiation is less likely to be an important underlying motivator for variety-seeking behavior, simply because the items in the (researcher-defined) choice set only have a very limited capacity of relieving this attribute satiation. Consequently, at this level of product definition, variety-seeking behavior will mainly result from boredom and curiosity and variety-seeking intensity may be lower. On the other hand, for some products, perceptual differentiation within the product type can be considerable even when preferential differentiation is small. For example, this would be the case for different flavors of a product type, such as flavored yogurt. In those instances when perceptual differentiation will be higher, all three underlying processes for variety-seeking behavior may contribute and variety-seeking behavior intensity would be expected to be higher.

**Suggestions for future research**

The present study filled in a number of gaps in the theoretical account for variety-seeking behavior. The variety-seeking model and the empirical work evolving from it suggest a number of promising avenues for future research in the area of variety-seeking behavior.

As most other contributions to the variety-seeking literature, our variety seeking model only takes into account the influence of the most recent consumption experience on present choice behavior (i.e. a first-order process). Within the implicit approach to variety-seeking behavior, higher-order models have been proposed (e.g. Jeuland 1978; McAlister 1982; Kahn, Kalwani and Morrison 1986; Lattin 1987; Bawa 1990), but not in combination with the strict separation between true variety-seeking behavior and derived varied behavior. Future investigations might focus on the extension of the present model to higher-order feedback effects, as well as on the adequacy of the present first-order formulation vis-à-vis extended model formulations. The strict distinction between true variety-seeking and derived varied behavior is of crucial importance to the power of this comparative test as marketing-mix influences on variation in behavior tend to drive observed purchase behavior toward lower-order (Kahn, Kalwani and Morrison 1986).

Three underlying processes for variety-seeking behavior were identified. Future research might explore each of these underlying processes in more detail as well as their relative impact on variety-seeking behavior in different choice contexts. Boredom with the choice task and attribute satiation are psychological processes that relate to sub-optimal levels of stimulation. More insight is needed into these processes, in particular with respect to the type of products and product attributes that are more likely to stimulate boredom and attribute satiation than others, and the managerial implications in terms of product-line development. The underlying process of curiosity in consumption behavior might be another fruitful avenue for future work. This motivation has direct marketing implications in terms of new product development and product communication. Curiosity may be an important consumer motivation that can be appealed to in an attempt to attract customers for a new product introduction. In this respect, curiosity poses an interesting paradox: it may stimulate product trial, but it also is relatively easily satisfied. After an initial product trial, it will be hard to retain curiosity-motivated customers for the new product. Relevant issues that will require further investigation are how "new" or different a new product introduction should be to stimulate variety-seeking behavior without casting doubt on the product's extrinsic value, and which characteristics the new product should have in order to extend curiosity-motivated product trial into a basis for repeat purchasing or brand loyalty. As curiosity results from an information gap between what is known and what one wants to know (Loewenstein 1994), this type of research may build on insights on consumer knowledge development and knowledge structuring.

We suggested several product-related determinants of variety-seeking behavior that have not yet been subjected to empirical investigation. Future research will be needed to

empirically test product-related determinants developed in the present work and to suggest additional determinants that may contribute to the explanation of the circumstances under which variety-seeking behavior is more or less likely to be a determinant factor in consumer choice behavior. The product-related determinants that affect variety-seeking behavior intensity simultaneously through variety value *and* through the difference in value derived from product-related characteristics would be particularly interesting research topics. This category of product-related determinants includes the related concepts of product-category involvement, perceived differences among alternatives and perceived risk. Depending on the type of attributes involved, perceived differences among choice alternatives are hypothesized to simultaneously stimulate and reduce variety-seeking behavior intensity, where the balance between these two effects depends on product-related characteristics such as product-category involvement and perceived risk. More research is needed to provide a more detailed insight into this joint effect of perceived differentiation among choice alternatives.

The variety-seeking model is a conceptual model that allows for the integration of previous research findings on determinants of variety-seeking intensity by expressing them in terms of their effect on two value components: value derived from product related characteristics and value derived from variety. From our variety-seeking model specific hypotheses were developed for product-related determinants. Although not specifically addressed in the present work, hypotheses concerning marketing-mix influences on variety-seeking intensity may similarly be expressed in terms of the two value-components of the variety-seeking model. For example, the variety-seeking model suggests that controlling factors may limit the expression of variety-seeking behavior among consumers who are high in variety-seeking tendency. Thus, marketing efforts that aim at eliminating these controlling factors would be expected to increase variety seeking behavior, whereas those that impose controlling factors would be expected to stimulate variety seeking behavior. Consider, for example, a major brand. For such a brand, the variety-seeking model suggests that variety-seeking behavior among current users might be discouraged by marketing efforts (e.g. through product positioning or advertising) that emphasize the switching costs in terms of the differential in value derived from product-related characteristics. Minor brands in the same market may stimulate consumers to switch away from the major brand by marketing efforts that reduce the switching costs in terms of the differential in value derived from product-related characteristics (e.g. price discounts) and/or by appealing to the intrinsic desire for variety (e.g. emphasizing the novelty and change). Future research will be needed into the effect of marketing-mix variables on the intensity and direction of variety-seeking behavior. As specific hypotheses directly follow from the variety-seeking model, confirmation of these hypotheses can provide further support for the validity of the variety-seeking model. Again, empirical assessment of hypothesized effects of marketing-mix variables will critically depend on the separation between true variety-seeking behavior and derived varied behavior.

We explicitly considered variety-seeking behavior as one of the many choice mechanisms relevant for consumer choice behavior and developed specific hypotheses with respect to why and when consumers' variety-seeking tendency is likely to be a determinant consideration in choice behavior vis-à-vis repeat purchasing and derived varied behavior. A fruitful avenue for future research would be to consider the situations under which different forms of derived varied behavior, such as situational and normative considerations, price- and product-related considerations, and habit reversion, are more or less likely to be determinant factors in consumer choice behavior. Together with the results of the present work, this line of research would provide a more detailed picture of consumers' trade-offs in the complex phenomenon of consumers' product choice behavior.



## REFERENCES

- Aaker, D.A. (1991), *Managing Brand Equity*. New York: Free Press.
- Abbott, L. (1955), *Quality and Competition*. Westwood: Greenwood Press.
- Ajzen, I. (1987), Attitudes, traits and actions: dispositional prediction of behavior in personality and social psychology. In: L. Berkowitz (Ed), *Advances in Experimental Social Psychology*, Vol. 20. San Diego: Academic Press, 1-63.
- Ajzen, I. and M. Fishbein (1977), Attitude-behavior relations: a theoretical analysis and review of empirical research. *Psychological Bulletin* 84, 888-918.
- Ajzen, I. and M. Fishbein (1980), *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Alba, J. and J.W. Hutchinson (1987), Dimensions of consumer expertise. *Journal of Consumer Research* 14, 411-454.
- Alderson, W. (1957), *Marketing Behavior and Executive Action*. Homewood, Ill: Richard D. Irwin.
- Alpert, M.I. (1971), Identification of determinant attributes: a comparison of methods. *Journal of Marketing Research* 8, 184-191.
- Alwin, D.F. and D.J. Jackson (1981), Applications of simultaneous factor analysis to issues of factorial invariance. In: D.J. Jackson and E.F. Borgatta (Eds), *Factor analysis and measurement in sociological research: a multi-dimensional perspective*. Beverly Hills: Sage, 249-279.
- Anderson, J.C. and D.W. Gerbing (1984), The effect of sampling error on convergence, improper solutions, and goodness-of-fit indices for maximum likelihood confirmatory factor analysis. *Psychometrika* 49, 155-173.
- Anderson, N.H. and J. Shanteau (1977), Weak inference with linear models. *Psychological Bulletin* 184, 1155-1170.
- Armor, D.J. (1974), Theta reliability and factor scaling. In: H.L. Costner (Ed.), *Sociological methodology 1973-1974*. San Francisco: Jossey-Bass, 17-50.
- Assael, H. (1987), *Consumer Behavior and Marketing Action*. Boston, MA: Kent Publishing Company, 3rd edition.
- Babin, B.J., W.R. Darden and M. Griffin (1994), Work and/or fun: measuring hedonic and utilitarian shopping value. *Journal of Consumer Research* 20, 644-656.
- Bagozzi, R.P. (1980), *Causal Models in Marketing*. New York: John Wiley and Sons.
- Barsalou, L.W. (1985), Idea, central tendency, and frequency of instantiation as determinants of graded structure. *Journal of Experimental Psychology -Learning, memory, and Cognition* 11, 629-657.
- Bass, F.M., E.A. Pessemier, and D.R. Lehmann (1972), An experimental study of relationships between attitudes, brand preference, and choice. *Behavioral Science* 17, 532-541.

- Batra, R. and O.T. Ahtola (1990), Measuring the hedonic and utilitarian sources of consumer attitudes. *Marketing Letters* 2 (2), 159-170.
- Batra, R. and M.B. Holbrook (1990), Developing a typology of affective responses to advertising. *Psychology and Marketing* 7 (Spring), 11-25.
- Baumgartner, H. and J-B.E.M. Steenkamp (1991), An investigation into the validity of Raju's scale of exploratory behavior tendencies. In: Frank Bradley (Ed), *Marketing Thought around the World, Proceedings of the 20th European Marketing Academy Conference, Vol. 1*. Dublin: University College, 1-20.
- Baumgartner, H. and J-B.E.M. Steenkamp (1994), *Exploratory Consumer Behavior: Conceptualization and Measurement*. Working Paper 9418. Department of Toegepaste Economische Wetenschappen, Catholic University of Leuven, Belgium.
- Bawa, K. (1990), Modeling inertia and variety seeking tendencies in brand choice behavior. *Marketing Science* 9, 263-278.
- Belk, R.W. (1985), Issues in the intention-behavior discrepancy. In: J.N. Sheth (Ed.), *Research in Consumer Behavior, Vol. 1*. Greenwich, CT: JAI Press, 1-34.
- Bellenger, D.N. and P.K. Korgoankar (1980), Profiling the recreational shopper. *Journal of Retailing* 56 (3), 77-92.
- Bentler, P.M. (1990), Comparative fit indices in structural models. *Psychological Bulletin* 107, 238-246.
- Bentler, P.M. and D.G. Bonett (1980), Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin* 88, 588-606.
- Berlyne, D.E. (1960), *Conflict, Arousal, and Curiosity*. New York: McGraw-Hill.
- Berlyne, D.E. (1963), Motivational problems raised by exploratory and epistemic behavior. In: S. Koch (Ed.), *Psychology: A Study of Science, Vol. 5*. New York: McGraw-Hill, 284-364.
- Berlyne, D.E. (1966), Curiosity and exploration, *Science* 153 (July), 25-33.
- Berlyne, D.E. (1967), Arousal and reinforcement. In: D. Levine (Ed.), *Nebraska Symposium on Motivation*. Lincoln, NE: University of Nebraska Press, 1-110.
- Berlyne, D.E. (1971), *Aesthetics and Psychobiology*. Englewood Cliffs, NJ: Prentice Hall.
- Berlyne, D.E. (1974), *Studies in the New Experimental Aesthetics*. Washington, DC: Hemisphere.
- Bettman, J.R. (1979), *An Information Processing Theory of Consumer Choice*. Reading, MA: Addison-Wesley.
- Bloch, P.H., D.L. Sherrell and N.M. Ridgway (1986), Consumer search: an extended framework. *Journal of Consumer Research* 13, 119-126.
- Bone, P.F., S. Sharma, and T.A. Shimp (1989), A bootstrap procedure for evaluating goodness-of-fit indices of structural equation and confirmatory factor models. *Journal of Marketing Research* 26, 105-111.

- Boomsma, A. (1982), The robustness of LISREL against small samples in factor analysis models. In: K.G. Jöreskog and H. Wold (Eds.), *Systems under indirect observation, Part I*. Amsterdam: North-Holland, 149-173.
- Boucher, J. and C.E. Osgood (1969), The pollyanna hypothesis. *Journal of Verbal Learning and Verbal Behavior* 8 (1), 1-8.
- Browne, M.W. (1982), Covariance structures. In: D.M. Hawkins (Ed.), *Topics in Applied Multivariate Analysis*. Cambridge (UK): Cambridge University Press, 72-141.
- Browne, M.W. (1984), Asymptotically distribution-free methods for the analysis of covariance structures. *British Journal of Mathematical and Statistical Psychology* 37, 62-83.
- Bunch, D.S. and R.P. Batsell (1989), A Monte Carlo comparison of estimators for the multinomial logit model. *Journal of Marketing Research* 26, 56-68.
- Butler, R. (1953), Discrimination learning by rhesus monkeys to visual exploration motivation. *Journal of Comparative and Physiological Psychology* 50, 177-179.
- Cabanac, M. (1971), Physiological role of pleasure. *Science* 173, 1103-1107.
- Campbell, D.T. and D.W. Fiske (1959), Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin* 56, 81-105.
- Carmone, F.J. and P.E. Green (1981), Model misspecification in multiattribute parameter estimation. *Journal of Marketing Research* 18, 87-93.
- Cattell, R.B. (1966), The scree test for the number of factors. *Multivariate Behavioral Research* 1, 245-276.
- Crowley, A.E., E.R. Spangenberg and K.R. Hughes (1992), Measuring the hedonic and utilitarian dimensions of attitudes toward product categories. *Marketing Letters* 3, 239-249.
- Csikszentmihalyi, M. (1975), *Beyond Boredom and Anxiety: The Experience of Play in Work and Games*. San Francisco: Jossey-Bass.
- Cudeck, R. and M.W. Brown (1983), Cross-validation in covariance structures. *Multivariate Behavioral Research* 18, 147-167.
- Cunningham, S.M. (1967), The major dimensions of perceived risk. In: D.F. Cox (Ed), *Risk Taking and Information Handling in Consumer Behavior*. Boston, MA: Harvard University Press, 82-108.
- Day, H.I. (1971), The measurement of specific curiosity. In: H.I. Day, D.E. Berlyne and D.E. Hunt (Eds), *Intrinsic motivation: a new direction in education*. New York: Rineholt & Winston, 41-48.
- Deci, E.L. (1975), *Intrinsic Motivation*. New York: Plenum Press.
- Deci, E.L. (1987), Theories and paradigms, constructs and operations: intrinsic motivation research is already exciting. *Journal of Social Behavior and Personality* 2 (2, part 1), 177-185.

- Deci, E.L. and R.M. Ryan (1985), *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Plenum Press.
- Deci, E.L. and R.M. Ryan (1987), The support of autonomy and the control of behavior. *Journal of Personality and Social Psychology* 53, 1024-1037.
- Deci, E.L. and R.M. Ryan (1990), A motivational approach to the self: integration in personality. In: R.A. Dienstbier (Ed.), *Perspectives on Motivations, Nebraska Symposium on Motivation 1990*. Lincoln: University of Nebraska Press, 237-288.
- DeCharms, R. (1968), *Personal Causation: The internal affective Determinants of Behavior*. New York: Academic Press.
- Dember, W.N. and R.W. Earl (1957), Analysis of exploratory, manipulatory, and curiosity behaviors. *Psychological Review* 64, 91-96.
- Dillon, W.R. (1986), Building consumer behavior models with LISREL: issues in applications. In: D. Brinberg and R.J. Lutz (Eds), *Perspectives on Methodology in Consumer Research*. New York: Springer Verlag, 107-154.
- Donovan, R.J. and J.R. Rossiter (1982), Store atmosphere: an environmental psychology approach. *Journal of Retailing* 58 (1), 34-57.
- Efron, B. (1979), Bootstrap methods: another look at the jackknife, *Annual of Statistics* 7, 1-26.
- Efron, B. (1982), *The Jackknife, the Bootstrap, and Other Resampling Plans*. Philadelphia: Society for Industrial and Applied Mathematics.
- Ehrenberg, A.S.C. (1969), Toward an integrated theory of consumer behavior: something for theoreticians to work on and for practical men to think about. *Journal of the Market Research Society* 11, 305-337.
- Ehrenberg, A.S.C. (1972), *Repeat Buying*. Amsterdam: North Holland Publishing Company.
- Einhorn, H.J. and R.M. Hogarth (1985), Ambiguity and uncertainty in probabilistic inference. *Psychological Bulletin* 92, 433-461.
- Faison, E.W.J. (1977), The neglected variety drive: a useful concept for consumer behavior. *Journal of Consumer Research* 4, 172-175.
- Farquhar, P. H. and V.R. Rao (1976), A balance model for evaluating subsets of multiattributed items. *Management Science* 22, 528-539.
- Fazio, R.H. and M.P. Zanna (1981), Direct experience and attitude-behavior consistency. In: L. Berkowitz (Ed.), *Advances in Experimental Social Psychology*, Vol. 14. New York: Academic Press, 162-202.
- Feij, J.A. and R.W. Van Zuilen (1984), *SBL handleiding spanningsbehoefteijst*. Lisse: Swets & Zeitlinger.
- Feij, J.A., R.W. Van Zuilen and A. Gazendam (1982), The development of a Dutch sensation-seeking questionnaire: De Spanningsbehoefteijst. *Gedrag-tijdschrift voor Psychologie* 10, 364-383 (In Dutch with English summary).

- Feinberg, F.M., B.E. Kahn and L. McAlister (1992), Market share response when consumers seek variety. *Journal of Marketing Research* 29, 227-237.
- Fennell, G. (1975), Motivation research revisited. *Journal of Advertising Research* 15 (3), 23-28.
- Fennell, G. (1978), Consumers' perceptions of the product-use situation. *Journal of Marketing* 42 (2), 38-47.
- Fishbein, M. (1967), A behavior theory approach to the relations between beliefs about an object and the attitude toward the object. In: M. Fishbein (Ed), *Readings in Attitude Theory and Measurement*. New York: Wiley, 389-399.
- Fishbein, M. and I. Ajzen (1975), *Belief, Attitude, Intention and Behavior*. Reading, MA: Addison-Wesley.
- Fiske, D.W. and S.R. Maddi (1961), *Functions of Varied Experience*. Homewood, IL: Dorsey Press.
- Fornell, C. and D.F. Larcker (1981), Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research* 18, 39-50.
- Garlington, W.K. and H.E. Shimota (1964), The change seeker index: a measure of the need for variable stimulation input. *Psychological Reports* 14, 919-924.
- Garlington, W.K. and M. Russell (1983), The change seeker index: an update on norms for college students. *Psychological Reports* 53 (3, part 1), 880-882.
- Gerbing, D.W. and J.C. Anderson (1985), The effects of sampling error and model characteristics on parameter estimation for maximum likelihood confirmatory factor analysis. *Multivariate Behavioral Research* 20, 255-271.
- Gerbing, D.W. and J.C. Anderson (1988), An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of Marketing Research* 25, 186-192.
- Givon, M. (1984), Variety seeking through brand switching. *Marketing Science*, 3 (Winter), 1-22.
- Givon, M. (1985), Variety seeking, market positioning and segmentation. *International Journal of Research in Marketing* 2, 117-127.
- Green, P.E. and M.T. Devita (1974), A complementarity model of consumer utility for item collections. *Journal of Consumer Research* 1, 56-67.
- Green, P.E. and M.T. Devita (1975), An interaction model of consumer utility. *Journal of Consumer Research* 2, 146-153.
- Green, P.E., Y. Wind and A.K. Jain (1973), Preference measurement for item collections. *Journal of Marketing Research* 9, 371-377.
- Guadagni, P.M. and J.D.C. Little (1983), A logit model of brand choice. *Marketing Science* 2, 203-238.
- Halliday, M.S. (1966), Exploration and fear in the rat. *Symposium of the Zoological Society of London* 18, 45-54.

- Handelsman, M. (1987), Varied purchase behaviour as a result of purchase history and perceived brand similarity. *Journal of the Market Research Society* 29, 293-315.
- Hanna, J.G. (1980), A typology of consumer needs. In: J.N. Sheth (Ed.), *Research in Marketing, Vol 3*. Greenwich, CT: JAI Press, 83-104.
- Hansen, F. (1972), *Consumer Choice Behavior*, New York: The Free Press.
- Hattie, J.A. (1985), Methodology review: Assessing unidimensionality of tests and items. *Applied Psychological Measurement* 9, 139-164.
- Hebb, D.O. (1955), Drives and the c.n.s. (conceptual nervous system). *Psychological Review* 62, 243-254.
- Herzberg, F., B. Mausner and B.B. Snyderman (1959), *The Motivation to Work*. New York: John Wiley.
- Hildebrandt, L. (1987), Consumer retail satisfaction in rural areas: a reanalysis of survey data. *Journal of Economic Psychology* 8, 19-42.
- Hildebrandt, L. (1988), Store image and the prediction of performance in retailing. *Journal of Business Research* 17, 91-100.
- Hirschman, E.C. (1980), Innovativeness, novelty seeking, and consumer creativity. *Journal of Consumer Research* 7, 283-295.
- Hirschman, E.C. (1984), Experience seeking: a subjectivist perspective of consumption. *Journal of Business Research* 12, 115-136
- Hirschman, E.C. and M.B. Holbrook (1982), Hedonic consumption: emerging concepts, methods and propositions. *Journal of Marketing* 46 (Summer), 92-101
- Hirschman, E.C. and M. Wallendorf (1980), Some implications of variety seeking for advertising and advertisers. *Journal of Advertising* 9 (2), 17-19, 43.
- Holbrook, M.B. (1984), Situation-specific ideal points and usage of multiple dissimilar brands. In: J.N. Sheth (Ed), *Research in Marketing, Vol. 7*. Greenwich, CT: JAI Press, 93-131.
- Holbrook, M.B. (1986), Emotion in the consumption experience: toward a new model of the human consumer. In: R.A. Peterson, W.D. Hoyer and W.R. Wilson (Eds), *The Role of Affect in Consumer Behavior: emerging Theories and Applications*. Lexington, MA: Lexington Books, 17-52.
- Holbrook, M.B. and R. Batra (1987), Assessing the role of emotions as mediators of consumer response to advertising. *Journal of Consumer Research* 14, 404-420.
- Holbrook, M.B. and E.C. Hirschman (1982), The experiential aspects of consumption: consumer fantasies, feelings and fun. *Journal of Consumer Research* 9, 132-140.
- Holbrook, M.B. and R.B. Zirlin (1985), Artistic creation, artworks and aesthetic appreciation: some philosophical contributions to nonprofit marketing. In: R.W. Belk (Ed), *Research in Nonprofit Marketing, Vol. 1*. Greenwich, CT: JAI Press, 1-54.

- Holbrook, M.B., D.R. Lehmann and J. O'Shaughnessy (1986), Using versus choosing: the relationship of the consumption experience to reasons for purchasing. *European Journal of Marketing* 20 (8), 49-62.
- Holbrook, M.B., R.W. Chestnut, T.A. Oliva, and E.A. Greenleaf (1984), Play as a consumption experience: the roles of emotions, performance and personality in the enjoyment of games. *Journal of Consumer Research* 11, 728-739.
- Howard, J.A. (1989), *Consumer Behavior in Marketing Strategy*. Englewood Cliffs, NJ: Prentice Hall.
- Howard, J.A. and J.N. Sheth (1969), *The Theory of Buyer Behavior*. New York: John Wiley.
- Hoyer, W.D. (1984), An examination of consumer decision making for a common repeat purchase product. *Journal of Consumer Research* 11, 822-829.
- Hoyer, W.D. and N.M. Ridgway (1984), Variety seeking as an explanation for exploratory purchase behavior: A theoretical model. In: T.C. Kinnear (Ed), *Advances in Consumer Research*, Vol. 11. Provo, UT: Association for Consumer Research, 114-119.
- Hunt, J. McV. (1965), Intrinsic motivation and its role in psychological development. *Nebraska Symposium on Motivation* 13, 189-282.
- Inman, J.J. and L. McAlister (1993), A retailer promotion policy model considering promotion signal sensitivity. *Marketing Science* 12, 339-356.
- Isaac, W. (1962), Evidence for a sensory drive in monkeys. *Psychological Reports* 11, 175-181.
- Isen, A.M. (1984), Toward understanding the role of affect in cognition. In: R.S. Wyer, Jr. and T.K. Srull (Eds), *Handbook of Social Cognition*, Vol. 3. Hillsdale, NJ: Erlbaum, 179-236.
- Isen, A.M. (1987), Positive affect, cognitive processes and social behavior. In: L. Berkowitz (Ed), *Advances in Experimental Social Psychology*, Vol. 20. New York: Academic Press, 203-253.
- Izard, C.E. (1977), *Human Emotions*. New York: Plenum.
- Jacoby, J. and R.W. Chestnut (1978), *Brand Loyalty: Measurement and Management*. New York: John Wiley & Sons, Inc.
- Jackson, L.F. (1984), Hierarchic demand and the Engel curve for variety. *The Review of Economics and Statistics* 66 (1), 8-15.
- Jeuland, A.P. (1978), Brand preference over time: a partially deterministic operationalization of the notion of variety seeking. In: S.C. Jain (Ed.), *Research Frontiers in Marketing: Dialogues and Directions*. AMA Educator's Conference Proceedings, Chicago, IL: American Marketing Association, 33-37.
- Jeuland, A.P. (1979), Brand choice inertia as one aspect of the notion of brand loyalty. *Management Science*, 25, 671-682.
- Joachimsthaler, E.A. and J.L. Lastovicka (1984), Optimal stimulation level- exploratory behavior models. *Journal of Consumer Research* 11, 830-835.

- Jöreskog, K.G. and D. Sörbom (1988), *LISREL VII: A Guide to the Program and Applications*. Chicago, Ill: SPSS Inc.
- Jöreskog, K.G. and D. Sörbom (1993), *LISREL-8: Structural Equation Modeling with the SIMPLIS Command Language*. Hillsdale, NJ: Lawrence Erlbaum.
- Judd, C.M., R. Jessor and J.E. Donovan (1986), Structural equation models and personality research. *Journal of Personality* 54 (1), 149-198.
- Jung, J. (1978), *Understanding Human Motivation: a Cognitive Approach*. New York: MacMillan.
- Kahn, B.E. and A.M. Isen (1993), The influence of positive affect on variety seeking among safe, enjoyable products. *Journal of Consumer Research* 20, 257-270.
- Kahn, B.E. and D.R. Lehmann (1991), Modeling choice among assortments. *Journal of Retailing* 67, 274-299.
- Kahn, B.E. and T.A. Louie (1990), Effects of retraction of price promotions on brand choice behavior for variety-seeking and last-purchase-loyal consumers. *Journal of Marketing Research* 27, 279-289.
- Kahn, B.E. and J.S. Raju (1991), Effects of price promotions on variety-seeking and reinforcement behavior. *Marketing Science* 10, 316-337.
- Kahn, B.E. and R.K. Sarin (1988), Modeling ambiguity in decisions under uncertainty. *Journal of Consumer Research* 15, 265-272.
- Kahn, B.E., M.U. Kalwani, and D.G. Morrison (1986), Measuring variety-seeking and reinforcement behaviors using panel data. *Journal of Marketing Research* 23, 89-100.
- Kahn, B.E., M.U. Kalwani, and D.G. Morrison (1988), Niching versus change-of-pace brands: using purchases frequencies and penetration rates to infer brand positionings. *Journal of Marketing Research* 25, 384-390.
- Kassarjian, H.H. and M.J. Scheffet (1991), Personality and consumer behavior: an update. In: H.H. Kassarjian and T.S. Robertson (Eds), *Perspectives in Consumer Behavior*. Englewood Cliffs, NJ: Prentice Hall, 281-303.
- Keon, J.W. (1980), The bargain value model and a comparison of managerial implications with the linear learning model. *Management Science* 26, 1117-1130.
- Koch, S. (1956), Behavior as "intrinsically" regulated: work notes toward a pre-theory of phenomena called "motivational". *Nebraska Symposium on Motivation* 4, 42-87.
- Lancaster, K. (1966), A new approach to consumer theory. *Journal of Political Economy* 74, 567-585.
- Lancaster, K. (1971), *Consumer Demand: A new Approach*. New York: Columbia University Press.
- Lattin, J.M. (1987), A model of balanced choice behavior. *Marketing Science* 6, 48-65.
- Lattin, J.M. and L. McAlister (1985), Using a variety-seeking model to identify substitute and complementary relationships among competing products. *Journal of Marketing Research* 22, 330-339.

- Lawrence, R.J. (1969), Patterns of buyer behavior: time for a new approach? *Journal of Marketing Research* 6, 137-144.
- Lee, J. (1987), The demand for varied diet with econometric models for count data. *American Journal of Agricultural Economics* 69, 687-692.
- Lee, J. and M.G. Brown (1989), *The Consumer's Demand for Food Diversity*. Paper presented at the Southern Agricultural Economics Association Winter Meetings, February, Nashville, Tennessee.
- LeMagnen, J. (1967), Habits and food intake. *Handbook of Physiology, section 6, Volume 1*. Washington D.C.: American Physiological Society, 11-30.
- Lester, D. (1967), Effects of fear upon exploratory behavior. *Psychonomic Science* 1, 117-118.
- Lester, D. (1968), Two tests of a fear motivated theory of exploration. *Psychonomic Science* 10, 385-386.
- Leuba, C. (1955), Toward some integration of learning theories: the concept of optimal stimulation. *Psychological Reports* 1, 27-33.
- Levy, S.I. (1959), Symbols for sale. *Harvard Business Review* 37, 117-119.
- Loewenstein, G. (1994), The psychology of curiosity: a review and reinterpretation. *Psychological Bulletin* 116 (1), 75-98.
- MacFadyan, H.W. (1986), Motivational constructs in psychology. In: A.J. MacFadyan and H.W. MacFadyan (Eds), *Economic Psychology: Intersections in Theory and Application*. Amsterdam: Elsevier, 67-107.
- Maddala, G.S. (1987), *Limited Dependent and Qualitative Variables in Econometrics*. Cambridge: Cambridge University Press.
- Maddi, S.R., B.S. Propst and I. Feldinger (1965), Three expressions of the need for variety. *Journal of Personality* 33, 82-98.
- Mandler, G. (1982), The structure of value: accounting for taste. In: M.S. Clark and S.T. Fiske (Eds), *Affect and Cognition*. Hillsdale, NJ: Erlbaum, 1-49.
- Mano, H. (1991), The structure and intensity of emotional experiences: method and context convergence. *Multivariate Behavioral Research* 26, 389-411.
- Mano, H. and R.L. Oliver (1993), Assessing the dimensionality and structure of the consumption experience: evaluation, feeling and satisfaction. *Journal of Consumer Research* 20, 451-466.
- Marsh, H.W., J.R. Balla, and R.P. McDonald (1988), Goodness-of-fit indices in confirmatory factor analysis: the effect of sample size. *Psychological Bulletin* 103, 391-410.
- Marsh, H.W. and D. Horcevar (1985), The application of confirmatory factor analysis to the study of self-concept: first and higher order factor structures and their invariance across age groups. *Psychological Bulletin* 97, 562-582.
- Maslow, A.H. (1954), *Motivation and Personality*. New York: Harper.

- Matsumoto, D. and M. Saunders (1988), Emotional experiences during engagement in intrinsically and extrinsically motivated tasks. *Motivation and Emotion* 12, 353-369.
- Mazursky, D., P. LaBarbera, and A. Aiello (1987), When consumers switch brands. *Psychology and Marketing* 4, 17-30.
- McAlister, L. (1979), Choosing multiple items from a product class. *Journal of Consumer Research* 6, 213-224.
- McAlister, L. (1982), A dynamic attribute satiation model of variety-seeking behavior. *Journal of Consumer Research* 9, 141-150.
- McAlister, L. and E.A. Pessemier (1982), Variety seeking behavior: An interdisciplinary review. *Journal of Consumer Research* 9, 311-322.
- McClelland, D.C., J.W. Atkinson, R.W. Clark and E.L. Lowell (1953), *The Achievement Motive*. New York: Appleton-Century-Crofts.
- McDonald, R.P. and H.W. Marsh (1990), Choosing a multivariate model: noncentrality and goodness of fit. *Psychological Bulletin* 107, 247-255.
- McFadden, D. (1974), Conditional logit analysis and subjective probability. In: P. Zarembka (Ed.), *Frontiers in Econometrics*. New York, NY: Academic Press, 105-142.
- McGuire, W.J. (1976), Some internal psychological factors influencing consumer choice. *Journal of Consumer Research* 2, 302-319.
- McLaughlin, E.W. and P. Fredericks (1994), New product procurement behavior of US supermarket chains: implications for food and agribusiness suppliers. *Agribusiness* 10, 481-490.
- McReynolds, P. (1971a), The nature and assessment of intrinsic motivation. In: P. McReynolds (Ed.), *Advances in Psychological Assessment, Vol. 2*. Palo Alto, CA: Science and Behavior Books, 157-177.
- McReynolds, P. (1971b), Behavioral choice as a function of novelty seeking and anxiety avoidance motivations. *Psychological Reports* 29, 3-6.
- Mehrabian, A. (1978), Characteristic individual reactions to preferred and unpreferred environments. *Journal of Personality* 46, 717-731.
- Mehrabian, A. and J.A. Russell (1973), A measure of arousal seeking tendency. *Environment and Behavior* 5, 315-333.
- Mehrabian, A. and J.A. Russell (1974), *An Approach to Environmental Psychology*. Cambridge, MA: MIT-Press.
- Menon, S. and B.E. Kahn (1994), The impact of external context on variety-seeking in product choices. Working paper presented at the ACR-Conference in Boston.
- Meulenberg, M.T.G. (1989), Variation in food consumption: some aspects of measurement and empirical findings for the Netherlands. *Tijdschrift voor Sociaal-Wetenschappelijk Onderzoek van de Landbouw* 4, 3-24.
- Meyer, R.J. (1981), A model of multiattribute judgments under attribute uncertainty and information constraint. *Journal of Marketing Research* 18, 428-441.

- Midgley, D.F. and G.R. Dowling (1978), Innovativeness: the concepts and its measurement. *Journal of Consumer Research* 4, 229-242.
- Millar, M.G. and A. Tesser (1986), Effects of affective and cognitive focus on the attitude-behavior relation. *Journal of Personality and Social Psychology* 51, 270-276.
- Mittal, B., B. Ratchford and P. Prabhakar (1990), Functional and expressive attributes as determinants of brand-attitude. In: J.N. Sheth (Ed.), *Research in Marketing*, Vol. 10. Greenwich, CT: JAI Press, 135-155.
- Mittelstaedt, R.A., S.L. Grossbart, W.W. Curtis, and S.P. DeVere (1976), Optimal stimulation level and the adoption decision process. *Journal of Consumer Research* 2, 84-94.
- Montgomery, K.C. (1954), The role of exploratory drive in learning. *Journal of Comparative and Physiological Psychology* 47, 60-64.
- Montgomery, K.C. (1955), The relation between fear induced by novel stimulation and exploratory behavior. *Journal of Comparative and Physiological Psychology* 48, 254-260.
- Murray, H.A. (1938), *Explorations in Personality*. New York: Oxford University Press.
- Myers, J.H. and A.D. Shocker (1981), The nature of product-related attributes. In: J.N. Sheth (Ed.), *Research in Marketing*, Vol. 5. Greenwich, CT: JAI Press, 211-236.
- Myers, J.H. and M.I. Alpert (1968), Determinant buying attitudes: meaning and measurement. *Journal of Marketing* 32 (Oct), 13-20.
- Myers, J.H. and M.I. Alpert (1977), Semantic confusion in attitude research: salience vs. importance vs. determinance. In: W.D. Perrault (Ed.), *Advances in Consumer Research*, Vol. 4. Atlanta: Association for Consumer Research, 106-110.
- Myers, A.K. and N.E. Miller (1954), Failure to find a learned drive based on hunger: evidence for learning motivated by "exploration". *Journal of Comparative and Physiological Psychology* 47, 428-436.
- Nelson, Ph. (1970), Information and consumer behavior. *Journal of Political Economy* 78, 311-329.
- Nisbett, R.E. and T.D. Wilson (1977), Telling more than we know: verbal reports on mental processes. *Psychological Review* 84, 231-259.
- Oliver, R.L. (1992), Cognitive, affective and attribute bases of the satisfaction response. *Journal of Consumer Research* 20, 418-430.
- Oliver, R.L. and R.S. Winer (1987), A framework for the formation and structure of consumer expectations: review and propositions. *Journal of Economic Psychology* 8, 469-499.
- Olney, T.J., M.B. Holbrook and R. Batra (1991), Consumer responses to advertising: the effects of ad content, emotions, and attitude toward the ad on viewing time. *Journal of Consumer Research* 17, 440-453.

- Olshavsky, R.W. and D.H. Granbois (1979), Consumer decision making - fact or fiction? *Journal of Consumer Research* 6, 93-100.
- O'Shaughnessy, J. (1987), *Why People Buy*. Oxford: Oxford University Press.
- Otis, L.P. (1984), Factors influencing the willingness to taste unusual foods. *Psychological Reports* 54, 739-745.
- Park, C.W. and B. Mittal (1985), A theory of involvement in consumer behavior: problems and issues. In: J.N. Sheth (Ed.), *Research in Consumer Behavior, Vol. 1*. Greenwich, CT: JAI, 210-231.
- Pearson, P.H. (1970), Relationships between global and specified measures of novelty seeking. *Journal of Consulting and Clinical Psychology* 37, 199-204.
- Pearson, P.H. and S.R. Maddi (1966), The similes preference inventory: development of a structured measure of the tendency toward variety. *Journal of Consulting Psychology* 30, 301-308.
- Penney, R.K. and R.C. Reinehr (1966), Development of a stimulus variation seeking scale for adults. *Psychological Reports* 18, 631-638.
- Pessemier, E.A. (1985), Varied individual behavior: some theories, measurement methods and models. *Multivariate Behavioral Research* 20, 69-94.
- Pessemier, E.A. and M. Handelsman (1984), Temporal variety in consumer behavior. *Journal of Marketing Research* 21, 435-444.
- Peter, J.P. (1981), Construct validity: a review of basic issues and marketing practices. *Journal of Marketing Research* 18, 133-145.
- Prais, S.J. (1953), Non-linear estimates of the Engel curve. *Review of Economic Studies* 20, 87.
- Price, L.L. and N.M. Ridgway (1982), Use innovativeness, vicarious exploration and purchase exploration: three facets of consumer varied behavior. In: B.J. Walker et al. (Eds), *1982 Educator's Conference Proceedings*. Chicago: American Marketing Association, 56-60.
- Ratneshwar, S. and A.D. Shocker (1991), The role of usage context in product category structures. *Journal of Marketing Research* 28, 281-295.
- Raju, P.S. (1977), *A Study of Exploratory Behavior in the Consumer Context*. Urbana, Ill: Unpublished doctoral dissertation.
- Raju, P.S. (1980), Optimal stimulation level: its relationships to personality, demographics, and exploratory behavior. *Journal of Consumer Research* 7, 272-282.
- Raju, P.S. (1981), Theories of exploratory behavior: review and consumer research implications. In: J.N. Sheth (Ed.), *Research in Marketing, Vol. 4*. Greenwich, CT: JAI, 223-249.
- Raju, P.S. (1984), Exploratory brand switching: an empirical examination of its determinants, *Journal of Economic Psychology*, 5, 201-221.

- Raju, P.S. and M. Venkatesan (1980), Exploratory behavior in the consumer context: a state of the art review. In: J.C. Olson (Ed.), *Advances in Consumer Research*, Vol. 7. Ann Arbor, MI: Association for Consumer Research, 258-263.
- Reeve, J. (1989), The interest-enjoyment distinction in intrinsic motivation. *Motivation and Emotion* 13, 83-103.
- Reeve, J. and S.G. Cole (1987), Theory development in intrinsic motivation research: the excitement continues. *Journal of Social Behavior and Personality* 2, 279-290.
- Reeve J., S.G. Cole and B.C. Olson (1986), Adding excitement to intrinsic motivation research. *Journal of Social Behavior and Personality* 1, 349-363.
- Reisenzein, R. (1994), Pleasure-arousal theory and the intensity of emotions. *Journal of Personality and Social Psychology* 67, 525-539.
- Ridgway, N.M., S.A. Dawson and P.H. Bloch (1989), Pleasure and arousal in the marketplace: interpersonal differences in approach-avoidance responses. *Marketing Letters* 1, 139-147.
- Roberts, J.H. and G.L. Lilien (1993), Explanatory and predictive models of consumer behavior. In: J. Eliassberg and G.L. Lilien (Eds), *Handbooks in Operations Research and Management Science*, Vol. 5: *Marketing*. Amsterdam: North-Holland, 27-82.
- Rogers, R.D. (1979), Commentary on "The neglected variety drive". *Journal of Consumer Research* 6, 88-91.
- Rolls, E.T. (1984), The neurophysiology of feeding. *International Journal of Obesity* 8 (Suppl. 1), 139-150.
- Rolls, B.J. (1986), Sensory specific satiety. *Nutrition Reviews* 44, 93-101.
- Roselius, T. (1971), Consumer ranking of risk reduction methods. *Journal of Marketing* 35, 56-61.
- Rosenberg, M.J. (1956), Cognitive structure and attitudinal affect. *Journal of Abnormal and Social Psychology* 53, 367-372.
- Rosenberg, L.J. and J.A. Czepiel (1983), A marketing approach to customer retention. *Journal of Consumer Marketing* 2, 45-51.
- Ross, I. (1975), Perceived risk and consumer behavior: a critical review. In: M.J. Schlinger (Ed.), *Advances in Consumer Research*, Vol 2. Chicago: Association for Consumer Research, 1-19.
- Rossiter, J.R. and L. Percy (1987), *Advertising and Promotion Management*. New York: McGraw-Hill.
- Rozin, P. (1976), The selection of foods by rats, humans and other animals. In: J.S. Rosenblatt, R.A. Hinde, E. Shaw and C. Beer (Eds), *Advances in the Study of Behavior*, Vol. 6. New York: Academic Press, 21-76.
- Rozin, P. and M. Markwith (1991), Cross-domain variety seeking in human food choice. *Appetite* 16, 57-59.

- Russell, J.A. (1980), A circumplex model of affect. *Journal of Personality and Social Psychology* 36, 1152-1168.
- Russell, J.A., A. Weiss, and G.A. Mendelsohn (1989), Affect Grid: a single item scale of pleasure and arousal. *Journal of Personality and Social Psychology* 57, 493-502.
- Russell, P.A. (1983), Psychological studies of exploration in animals: a reappraisal. In: J. Archer and L.I.A. Birke (Eds), *Exploration in Animals and Humans*. Wokingham (UK): Van Nostrand Reinhold, 22-54.
- Scitovsky, T. (1976), *The Joyless Economy: an inquiry into human satisfaction and consumer dissatisfaction*. Oxford: Oxford University Press.
- Shonkwiler, J.S., J. Lee, and T.G. Taylor (1987), An empirical model of the demand for a varied diet. *Applied Economics* 19, 1403-1410.
- Sheth, J.N. (1975), *A Psychological Model of Travel Mode Selection*. Working paper #291. Bureau of Economic and Business Research of the University of Illinois.
- Sheth, J.N. (1981), Consumer behavior: surpluses and shortages. In: A. Mitchell (Ed.), *Advances in Consumer Research Vol. 9*. St. Louis: Association for Consumer Research, 13-16.
- Sheth, J.N. and P.S. Raju (1974), Sequential and cyclical nature of information processing models in repetitive choice behavior. In: S. Ward and P. Wright (Eds), *Advances in Consumer Research, Vol. 1*. Urbana, Ill: Association for Consumer Research, 348-358.
- Sheth, J.N., B.I. Newman and B.L. Gross (1991), *Consumption Values and Market Choices: Theory and Application*. Cincinnati, OH: South-Western Publishing.
- Shocker, A.D., M. Ben-Akiva, B. Boccara and P. Nedungadi (1991), Consideration set influences on consumer decision-making and choice: issues, models, and suggestions. *Marketing Letters* 2, 181-197.
- Simon, H.A. (1955), A behavioral model of rational choice. *Quarterly Journal of Economics* 69, 99-118.
- Simonson, I. (1990), The effect of purchase quantity and timing on variety seeking behavior. *Journal of Marketing Research* 27, 150-162.
- Simonson, I. and R.S. Winer (1992), The influence of purchase quantity and display format on consumer preference for variety. *Journal of Consumer Research* 19, 133-138.
- Spielberger, C.D., R.A. Peters and F.J. Frain (1981), Anxiety and curiosity. In: H.-G. Voss and H. Keller (Eds), *Neugierforschung*. Weinheim: Beltz.
- Staw, B.M. (1976), *Intrinsic and Extrinsic Motivation*. Morristown, NJ: General Learning Press.
- Steenkamp, J-B.E.M. (1989), *Product Quality*. Assen: Van Gorcum.
- Steenkamp, J-B.E.M. and H. Baumgartner (1992), The role of optimum stimulation level in exploratory consumer behavior. *Journal of Consumer Research* 19, 434-448.

- Steenkamp, J-B.E.M. and H. Baumgartner (1995), Development and cross-cultural validation of a short form of CSI as a measure of Optimum Stimulation Level. *International Journal of Research in Marketing* 12 (in press).
- Steenkamp, J-B.E.M. and J.C.M. Van Trijp (1991), The use of LISREL in validating marketing constructs. *International Journal of Research in Marketing* 8, 283-299.
- Steenkamp, J-B.E.M., H. Baumgartner and E. Van Der Wulp (1994), The relationships among arousal potential, arousal and stimulus evaluation, and the moderating role of need for stimulation. Working Paper. Dept. of Marketing. Catholic University of Leuven, Belgium.
- Stephenson, P.R. and R.P. Willet (1969), Analysis of consumer's retail patronage strategies. In: P.R. McDonald (Ed.), *Marketing Involvement in Society and the Economy*. Chicago: American Marketing Association, 316-322.
- Swanson, G.E. (1978), Travels through inner space: family structure and openness to absorbing experiences. *American Journal of Sociology* 83, 890-919.
- Teebagg, N. and S. Chattergee (1989), Inference in a binary response model with applications to data analysis. *Decision Sciences* 20, 393-403.
- Tanaka, J.S. and G.J. Huba (1984), Confirmatory hierarchical factor analyses of psychological distress measures. *Journal of Personality and Social Psychology* 46, 621-635.
- Tauber, E.M. (1972), Why do people shop? *Journal of Marketing* 36 (Oct), 46-49.
- Theil, H. (1967), *Economics and Information Theory*. Amsterdam: North-Holland.
- Theil, H. and R. Finke (1983), The consumer's demand for diversity. *European Economic Review* 23, 395-400.
- Tucker, L.R. and C. Lewis (1973), A reliability coefficient for maximum likelihood factor analysis. *Psychometrika* 38, 1-10.
- Unger, L.S. and J.B. Kernan (1983), On the meaning of leisure: an investigation of some determinants of the subjective experience. *Journal of Consumer Research* 9, 381-392.
- Van der Lei, D. (1994), *Studies in Exploratory Consumer Behavior*. MSc-thesis. Wageningen: Department of Marketing and Marketing Research.
- Van Raaij, W.F. (1991), The formation and use of expectations in consumer decision making. In: T.S. Robertson and H.H. Kassarian (Eds), *Handbook of Consumer Behavior*. Englewood Cliffs, NJ: Prentice Hall, 401-418.
- Van Trijp, J.C.M. (1992), Behoeftte aan variatie als determinant van voedingsmiddelenkeuze. In: J-B.E.M. Steenkamp (Ed.), *De Europese Consument van Voedingsmiddelen in de Jaren '90*. Assen: Van Gorcum, 49-62 (In Dutch).
- Van Trijp, J.C.M. (1994), Product-related determinants of variety seeking behavior for foods. *Appetite* 22, 1-10.
- Van Trijp, J.C.M. and W.D. Hoyer (1991), A new model for variation in consumer behavior. In: F. Bradley (Ed.), *Marketing Around the World: Proceedings of the 20th European Marketing Academy Conference*, Vol. 3. Dublin: University College, 532-548.

- Van Trijp, J.C.M., W.D. Hoyer and J.J. Inman (1994), Why switch? Variety seeking behavior as an individual x product interaction. Paper presented at the ACR-Conference in Boston (under review).
- Van Trijp, J.C.M. and J-B.E.M. Steenkamp (1990), An investigation into the validity of measures for variation in consumption used in economics and marketing. *European Review of Agricultural Economics* 17 (1), 19-41.
- Van Trijp, J.C.M. and J-B.E.M. Steenkamp (1992), Consumers' variety seeking tendency with respect to foods: measurement and managerial implications. *European Review of Agricultural Economics* 19, 181-195.
- Van Trijp, J.C.M., L. Lähteenmäki and H. Tuorila (1992), Variety seeking in the consumption of spread and cheese. *Appetite* 18, 155-164.
- Venkatesan, M. (1973), Cognitive consistency and novelty seeking. In: S. Ward and T.S. Robertson (Eds), *Consumer Behavior: Theoretical Sources*. Englewood Cliffs, NJ: Prentice Hall, Inc., 355-384.
- Venkatraman, M.P. and D.J. MacInnis (1985), The epistemic and sensory exploratory behaviors of hedonic and cognitive consumers. In: E.C. Hirschman and M. B. Holbrook (Eds), *Advances in Consumer Research*, Vol. 12. Provo, UT: Association for Consumer Research, 102-107.
- Verhallen, T.M.M. and R.G.M. Pieters (1984), Attitude theory and behavioral costs. *Journal of Economic Psychology* 5, 223-249.
- Vinson, D.E., J.E. Scott and L.M. Lamont (1977), The role of personal values in marketing and consumer behavior. *Journal of Marketing* 41 (Apr), 44-50.
- Von Wright, G.H. (1963), *The Logic of Preference: an Essay*. Edinburgh: Edinburgh University Press.
- Voss, H-G. and H. Keller (1983), *Curiosity and Exploration: Theories and Results*. New York: Academic Press.
- Wahlers, R.G. and M.J. Etzel (1985), Vacation preference as a manifestation of optimal stimulation and lifestyle experience. *Journal of Leisure Research* 17, 283-295.
- Wahlers, R.G., M.G. Dunn and M.J. Etzel (1986), The congruence of alternative OSL measures with consumer exploratory behavior tendencies. In: R.J. Lutz (Ed.), *Advances in Consumer Research*, Vol. 13. Provo, UT: Association for Consumer Research, 398-402.
- Walker, E.L. (1964), Psychological complexity as a basis for a theory of motivation and choice. *Nebraska Symposium on Motivation* 13, 47-95.
- Watson, D. and A. Tellegen (1985), Toward a consensual structure of mood. *Psychological Bulletin* 98, 219-235.
- Watson, D., L.A. Clark and A. Tellegen (1988), Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology* 54, 1063-1070.

- Westbrook, R.A. (1987), Product/consumption-based affective responses and postpurchase processes. *Journal of Marketing Research* 24, 258-270.
- Westbrook, R.A. and R.L. Oliver (1991), The dimensionality of consumption emotion patterns and consumer satisfaction. *Journal of Consumer Research* 18, 84-91.
- Westbrook, R.A. and W.C. Black (1985), A motivation based shopping typology. *Journal of Retailing* 61(1), 78-103.
- Wheaton, B., B. Muthen, D.F. Alwin, and G.F. Summers (1977), Assessing reliability and stability in panel models. In: D.R. Heise (Ed.), *Sociological Methodology*. San Francisco: Jossey-Bass, 84-136.
- White, R.W. (1959), Motivation reconsidered: the concept of competence. *Psychological Review* 66, 297-333.
- Wierenga, B. (1974), *An Investigation of Brand Choice Processes*. Rotterdam: University Press.
- Wierenga, B. (1983), Towards interdisciplinary Eco-psycho models of consumer behavior. *Proceedings of the XIIth Annual Conference of the European Marketing Academy*. Grenoble, 338-366.
- Wierenga, B. (1984), Empirical test of the Lancaster characteristics model. *International Journal of Research in Marketing* 1, 263-293.
- Wilde, L.L. (1980), The economics of consumer information acquisition. *Journal of Business*, 53, S143-S158.
- Wilkie, W.L. and E.A. Pessemier (1973), Issues in marketing's use of multi-attribute attitude models. *Journal of Marketing Research* 10, 428-441.
- Wind, J. (1977), Toward a change in the focus of marketing analysis: from a single brand to an assortment. *Journal of Marketing* 41 (Oct), 12 (143).
- Wohlwill, J.F. (1981), A conceptual analysis of exploratory behavior: the "specific-diversive" distinction revisited. In: H.I. Day (Ed.), *Advances in Intrinsic Motivation and Aesthetics*. New York: Plenum Press, 341-364.
- Yaxley, S., E.T. Rolls, J. Sienkiewicz, and T.R. Scott (1985), Satiety does not affect gustatory activity in the nucleus of the solitary tract of the alert monkey. *Brain Research* 347, 85-93.
- Zajonc, R. (1984), On the primacy of affect. *American Psychologist* 39, 117-123.
- Zimbardo, P.G. and N.E. Miller (1958), Facilitation of exploration by hunger in rats. *Journal of Comparative and Physiological Psychology* 31, 141-162.
- Zuckerman, M. (1976), Sensation seeking and anxiety, traits and states, as determinants of behavior in novel situations. In: I.G. Sarason and C.D. Spielberger (Eds), *Stress and Anxiety, Vol. 3*. Washington: Hemisphere Publishing Company, 141-170.
- Zuckerman, M. (1979), *Sensation Seeking: Beyond the Optimal Level of Arousal*. Hillsdale, NJ: Lawrence Erlbaum.

- Zuckerman, M. (1991), One person's stress is another person's pleasure. In: C.D. Spielberger and I.G. Sarason (Eds), *Stress and Emotion, Anxiety, Anger, and Curiosity, Vol. 14*. New York: Hemisphere Publishing Company, 31-45.
- Zuckerman, M. S. Eysenck and H.J. Eysenck (1978), Sensation seeking in England and America: cross-cultural, age and sex comparisons. *Journal of Consulting and Clinical Psychology* 46 (1), 139-149.
- Zuckerman, M., A. Kolin, L. Price and I. Zoob (1964), Development of a sensation- seeking scale. *Journal of Consulting Psychology* 28, 477-482.

## SAMENVATTING

Marketing richt zich op een optimale afstemming tussen aanbod en vraag in de markt. Om die reden is het vanuit de optiek van de consumentenmarketing bijzonder belangrijk een goed inzicht te hebben in het consumentengedrag. Vragen die binnen de theorie en empirie van het consumentengedrag centraal staan, zijn onder andere: wat zijn behoeften van consumenten, op welke wijze wensen zij deze behoeften in te vullen, en waarom kopen en gebruiken consumenten bepaalde produkten? Het inzicht in deze vragen vormt een belangrijke input voor het marketingbeleid, waarbij getracht wordt effectiever en efficiënter dan concurrenten te voorzien in de geïdentificeerde wensen en behoeften van de doelgroep.

Besluitvormingsprocessen en het daadwerkelijke keuzegedrag van consumenten zijn in belangrijke mate een weerspiegeling van de marktomstandigheden waaronder keuze plaatsvindt. In veel overvloedige Westerse markten heeft consumptie een bijzonder hoog niveau bereikt. Aan de vraagzijde worden deze markten gekenmerkt door een hoge koopkracht en hoge bestedingen. Als gevolg hiervan heeft de consumptie in veel produktcategorieën een zekere mate van verzadiging bereikt. Ervan uitgaande dat consumenten in hun consumptiegedrag streven naar nutsmaximalisatie, geldt dat verhoging van de kwantiteit van consumptie slechts in beperkte mate bijdraagt aan dit streven. Voor veel produkten kan het nut ontleend aan consumptie effectiever verhoogd worden door kwalitatieve dan door kwantitatieve aanpassingen in het consumptie-patroon. Deze ontwikkeling heeft er mede toe geleid dat produktkwaliteit sterk in de belangstelling is gekomen als determinant van het consumentenkeuzegedrag.

Overall produktkwaliteit is een dusdanig belangrijke factor in het Westerse consumentengedrag dat in hedendaagse markten nog nauwelijks produkten te vinden zijn die niet voldoen aan het criterium van 'voldoende' kwaliteit. Producenten realiseren zich meer en meer dat produktkwaliteit meer gezien moet worden als een noodzakelijk dan voldoende voorwaarde voor marktsucces. Deze marktaanpassing heeft onder andere tot gevolg dat, hoewel overall produktkwaliteit nog steeds één van de meest belangrijke keuzecriteria voor consumenten is, andere keuzecriteria eveneens een doorslaggevende rol in het keuzegedrag van (sommige) consumenten gaan spelen<sup>1</sup>. Immers, voor praktisch elke voorgenomen aankoop heeft de consument de keuze uit ten minste een aantal alternatieven die allen aan de eis van voldoende overall kwaliteit voldoen, maar wel op andere eigenschappen van elkaar verschillen. Deze situatie van verminderde horizontale kwaliteitsdifferentiatie heeft geleid tot een grote keuzevrijheid voor de consument uit een breed en gevarieerd aanbod van produktalternatieven die met elkaar gemeen hebben dat ze afdoende in de geïdentificeerde behoefte kunnen voorzien. Onder dergelijke marktomstandigheden wordt wel gesuggereerd

---

<sup>1</sup> Hierbij dient wel opgemerkt dan deze 'secundaire' keuzecriteria na verloop van tijd onderdeel uit zullen gaan maken van het kwaliteitsbegrip van consumenten (cf. Steenkamp 1989).

dat het aanbrengen van meer variatie in het individuele keuzegedrag een geschikte strategie kan zijn om, binnen de randvoorwaarde van kwantiteit, de kwaliteit van consumptie te verhogen. Dit wordt toegeschreven aan het feit dat consumenten nut ontleen aan het variëren tussen produkten op zichzelf, nog los van consequenties die aan de produktwisseling verbonden zijn. Dit type gedrag, wat gericht is op de meerwaarde inherent in de variatie op zich, wordt aangemerkt als variatiezoekgedrag ('Variety-Seeking Behavior'), en vormt het centrale thema van deze dissertatie.

Het doel van deze dissertatie is drieledig. Ten eerste, het bespreken van de psychologische en marketing-literatuur op het gebied van variatiezoekgedrag. Ten tweede, het ontwikkelen van een model voor de wijze waarop variatiezoekgedrag haar invloed doet gelden in het consumentenkeuzegedrag. Ten derde, het vanuit het model afleiden van hypothesen ten aanzien van determinanten van variatiezoekgedrag en deze hypothesen empirisch te toetsen. Hoewel het ontwikkelde model een algemeen karakter heeft, zullen de ontwikkelde hypothesen specifiek binnen het domein van voedingsmiddelen-keuze getoetst worden.

Hoewel het fenomeen van het variatiezoekend consumentenkeuzegedrag zich de afgelopen jaren in een aanzienlijke interesse van marketers en consumentengedragsonderzoekers heeft mogen verheugen, zijn er een aantal aspecten die onvoldoende of onvolledige aandacht hebben gekregen. Deze tekortkoming is in belangrijke mate toe te schrijven aan het gebrek aan eenduidige terminologie binnen het onderzoeksveld. Vooral de term variatiezoekgedrag ("variety-seeking behavior") is door verschillende onderzoekers gebruikt om zeer verschillende fenomenen te benoemen. Hoofdstuk 1 van de dissertatie introduceert de gehanteerde terminologie. Ze benadrukt dat de verzamelterm 'variatie in gedrag' twee verschillende basisvormen in zich draagt. In de psychologische literatuur worden deze vormen respectievelijk aangemerkt als intrinsiek en extrinsiek gemotiveerde variatie in gedrag. Bij extrinsiek gemotiveerde variatie in gedrag is de ontleende waarde niet inherent in het gedrag (variatie aanbrengen) zelf, maar wordt ze primair ontleend aan de gevolgen van het gedrag (bijvoorbeeld het gerealiseerde prijsvoordeel). Om die reden wordt extrinsiek gemotiveerd variërend gedrag ook wel aangemerkt als 'instrumenteel' gedrag of gedrag 'als middel tot een ander doel'. Bij intrinsiek gemotiveerde variatie in gedrag is het nut wél inherent aan het gedrag op zich. Met andere woorden, in dit geval is variatie in gedrag een doel op zichzelf, los van de consequenties die aan variatie in gedrag verbonden zijn. Intrinsiek gemotiveerde variatie in gedrag wordt in deze dissertatie aangemerkt als variatiezoekgedrag en extrinsiek gemotiveerd variatiegedrag als afgeleid variërend gedrag ("derived varied behavior"). Dit afgeleid variërend gedrag kan verschillende vormen aannemen. Er wordt een onderscheid gemaakt in drie basistypen van motivaties die verklaren waarom aan consequenties van afgeleid variërend gedrag waarde wordt ontleend: probleem-oplossings-motieven (bijv. in termen van prijs en produkteigenschappen), situationele-en-normatieve motieven en reversie naar routinematig gedrag.

Consumenten verschillen in de mate waarin zij nut ontleen aan variatie op zich. Deze persoonlijkheidskarakteristiek wordt aangemerkt als variatie-geneigdheid ("variety-seeking tendency"). De variatiegeneigdheid als consumentenkarakteristiek is een afgeleide van een meer centrale algemene persoonlijkheidskarakteristiek aangeduid als Optimum Stimulatie Niveau (OSL). Variatiegeneigdheid onderscheidt zich echter van OSL in haar meer specifieke karakter. Variatiegeneigdheid heeft specifiek betrekking op de neiging van consumenten om variatie in produktkeuze aan te wenden als methode om het niveau van stimulatie dat ze in het dagelijks leven ervaren in overeenstemming te brengen met hun Optimale Niveau van Stimulatie.

Deze dissertatie besteedt bijzondere aandacht aan vier belangrijke aspecten van variatiezoekgedrag. Deze vier kernaspecten zijn:

1. het meten van werkelijk variatiezoekgedrag, in het bijzonder het onderscheid tussen variatiezoekgedrag en afgeleid variërend gedrag;
2. de psychologische processen die aan variatiezoekgedrag ten grondslag liggen;
3. persoons-gerelateerde determinanten van variatiezoekgedrag, in het bijzonder de waarde van algemene psychologische persoonlijkheidskarakteristieken voor de verklaring en voorspelling van specifieke uitingen van variatiezoekgedrag in produktkeuze.
4. produkt-gerelateerde determinanten van variatiezoekgedrag en hun interactie met persoons-gerelateerde determinanten.

Zoals de meeste analyses van variatiezoekgedrag, bouwt ook de onderhavige studie voort op meer algemene psychologische theorieën. In hoofdstuk 2 wordt een aantal van deze theorieën kort besproken als ook hun relevantie voor de bestudering van variatiezoekgedrag. Deze psychologische theorieën hebben betrekking op intrinsieke versus extrinsieke motivatie in het menselijk gedrag, op verklaringen voor exploratief gedrag, op de interactie tussen intrinsieke en extrinsieke motivatie in het bijzonder cognitieve evaluatie theorie en op affect verbonden aan intrinsieke motivatie.

Hoofdstuk 3 bespreekt de marketingliteratuur op het gebied van variatiezoekgedrag. Twee basisbenaderingen worden onderscheiden, elk met hun eigen sterkten en zwaktes. De 'impliciete' benadering neemt waarneembare variatie in gedrag als het uitgangspunt van haar analyses. Vanuit geobserveerde variatie in gedrag (bijv. paneldata) wordt getracht de regelmatigheden in het variërend gedrag te modelleren om zodoende het inzicht in het variatiezoekgedrag te verrijken. Het gebruik van paneldata is tegelijkertijd de kracht en de zwakte van deze benadering. De gebruikte paneldata laten in het algemeen geen onderscheid toe tussen werkelijk variatiezoekend gedrag en afgeleid variërend gedrag. De resulterende modelparameters hebben dan ook eerder betrekking op het totaal van variërend gedrag dan specifiek op variatiezoekgedrag. Een voordeel van het gebruik van paneldata is dat ze het mogelijk maken om het variatiezoekgedrag te onderzoeken binnen de bredere context van het

consumentengedrag. De modellen binnen de impliciete benadering wordt steeds geavanceerder en meer recente modellen laten reeds in beperkte mate een verbijzondering van geselecteerde extrinsieke motivaties in variërend gedrag toe. Dit kan een belangrijke stap zijn in de ontwikkeling van modellen die het onderscheid tussen variatiezoekgedrag en afgeleid variërend gedrag meer expliciet in ogenschouw nemen.

De expliciete benadering van variatiezoekgedrag neemt het individu en individuele psychologische processen als uitgangspunt van de analyse. Deze benadering bouwt in belangrijke mate voort op de psychologische theorieën voor exploratief gedrag en benadrukt persoonlijkheidskarakteristieken als verklaring voor geobserveerde verschillen in variatiezoekgedrag. Daarnaast bestaat er een groeiende aandacht voor aspecten van de keuzecontext als verklaring voor variatiezoekgedrag. Een belangrijke sterkte van de expliciete benadering is dat ze een meer gedetailleerde verklaring biedt voor het 'waarom' van variatiezoekgedrag. Een belangrijke nadeel van deze benadering is echter dat veelal 'beweerd gedrag' als te verklaren concept genomen wordt en dat veel van het onderzoek in gecontroleerde experimentele situaties wordt uitgevoerd. Hoewel dit de interne validiteit van dit type onderzoek ten goede komt, schiet het tekort in het onderzoeken van variatiezoekgedrag in de bredere context van het consumentenkeuzegedrag.

In hoofdstuk 4 wordt het model voor variatiezoekgedrag ontwikkeld. Het model benadrukt dat variatiezoekgedrag slechts één van de keuzemechanismen is die consumenten hanteren in hun daadwerkelijk keuzegedrag. Uitgangspunt van de modelformulering vormt de keuze van een bepaald individu om het item *i*, dat bij de vorige keuzemogelijkheid gekozen werd, opnieuw te kiezen dan wel variatie aan te brengen door enig ander item *j* in de keuzeset te kiezen. Het model veronderstelt dat aan de evaluatie van de alternatieven *i* en *j* twee componenten onderscheiden kunnen worden: een statische component: 'waarde ontleend aan produkt-gerelateerde eigenschappen' ("value derived from product-related characteristics") en een dynamische component: 'variatie-waarde' ("variety value") die zich manifesteert in een veranderende hedonische waarde van alternatieven onder de invloed van eerdere consumptie. In lijn met eerder variatieonderzoek gaat het model er dus van uit dat variatiezoekgedrag te herleiden is tot een terugkoppelingsmechanisme onder de invloed van vorige consumptie.

De statische component in de evaluatie van alternatieven reflecteert de lange-termijn of niet-conditionele preferenties van consumenten, en omvat de beoordeling op instrumentele en hedonische attributen. De dynamische component vormt de kern van het model en weerspiegelt het feit dat de hedonische waarde ontleent aan alternatieven kan veranderen onder de invloed van eerdere consumptie. Drie psychologische processen worden geïdentificeerd die verantwoordelijk (kunnen) zijn voor de veranderende hedonische waarde. Verveling met de keuzetaak is een produkt-specifieke reductie in de hedonische waarde van een eerder gekozen alternatief. Door verveling vermindert de conditionele aantrekkelijkheid van het eerder gekozen alternatief ten opzichte van alle andere alternatieven. Hierdoor kan de situatie zich voordoen dat een keuze-alternatief, waarvoor de consument een lagere lange-

termijn preferentie heeft dan voor het vorig gekozen alternatief, op een bepaald keuzemoment conditioneel toch aantrekkelijker is. Variatie-gedrag als gevolg van verveling met de keuzetaak is een eerste onderliggend proces voor variatiezoekgedrag.

Naast verveling als een produkt-specifiek fenomeen, kan de hedonische waarde ook op attribuut-specifieke wijze verminderen onder de invloed van eerdere consumptie. Dit fenomeen impliceert dat consumenten verzadigd raken aan één of meer specifieke attributen die door herhaalde produktconsumptie regelmatig geleverd worden. Voor sensorische attributen is dit proces goed gedocumenteerd en staat het bekend als sensorisch-specifieke verzadiging. Als gevolg van attribuut-verzadiging verandert de evaluatieve beoordeling van één of meer hedonische attributen onder de invloed van eerdere consumptie. Attribuut-verzadiging is een tweede onderliggend psychologisch proces voor variatiezoekgedrag.

Verveling met de keuzetaak en attribuutverzadiging verminderen de aantrekkelijkheid van het vorig gekozen alternatief relatief ten opzichte van (sommige) andere alternatieven. Nieuwsgierigheid als onderliggende motivatie voor variatiezoekgedrag is daarentegen een proces wat de absolute aantrekkelijkheid verhoogt van één of meer alternatieven die niet bij de vorige gelegenheid gekozen zijn. Nieuwsgierigheid, de behoefte om de informatiekloof te dichten tussen wat men weet en wat men wenst te weten, kan de aantrekkelijkheid van een alternatief verhogen boven het niveau dat op basis van de produktattributen verwacht zou mogen worden. Verandering als gevolg van nieuwsgierigheid wordt aangemerkt als het derde onderliggende psychologische proces voor variatiezoekgedrag.

De drie geïdentificeerde onderliggende processen voor variatiezoekgedrag delen een belangrijke eigenschap, namelijk dat ze allemaal betrekking hebben op het niveau van stimulatie dat consumenten ervaren. Elk van de drie processen is het gevolg van een discrepantie tussen het actuele niveau van stimulatie (ASL) dat de consument ervaart in het leven en het niveau van stimulatie dat optimaal is voor de betreffende consument (OSL). Verveling en attribuutverzadiging reflecteren sub-optimale niveaus van ASL, en variatiezoekgedrag als gevolg van deze processen is een middel om het ervaren niveau van stimulatie te verhogen en het zo meer in overeenstemming te brengen met het optimale niveau (OSL). Nieuwsgierigheid, daarentegen, wordt gekenmerkt door een enigszins super-optimaal niveau van stimulatie en variatiezoekgedrag om de nieuwsgierigheid te bevredigen is een middel om het niveau van ASL te verlagen waardoor het meer in overeenstemming komt met het optimale niveau. Overeenstemming tussen ASL en OSL gaat gepaard met positief affect. Dit idee staat centraal in het concept "variatie-waarde", een verzamelbegrip voor de waarde die consumenten ontleen aan de hierboven onderscheiden typen van variatiezoekgedrag. Omdat elk van deze processen erop gericht is ASL meer in overeenstemming te brengen met OSL, is variatiezoekgedrag een intrinsiek plezierige activiteit voor consumenten.

Consumenten baseren hun beslissing om te variëren of bij hetzelfde item te blijven op de totale verwachte waarde ontleend aan consumptie. In dit proces vindt een afweging plaats tussen de variatie-waarde (als resultaat van verveling, attribuutverzadiging en

nieuwsgierigheid) en de waarde ontleend aan produkt-gerelateerde kenmerken. Het model veronderstelt dat een consument op keuze-moment  $t$  een impliciete of expliciete vergelijking maakt tussen de verwachte waarde van alternatief  $i$  nogmaals te kiezen ten opzichte van de keuze van enig ander alternatief  $j$ . Indien de consument een hogere totale waarde verwacht te ontfangen aan consumptie van alternatief  $j$ , dan zal hij variëren in het keuzegedrag. In de overige gevallen zal hij het vorige alternatief  $i$  nogmaals kiezen. In veel gevallen zal deze keuze neerkomen op een afweging tussen de twee waarde-componenten. Deze formulering maakt duidelijk dat het model variatiezoekgedrag niet in isolatie beschouwt, maar nadrukkelijk in de bredere context van het consumentenkeuzegedrag. Variatiezoekend gedrag wordt beschouwd als één van de keuzemechanismen van consumenten die in samenhang en/of interactie het uiteindelijke keuzegedrag bepalen. Slechts wanneer de variatiewaarde van doorslaggevende betekenis is voor het variërend keuzegedrag kan gesproken worden over variatiezoekgedrag. Als de waarde ontleend aan produkt-gerelateerde kenmerken doorslaggevend is, is er sprake van afgeleid variërend gedrag.

Door variatiezoekgedrag in de bredere context van het consumentenkeuzegedrag te beschouwen, laat het variatie-model niet alleen een formele classificatie van verschillende vormen van variërend gedrag toe, maar biedt ze ook een expliciet kader waarbinnen determinanten van variatiezoekgedrag gestructureerd kunnen worden. Uit het variatiemodel worden specifieke hypothesen afgeleid ten aanzien van persoons-gerelateerde en produkt-gerelateerde determinanten van variatiezoekgedrag. Bovendien wordt verondersteld dat produkt-gerelateerde determinanten interacteren met de persoonsgerelateerde determinanten.

Voor het onderzoek naar variatie in keuzegedrag in het algemeen en variatiezoekgedrag in het bijzonder, zijn betrouwbare en valide maten voor variatie in consumptiegedrag van cruciale betekenis. Hiervan is de vergelijkbaarheid van resultaten van verschillende studies immers kritisch afhankelijk. Hoofdstuk 5 van de dissertatie bespreekt maten voor variatie in consumptiegedrag, zoals die zijn voorgesteld in de economische en marketing-literatuur. Verondersteld wordt dat de voorgestelde maten niet een eenduidig construct van variatie in gedrag meten, maar betekenisvol geclassificeerd kunnen worden in twee subgroepen. De eerste groep omvat maten die variatie in gedrag kwantificeren op produktniveau. Deze maten, die in verschillende economische studies gehanteerd zijn, zijn gebaseerd op het aantal verschillende items (of merken) dat in de tijd geconsumeerd is en eventueel het aandeel van elk van deze items (merken) in de totale consumptie. Een tweede groep omvat de maten die variatie in consumptie kwantificeren op het attribuutniveau. Naast het aantal verschillende items en het aandeel van deze items in de consumptiegeschiedenis, betrekken deze maten ook de gepercipieerde verschillen tussen de geconsumeerde items in de analyse. Deze attribuut-niveau maten worden met name binnen de marketing en het consumentenonderzoek gebruikt.

De validiteit van maten voor variatie in gedrag wordt in hoofdstuk 5 empirisch getoetst in de context van gerapporteerde groentenconsumptie. Met behulp van LISREL wordt onderzocht of de voorgestelde maten operationalisaties zijn van eenzelfde onderliggend

construct ("variatie in gedrag") of dat ze operationalisaties zijn van twee verschillende constructen, namelijk 'variatie op attribuutniveau' en 'variatie op produktniveau'. In LISREL-terminologie komt deze toets neer op het vergelijken van de modelfit van een twee-construct model, al dan niet met de restrictie dat de correlatie tussen de beide constructen gelijk is aan 1. De resultaten, beschreven in hoofdstuk 5, bieden ondersteuning voor het twee-construct model. Dit impliceert dat binnen de voorgestelde maten voor variatie in gedrag een betekenisvol onderscheid gemaakt kan worden tussen deze twee typen maten. Zoals a priori verwacht zijn de twee aspecten van variatie, variatie op attribuutniveau en variatie op produktniveau wel aan elkaar verwant, getuige de correlatie van 0.585 tussen de beide constructen.

Persoons-gerelateerde determinanten vormen een belangrijk aandachtsveld binnen het onderzoek naar variatiezoekgedrag in produktkeuze. Onderzoek op dit terrein vindt haar basis in de psychologische theorieën over exploratief gedrag en intrinsieke motivatie. Variatiezoekgedrag in produktkeuze kan opgevat worden als een specifieke manifestatie van het meer generale psychologische fenomeen van exploratief gedrag. Dit meer specifieke karakter van variatiezoekgedrag in produktkeuze heeft onder andere consequenties voor de aard van de persoonlijkheidskarakteristieken waarvan verklarende waarde verwacht mag worden. Het principe van 'measurement correspondence' stelt dat verklarende waarde met name verwacht mag worden wanneer het verklarende en te verklaren construct op hetzelfde abstractieniveau geoperationaliseerd worden. Voor variatiezoekgedrag in produktkeuze betekent dit onder andere dat van algemene psychologische persoonlijkheidskarakteristieken, zoals OSL, slechts beperkte verklarende waarde verwacht mag worden. Variatiegeneigdheid in produktkeuze wordt voorgesteld als een meer specifiek persoonlijkheidskenmerk dat een hogere 'measurement correspondence' heeft met variatiezoekgedrag. Hoofdstuk 6 staat in het teken van de ontwikkeling van een schaal (VARSEEK) voor deze persoonlijkheidskarakteristiek. In een uitgebreide construct-validatie studie worden de psychometrische eigenschappen van het nieuwe schaalinstrument diepgaand onderzocht. Veel aandacht wordt besteed aan de nomologische validiteit van de nieuwe schaal, onder andere in relatie tot meer algemene schaalinstrumenten voor OSL, consument specifieke instrumenten voor OSL in het consumentengedrag en de predictieve validiteit in relatie tot variatiezoekgedrag. Deze studies bieden ondersteuning voor de construct validiteit van de VARSEEK-schaal.

In hoofdstuk 6 worden twee hypothesen ten aanzien van persoons-gerelateerde determinanten van variatiezoekgedrag formeel getoetst. De eerste hypothese stelt dat variatiezoekgedrag meer waarschijnlijk zal optreden bij sterker variatiegeneigde consumenten. Deze hypothese wordt ondersteund door de empirische resultaten, getuige de significante, positieve correlaties tussen VARSEEK en (aspecten van) variatie in produktkeuze-gedrag. De tweede hypothese stelt dat persoonlijkheidsmaten die specifiek betrekking hebben op variatiegeneigdheid in produktkeuze een hogere verklarende waarde hebben voor daadwerkelijke manifestaties van variatiezoekgedrag dan zowel (a) algemene

psychologische schaalinstrumenten voor OSL en (b) consumentenspecifieke schalen voor exploratieve tendenties in de consumptie context. In een empirische studie wordt de voorspellende waarde van VARSEEK vergeleken met die van de verkorte versie van de Change Seeker Index (CSI) als algemene psychologische schaal voor OSL en de Exploratory Buying Behavior Tendency (EBBT)-schaal als consumptie-specifieke operationalisatie van OSL. De EBBT-schaal kent twee subschalen: Exploratory Acquisition of Products (EAP) en Exploratory Information Seeking (EIS). De hypothese van VARSEEK's predictieve superioriteit ten aanzien van CSI, als een algemene psychologische maat, wordt ondersteund door de data. Hoewel de correlaties van VARSEEK met alle variatie-maten hoger zijn dan EBBT en haar subschalen, is dit verschil slechts voor de meest geavanceerde maat (Index of Temporal Variety) consistent statistisch significant. Voor de gehypothetiseerde predictieve superioriteit van VARSEEK ten opzichte van consument-specifieke operationalisaties van OSL wordt derhalve slechts beperkte empirische ondersteuning gevonden wordt.

In hoofdstuk 7 worden een aantal van de centrale hypothesen, voortvloeiend uit het in hoofdstuk 4 ontwikkelde model, empirisch getoetst. Naast persoonsgerelateerde determinanten worden ook produktgerelateerde determinanten in de analyse betrokken. Uitgangspunt van dit hoofdstuk is de fundamentele assumptie van het variety-seeking model dat het daadwerkelijk voorkomen van variatiezoekgedrag behalve door variatiegeneigdheid mede bepaald wordt door produkt-gerelateerde factoren. Met andere woorden, zelfs sterk variatiegeneigde consumenten zullen deze neiging niet voor alle produkten in dezelfde mate ten toon spreiden in daadwerkelijk variatiezoekgedrag. Variatiezoekgedrag is derhalve een produkt-specifiek fenomeen dat afhankelijk is van persoonlijkheidsfactoren, produkt-gerelateerde factoren en hun interactie. In de empirische studie richt de aandacht zich in het bijzonder op vier produkt-gerelateerde factoren: betrokkenheid met de produktcategorie, gepercipieerde verschillen tussen de beschikbare keuzealternatieven, hedonische eigenschappen van de produktcategorie en merktrouw in de produktcategorie. Van deze factoren wordt verwacht dat ze een controlerend effect hebben op variatiezoekgedrag en dat variatiezoekgedrag derhalve minder waarschijnlijk is bij hoge betrokkenheid, grote gepercipieerde verschillen, niet-hedonische produkten en sterkere merktrouw in de produktcategorie. Naast dit hoofdeffect voor elk van de produkt-gerelateerde factoren wordt gehypothetiseerd dat sterk-variatiegeneigde consumenten in het bijzonder gevoelig zijn voor het 'controlerende' aspect van produkt-gerelateerde factoren (d.w.z. een interactie tussen de produktgerelateerde determinant en variatiegeneigdheid).

De hypothesen worden empirisch getoetst in een grootschalige panel-studie met computer-interactieve dataverzameling. Hierbij werd niet alleen feitelijke informatie verzameld over daadwerkelijk merkkeuzegedrag, maar in geval van merkwisseling werd bovendien de onderliggende motivatie geïnventariseerd. Deze wijze van dataverzameling maakt derhalve een onderscheid mogelijk tussen werkelijk variatiezoekgedrag en afgeleid

variërend gedrag. De hypothesen met betrekking tot variatiezoekgedrag werden getoetst ten opzichte van herhaalaankoopgedrag en afgeleid variërend gedrag.

Ten opzichte van herhaalaankoopgedrag werd ondersteuning gevonden voor de gehypothetiseerde hoofdeffecten voor variatiegeneigdheid, betrokkenheid bij de produktcategorie, gepercipieerde verschillen, hedonische eigenschappen en merkentrouw, alsmede voor de gehypothetiseerde interacties met VARSEEK voor betrokkenheid en hedonische eigenschappen. Ten opzichte van afgeleid variërend gedrag werd ondersteuning gevonden voor de hypothesen ten aanzien van variatiegeneigdheid, betrokkenheid bij de produktcategorie, hedonische kenmerken en gepercipieerde verschillen en voor de interactie met betrekking tot lage betrokkenheid. Conform het variatiemodel, bevestigen deze resultaten dat variatiezoekgedrag een produkt-specifiek fenomeen is, het voorkomen waarvan behalve door de persoonsgerelateerde determinant van variatiegeneigdheid, mede bepaald wordt door produktgerelateerde kenmerken en hun interactie met variatiegeneigdheid.



## DANKWOORD

Graag wil ik de mensen bedanken die op enigerlei wijze bijgedragen hebben aan de totstandkoming van deze dissertatie. Op de eerste plaats wil ik mijn dank en waardering uitspreken aan mijn beide promotoren, Prof. dr. ir. M.T.G. Meulenberg en Prof. dr. ir. J.E.B.M. Steenkamp. Zij hebben mij niet alleen de mogelijkheid geboden om mijzelf op de vakgroep Marktkunde en Marktonderzoek van de Landbouwwuniversiteit te bekwamen in het wetenschappelijk onderzoek op het gebied van marketing en consumentengedrag, maar zijn daarin ook een zeer belangrijke inspiratiebron gebleken. Ik wil hen beide bijzonder bedanken voor de inspirerende en kritische, maar altijd constructieve discussies die we over variatiezoekgedrag en dit proefschrift mochten voeren.

Dit onderzoek werd mede mogelijk gemaakt door financiële steun van de Stichting ESR (toentertijd ECOZOEK), welke deel uitmaakt van de Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO) en de Stichting JANIVO. Beide stichtingen ben ik zeer erkentelijk. Gaarne spreek ik ook mijn dank uit aan hen die data beschikbaar stelden waarvan ik in het empirisch onderzoek gebruik kon maken: Prof. dr. ir. B. Wierenga, Prof. dr. ir. J.E.B.M. Steenkamp, Dr. H. Baumgartner, het marktonderzoeksbureau NIPO en David van der Lei. In dit verband wil ik ook Dhr. J.A. Bijkerk hartelijk bedanken voor zijn ondersteuning bij de data-analyse, het vervaardigen van de illustraties voor dit proefschrift alsmede zijn 'mentale' steun gedurende het hele proces..

Als blijk van waardering draag ik het proefschrift op aan Frouwkje en mijn ouders. Mijn ouders hebben mijn wetenschappelijke interesse gestimuleerd. Met name in het afgelopen jaar hebben ze mij laten zien hoe belangrijk steun en doorzettingsvermogen zijn in moeilijke tijden. Maar meer dan iedereen wil ik Frouwkje bedanken. Zij was mijn belangrijkste steun in de laatste fase van de realisatie van dit proefschrift. Frouwk, ik hoop dat ik bij de afronding van jouw proefschrift een minstens even grote steun zal kunnen zijn.



## **CURRICULUM VITAE**

Johannes Cornelia Maria van Trijp werd geboren op 19 december 1960 te Nispen (gem Roosendaal). In 1979 behaalde hij het diploma Gymnasium- $\beta$  aan het Gertrudis Lyceum te Roosendaal. In datzelfde jaar begon hij met de studie Humane Voeding aan de Landbouwniversiteit Wageningen (toentertijd: Landbouwhogeschool). De studie Humane Voeding werd in juni 1986 afgerond met als hoofdvakken Marktkunde en Marktonderzoek en Humane Voeding (Psychofysica) en als bijvakken Voorlichtingskunde en Pedagogiek en Didactiek. Van augustus 1986 tot februari 1988 was hij in het kader van de Tewerkstelling Erkend Gewetensbezwaarden Militaire Dienst bij de vakgroep Marktkunde en Marktonderzoek van de Landbouwniversiteit Wageningen werkzaam op het onderzoeksproject "Sensorische Vleeskwiteit". Van februari 1988 tot oktober 1990 was hij als Toegevoegd Onderzoeker aan dezelfde vakgroep verbonden en startte hij zijn onderzoek op het gebied van variatiezoekgedrag. Sinds oktober 1990 is hij als universitair docent verbonden aan de vakgroep Marktkunde en Marktonderzoek van de Landbouwniversiteit. Zijn onderzoeksinteressen liggen met name op het gebied van consumentengedrag, methoden en technieken van marktonderzoek en sensorisch onderzoek.