

# Consumer choice for over-the-counter drugs and supplements in the healthcare arena: Approaches to a macro-database across topics

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**Keywords** *conjoint analysis, algebra of the consumer mind, conjoint measurement, experimental design, OTC*

**Abstract** We present a framework to understand how consumers respond to eight areas of over-the-counter (OTC) healthcare, ranging from simple physical examinations as a service to medicinal shampoo as a product. The objective is to understand how the consumer processes information about healthcare such as the information that is currently available on the internet, and whether there exists a higher order set of behaviours that transcend individual OTC product groups. The study comprises a combination of self-profiling to understand the mind of the consumer, and conjoint analysis to understand the choice of features and communications. The study suggests a division of consumers into three segments: those who want a quick fix, those who want a statement of the benefit to them and those who want a detailed explanation of how and why the product works. This segmentation applies to self-medication but not preventive healthcare such as physical examinations and healthy eating, suggesting that these are separate frameworks in the consumers minds. At the macro level, the approach shows the feasibility of creating a new type of database to understand the consumer mind-set.

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## INTRODUCTION

In today's economy, the consumer is bombarded with choice. They can find many different ways to deal with pain for example, analgesic tablets, creams, heating pads and/or specific foods. The issue for many companies is to understand not only the consumer's mind, but also what the true competitive set of products is as the consumer experiences them. As the movement towards 'direct to consumer' (DTC) gains speed the consumer will become increasingly important, even in the choice of traditionally prescription (R<sub>x</sub>) drugs. Many drug companies today focus a great deal of effort on advertising DTCs in an effort to use them to sway the prescribing behaviour of their physicians. These efforts come on top of the virtual 100 per cent control that consumers have over the choice of their over-the-counter (OTC) medicines. Unlike the world of food and drink, where consumer requirements drive the actual relevant physical characteristics of the product, in the health world a great deal of the consumer requirements impact the messages about the product, not the internal workings of the product and often not the external 'sensory' aspects of the product. As consumers are often times self-diagnosing and self-medicating, understanding what messages are most important will help the consumer to understand how to gain relief from their ailments and what other factors are important. An understanding of what are the positives and the negatives of how messages perform and what drives consumer interest thus becomes extremely important. The objective is to understand how the consumer processes information about healthcare and whether there exists a higher order set of behaviours that go beyond individual OTC topics. The information here will help to understand the mind of the consumer and, through conjoint analysis, understand the choice of features and communications.

## THE COMPLEXITY OF CONSUMER RESPONSE: EMOTIONAL, RATIONAL, BRAND AND ASSOCIATIONS

Consumer research in the health field takes on many forms, and is by now quite well established. Whether the issue is incidence of disease, drugs prescribed, patient satisfaction, communications with doctors and the like, there is a wealth of information available. At the consumer end, there is a similar wealth of information residing in custom studies, tracking studies and reports from focus groups. With this plethora of information, however, we find relatively little in the way of 'databasing the mind of the consumer'. That is, the historical development of consumer research has provided systematised data for behaviours, but not systematised data for the mind. We know a lot about the types of products sold and the structure of the product category from a variety of purchasable sources. We do not have this type of systematised data about the drivers of consumer acceptance, at least in a structured way that cuts across products.

Over the years, researchers have tried to identify general consumer principles underlying motivation. Some of this effort goes back four decades to the recognition that in the consumer's environment there exist different mind-sets of individuals. This segmentation began first with the recognition that people are different, but eventually went beyond the simple observation to realising that the differences were more psychological than geo-demographics.<sup>1</sup> Indeed, the notion of segmentation as a general organising principle was so attractive that it led one author to use this notion in a catchy business title 'The Nine American Lifestyles'.<sup>2</sup>

Twenty years after Mitchell's book, and armed with a wealth of knowledge and a maturity gained from the continuing acceptance of consumer research, a reasonable next question is whether the information about the consumer mind can be systematised in the way that the information about medical issues is systematised. What is called for, no less, is an organising principle that can deal with the complexities of motivation, the response to messaging and the development of a general taxonomy of the consumer mind.

There is no systematic knowledge or database available to understand how consumers respond to different brand names, features of products, emotional aspects of products or aspects of the buying situation. Most of the knowledge resides in unrelated sources such as corporate offices, trade and academic journals, and the experience of development and marketing professionals. A lot of information resides in disparate documents available to the public and accessed either by some intelligent search engine such as Google<sup>®</sup>, or by some 'pay as you go' system such as Lexis/Nexis<sup>®</sup>. In general, the information is relevant, unconnected, hard to integrate and often so unstructured that to create a 'coherent whole' from this *mélange* of information becomes in itself a difficult task, more daunting than the original acquisition of the data.

Creating a cross-sectional *and* longitudinal database to understand the 'algebra of the consumer mind' is a major contribution to academic and business-oriented product development, marketing and consumer sciences, respectively. If such a database can be developed easily, at low cost, with data that 'excites' the user in terms of scientific and commercial applicability, then the notion of this database provides a unique business opportunity.

## TODAY'S KNOWLEDGE BASE

Much of the knowledge today about consumers as customers comes from one of four types of standard research:

1. *Qualitative*, such as focus groups, probing in depth the motivations of consumers for a particular product or service, designed to build knowledge and create insights, run with relatively few individuals (eg 10–60 over several sessions), generating data that *cannot* be 'sliced and diced' for new insights. Qualitative research gets into the inside of a consumer mind, but requires trained researchers to pull out the insights. Some of the characteristics of these qualitative sessions are:
  - (a) hard to do worldwide without true experts participating in the research and analysis phase
  - (b) provides strong insights
  - (c) not scalable.
2. *Primary, focused quantitative surveys* that deal with reasons underlying certain specific behaviours or responses to concepts, run on a 'one-off' basis with several hundred respondents, and addressing a single issue:
  - (a) can be done worldwide, and is scalable
  - (b) does not need experts
  - (c) provides weak insights into the consumer 'mind', generally using attitudinal questions
  - (d) data often not valuable enough for general database use for the general buyer
  - (e) the focus on a single issue prevents it from having strong long-term economic value.
3. *Large-scale segmentation studies*, usually done to divide the market into meaningful groups. These segmentation studies usually deal with simple attitudes

towards products and services but do not focus in on the trade-offs consumers make across different options. The attitudinal research, often emerging as segmentation studies, gives some general ideas about how consumers divide themselves. The stimuli are so general, however, that they fail to provide the developer, marketer or merchandiser with a sense of what *specific types of communications* are important.

4. *Systematised databases* arising from tracking studies, either sponsored by one company for its own use or sold on a syndicated basis by a research/data supplier:
  - (a) can be implemented worldwide
  - (b) does not need experts, except to run it, and provides answers from 'queries'
  - (c) provides very weak insights into the consumer 'mind'
  - (d) lends itself to databasing, and can be sold
  - (e) examples include the Yankelovich Monitor<sup>®</sup>.

## USING HIGH-LEVEL RESEARCH, SUCH AS CONJOINT ANALYSIS

During the past 30 years, consumer researchers have adopted more powerful methods to understand the mind of the consumer. One of the most powerful methods is known by the rubric 'conjoint analysis'. In its original form, conjoint analysis was designed as a method in mathematical psychology to create a new form of subjective measurement.<sup>3</sup> The approach was esoteric, confined to the coteries of mathematical psychology and constituted the lead article in the now well-known *Journal of Mathematical Psychology*. About eight years later, however, marketers at the Wharton School of Business, University of Pennsylvania, would recognise the importance of this

method to deconstruct the different contributions of concept elements, and would by their very recognition propel conjoint analysis into a predominant position in the consumer research community.<sup>4-5</sup>

Conjoint analysis provides the researcher with the necessary information to understand consumer choices. In its simplest format, the conjoint study comprises a set of combinations, that is, test concepts, offering a variety of features, benefits, heritages, promises and perhaps pictures, etc. These individual options or 'elements' are combined by experimental design.<sup>6-7</sup> To the respondent the test concepts are actual small vignettes, whereas to the researcher they are combinations of these elements. The consumer responds to these combinations as 'gestalts' or wholes, but through statistical methods such as ordinary least-squares regression the ratings can be analysed to determine the part-worth contribution of each element as a driver of the response. The array of individual utilities or part-worth contributions, one per element, provides a great deal of insight into how the consumer integrates information to come up with a rating. Since the respondent does not know the rules underlying the combinations, it is impossible for the respondent to explicate the values of the individual elements. Rather, the respondent answers within a more intuitive frame. Thus the data may be less biased than self-explicated weights.<sup>8</sup>

## PROBLEMS AND SOLUTIONS WITH CONJOINT ANALYSIS AS A RESEARCH TOOL

For many years, conjoint measurement was reserved for the most important studies. The effort and cost involved in a conjoint study prohibited it from being adopted except for the most high-profile projects.<sup>9</sup> The past decade has, however, witnessed

three key trends that make conjoint analysis available for standard consumer research, and allow it to become the foundation of a database about the consumer mind.

1. *Declining costs*: Self-authoring systems reduce the effort and cost of conjoint analysis. Self-authoring systems refer to research procedures that are designed by the user, rather than designed by an expert.<sup>10</sup> Typically, self-authoring systems have lower-level capabilities and cannot address extremely complex problems, but for the most part these systems can answer many of the standard questions. Self-authoring systems can be used either on a stand-alone PC or through the internet (so-called ASP or application service provider).
2. *Simplified field execution*: Internet access to respondents allows fielding quickly and inexpensively. The internet has provided exceptional access to respondents. Each month brings new companies offering panels, or opt-in respondents, that is, lists of individuals who have agreed to participate in surveys, usually for a chance to win a sweepstake. Whereas in years gone by it was expensive and time consuming to get respondents, today one can mail out 10,000 invitations and get a 5–10 per cent completion rate in one evening. The internet, combined with self-authoring conjoint systems, generates a very strong impetus for larger-scale research.
3. *Increasing acceptance by the insights-demanding business community*: Buyers of research are becoming more aware of conjoint measurement from their business school experience. As the business schools teach new methods of consumer research, many of them have special courses or at least a number of lectures devoted to conjoint measurement. One consequence of this increasing awareness is the demand

by young business professionals to use the best procedures available to answer the business problems that confront them. Unlike the researchers who may have been in the business 20 years or more, and to whom conjoint measurement represents a new and possibly uncomfortable reality, the younger researchers do not have that experience. Consequently, they welcome the opportunity to use methods that they learned about. The internet implementation of the entire process reduces any concern about control and research deliverables.

## FROM CONSUMERS TO DATABASES

The combination of the internet for low cost and easy consumer research and conjoint measurement for powerful research information leads naturally to the creation of new types of databases and consumer-driven innovation based on information.<sup>11</sup> One set of databases, in particular the IT!™ Studies, provides a broad cross-sectional view of a product category from the perspective of consumers.<sup>12</sup> The studies in the database comprise a set of linked databases. Each individual study in the database is constructed according to the same general architecture:

1. *Self-authoring to create the study*: Self-authoring allows the researcher to create the study himself. The self-authoring provides researchers with the ability to develop the studies in a relaxed manner, set up the study and then run it. Specifics of the self-authoring system for conjoint measurement have been published previously, and have been referenced above. The self-authoring system brings the development of a database into the realm of a simple set of studies, requiring relatively simple computer capabilities. Rather than creating a complex system,

- the self-authoring approach allows the researcher to treat the studies in a very simple straightforward manner, setting up each study according to a template.
2. *Raw materials*: These comprise a set of concept elements, with the concept elements categorised into 'silos' or categories of common meaning. A silo might comprise emotional benefits, product features and the like. The structure enables the investigation of a topic area using conjoint analysis, ensuring that the concepts make sense. For healthcare, the researcher needs only to customise the structure of the elements to be meaningful to the category.
  3. *Experimentally designed combinations*: The concept elements are mixed and matched by experimental design to create test combinations, or stimuli that will be presented to a consumer respondent. The respondent rates the combination on a rating scale as a single vignette. The respondents typically do not know that they are evaluating systematically varied combinations of elements, although they do see some elements repeat. The particular approach used is the internet-enabled variation of a conjoint approach known as IdeaMap<sup>®</sup>,<sup>13</sup> which was designed to deal with moderate to large numbers of concept elements in an efficient manner, so as to create individual-level utility models.
  4. *Self-profiling questionnaire*: The database comprises a large-scale classification questionnaire, which provides additional information about the respondent. The classification questionnaire is much like the conventional attitude and usage questionnaire so well known to market researchers. The objectives of the questionnaire were to:
    - (a) understand and measure attitudes (what makes the respondent choose a specific item, such as price, type of delivery system, advertising, etc)
    - (b) understand self-described behaviours (when do they choose to use the particular product), age, gender, market, etc.
    - (c) create a general, self-profiling questionnaire, where possible linking it across studies to make comparisons of different end uses.
  5. *Linked studies to generate a database*: The database comprises a set of studies. The respondent is invited to participate by an e-mail invitation, goes to a 'wall' and selects a study of interest. The data generated by respondents constitute the database, which can be analysed systematically.

Previous experience with this approach suggests that it generates a relative cost-effective, insight-generating database. The key to the approach is the creation of a reasonable set of concept elements on the one hand, and a useful classification questionnaire on the other. It is vital that the researcher uses similar types of elements in the conjoint portion of the study in order to allow comparisons to be made across studies. With a little bit of practice the study can be put together fairly efficiently. The elements can come either from a deconstruction of current communications to provide competitive intelligence, and/or new ideas to generate a measure of promise from the consumer viewpoint.

## APPLYING THIS DATABASE TO THE CONSUMER-DRIVEN HEALTH INTERFACE

We followed a stepwise approach in order to create the database for eight categories of consumer healthcare. We wanted to get a snapshot of six different OTC products, one service (physical examination) and one lifestyle (healthy eating). We will illustrate the approach in detail with eye

drops and will then show general patterns across all of the studies.

*Step 1:* Select categories to incorporate into the database.

The categories comprise both a service (physical examination) as well as products of different types, listed in Table 1.

*Step 2:* Identify source of material that can be deconstructed to generate elements.

Figure 1 shows an example of an informational page from Dryeye.com, and a relevant communication that has been

**Table 1:** The topics for the eight databases

Category	Topic
1	Allergy medication
2	Back pain relief patch
3	Eye solution drops
4	Gas relief for adults
5	Healthy eating
6	Medicated shampoo
7	Physical examination
8	Sleep aids



**Figure 1:** Example of website for Dryeye.com and a potential communication (circled)

**Table 2:** Elements from the eye solution drops

	<b>Silo and element</b>	<b>Website</b>
<i>Product/context</i>		
1	An eye drop solution that combines an antihistamine for itch relief	www.bausch.com
2	An eye drop solution that is proven to relieve redness caused by pollen, ragweed and grass	www.bausch.com
3	An eye wash that flushes away eye irritants	www.bausch.com
4	An eye solution treatment for mild-to-moderate dry eyes	www.drugstore.com
5	Eye drops that add moisture directly to your eyes	www.bausch.com
6	An eye drop solution that soothes, coats and protects the eye	www.drugstore.com
7	Eye drops that contain a fast-acting dual action formula ... temporarily remove redness & relieve discomfort	www.drugstore.com
8	Eye drops available in mild, moderate and severe formulas	www.bausch.com
9	Eye drops that deliver moisture and comfort for sufferers	www.dryeye.com
<i>Benefits</i>		
1	Provides soothing, long-lasting effective relief	www.bausch.com
2	Specifically designed to relieve allergy eyes	www.bausch.com
3	Gently cleanses and soothes irritated eyes	www.bausch.com
4	Provides long-lasting relief and protection	www.drugstore.com
5	Effectively relieves red, irritated eyes fast	www.drugstore.com
6	Relieves suffering from red, itchy eyes	www.bausch.com
7	Provides comfort for contact lens wearers	www.bausch.com
8	You can apply one to two drops as often as needed	www.drugstore.com
9	You can apply one to two drops up to four times daily	www.drugstore.com
<i>Informational aspects</i>		
1	Nonpreserved tears is a good treatment for people with sensitive eyes	www.dryeye.com
2	Great for seasonal relief from pollen and dust	www.drugstore.com
3	For when your eyes are dry from straining due to reading or working	www.bausch.com
4	Treats many symptoms like burning, excess tearing or a gritty feeling	www.bausch.com
5	Also available in a more viscous formula for more severe dry eyes	store.yahoo.com
6	Avoid drafts from heating or AC vents that can dry eyes	www.dryeye.com
7	For when you cannot take frequent breaks from work and your eyes get strained and dry	www.dryeye.com
8	May be used as a protectant against further irritation	www.drugstore.com
9	No prescription needed	www.bausch.com
<i>Emotional aspects</i>		
1	Helps you restore the moisture your eyes crave	www.drugstore.com
2	Provides you with immediate comfort	www.drugstore.com
3	Safe and gentle enough to use as often as needed	www.drugstore.com
4	Always keep a bottle on hand to clean and soothe your eyes	www.bausch.com
5	Recommended by pharmacists for decades	www.bausch.com
6	A special formula that has many of the healthy qualities of your own natural tears	www.drugstore.com
7	Because choosing the right eye drop is important	www.bausch.com
8	A medicine cabinet essential for all households	www.bausch.com
9	#1 Doctor recommended eye drop solution	www.drugstore.com

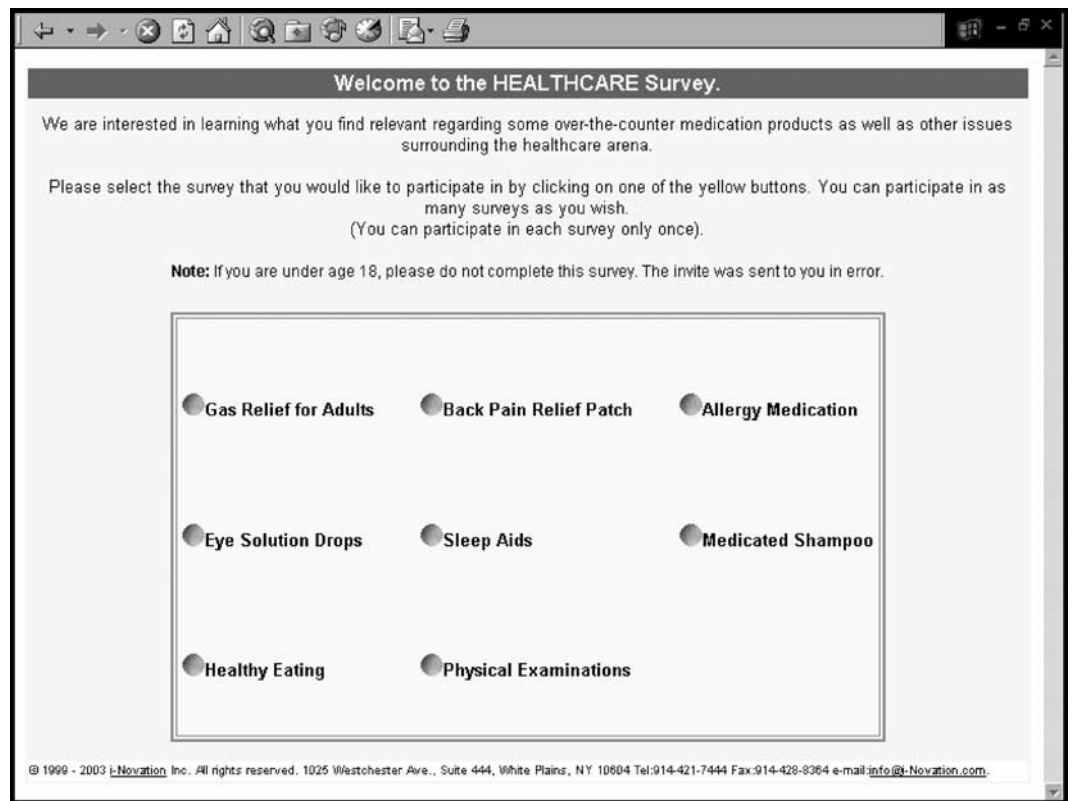
The elements were developed from a competitive analysis of in-market websites.

circled. These relevant communications were identified from different websites, edited slightly, and the most different ones from the researcher's point of view were then included in the study. The internet is an excellent source of information for OTC healthcare as well as R<sub>x</sub> because of the significant store of information available at the fingertips of the user.<sup>14-16</sup> The internet continues to be a major source of health-related information. The strategy of deconstruction has already

been discussed in detail for common products such as toothpaste.<sup>17</sup>

*Step 3: Create the elements.*

The elements were created according to a template, shown in Table 2. The four silos were enumerated, and then filled in by analysing the current communications on the internet. With 36 elements there were naturally some compromises to be made,



**Figure 2:** The 'wall' allowing a respondent to choose a study

since often there were many more communications than spaces in the conjoint study. The four silos comprising nine elements each were constructed so that the first silo of elements dealt with the product/context, the second with the benefits, the third with information aspects and the fourth silo with emotional aspects, respectively. Each study had the same types of silos, with the elements appropriate for the specific healthcare category. Every effort was made to keep the elements as similar as possible across the categories. Each of the 36 elements had a *raison d'être* for being included in the study.

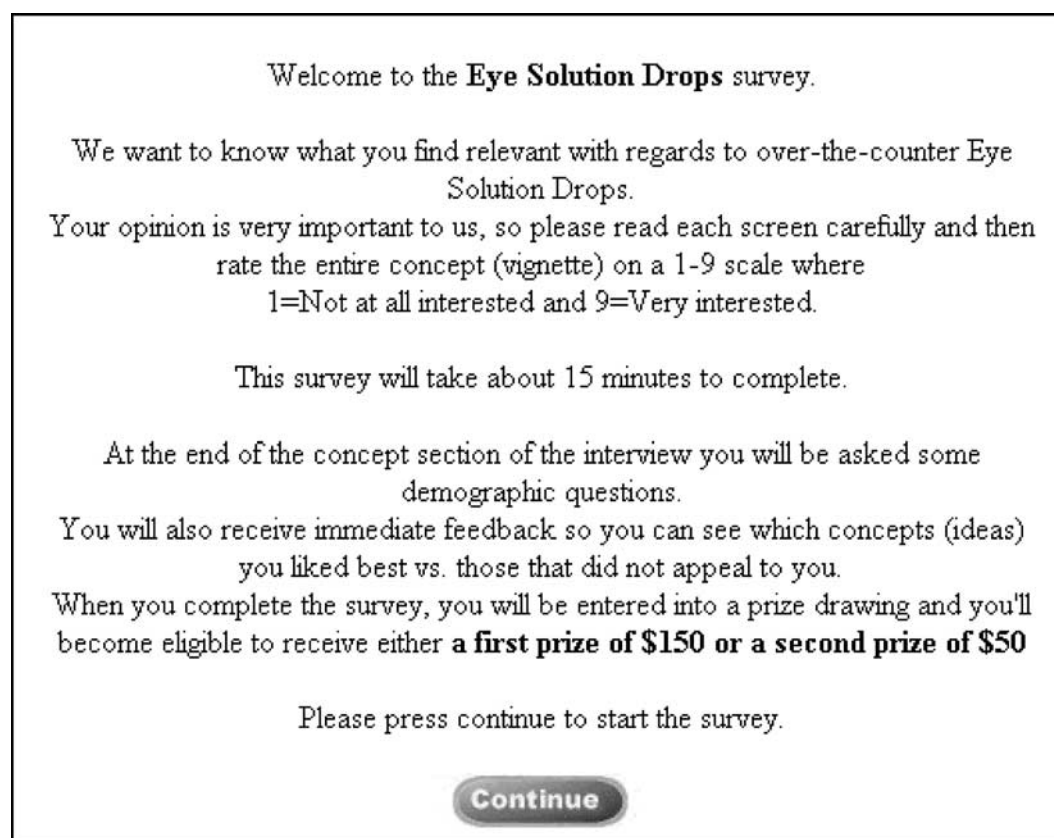
*Step 4:* Create and run the study on the internet.

The study was created using a self-authoring system with the eight studies

made as parallel as possible, given the fact that the elements came from a competitive analysis. The respondents were invited to participate by an e-mail letter. When a respondent agreed to participate by clicking on the URL, he was guided to a 'wall' (see Figure 2). The studies were available for the respondent to choose. Once a respondent chose a study and completed it, a cookie was inserted into the respondent's computer to ensure that the respondent could participate only once. The respondent was entered into a sweepstake at the end of the study, and was also shown his/her optimal concept and the optimal concept for the total panel that had participated in that study beforehand.

**Table 3:** Log-ins to the eight studies and cumulative completes for these studies, across three sequential invitations (waves 1–3)

Healthcare study	Wave 1		Wave 2		Wave 3		% Complete
	Log-ins	Completes	Log-ins	Completes	Log-ins	Completes	
Physical examinations	92	52	138	84	255	150	59
Allergy medication	73	44	114	74	236	149	63
Healthy eating	85	54	135	81	221	150	68
Back pain relief patch	60	42	94	69	189	127	67
Gas relief for adults	54	31	87	57	186	118	63
Sleep aids	61	38	87	57	171	111	65
Medicated shampoo	44	30	89	60	155	101	65
Eye solution drops	47	38	73	56	149	106	71
Total	516	329	817	538	1,562	1,012	65



**Figure 3:** Welcome and orientation page

Step 5: Analyse the log-in data.

Log-in data for the studies provide a measure of interest. The rate at which the study fills up can be construed as a measure of latent interest in the topic.

Thus the topics of physical examination and healthy eating both show high interest because they have the greatest number of log-ins. In contrast, eye drops show the fewest number of log-ins (but the highest number of completes) (Table 3).

*Step 6:* Welcome and orientation to the actual study.

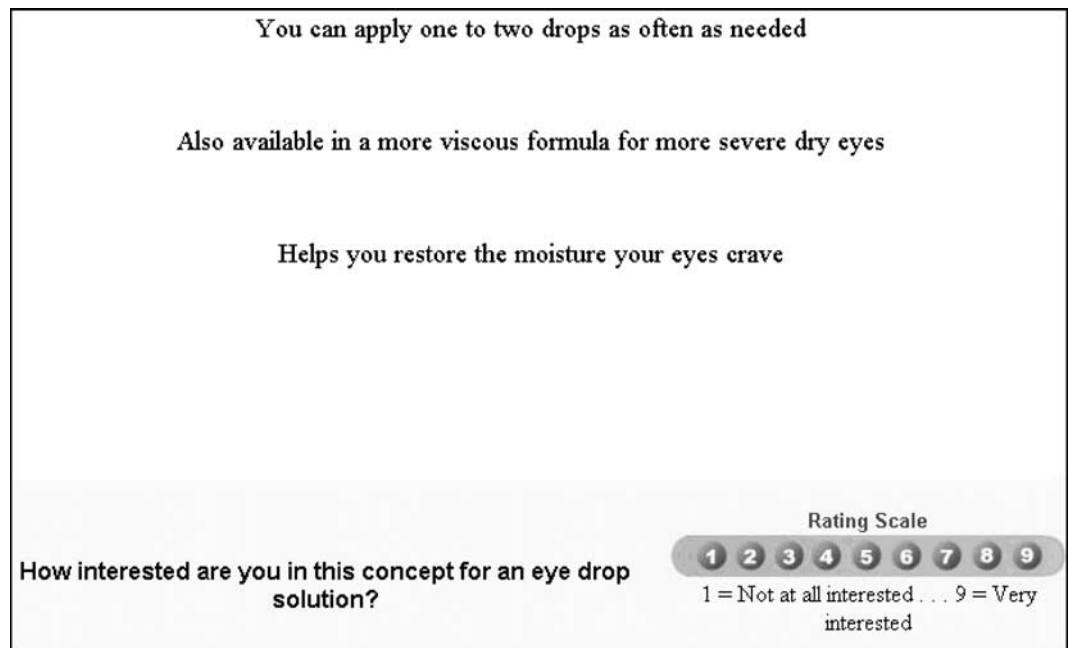
The welcome screen introduces the respondents to the task (see Figure 3). There is no hint about the source of the material, the nature of the study, etc. The product is only mentioned, as well as the ‘reward for participating’, that is, a chance to win a sweepstake. Nonetheless, the ratio of completes to log-ins was almost always 60 per cent or higher. This means that if the study can be made reasonably interesting, one stands a good chance of maintaining respondent interest to the end. One of the keys to the approach is to make the orientation page informal rather than frightening. By telling the respondents that they will be providing information that is ‘relevant’, the researcher may be setting the stage for a respondent who is less intimidated.

*Step 7:* The test concepts.

The conjoint analysis portion of the study began first, followed by the self-profiling questionnaire (classification).

In the conjoint section, each respondent evaluated 60 combinations, created from the 36 elements, in small concepts comprising 2–4 elements each (see Figure 4). This approach makes the task easy. The interview is sufficiently short to reduce drop-outs.<sup>18</sup> Each element appears multiple times, paired with other elements. The respondent rates interest for each concept. *Each respondent evaluated a totally unique set of 60 combinations created from the same 36 elements.* The strategy of creating unique combinations for each respondent provides three major advantages:

1. Each respondent evaluates concepts created by an experimental design, so it is straightforward to create an individual-level model. This ‘within subjects’ approach increases the sensitivity of the method because each respondent serves as his own control. There is no need to match samples in order to ensure a fair comparison across elements.
2. No accidentally synergistic combination of elements can affect the results more



**Figure 4:** Example of a test concept

than a few times. Often critics say that the conjoint measurement method would be better if the method could separate out the effect of interactions. With no knowledge of the category it is impossible to separate out the effect of interactions ahead of time. Thus, the systematic permutation of elements within the same design structure ensures that although the concepts are created the same way, the combinations are different.

3. Later on, one can identify significant pair-wise interactions by running the entire data set, looking for combinations of predictors that add significantly and more predictably to the data set.<sup>19</sup> This *post hoc* search for interactions would be impossible in the more conventional conjoint methods, which work with only specified sets of combinations. The systematic permutation of combinations creates many more concepts, from which interactions can be obtained.

Step 8: Classification.

The classification questionnaire provides additional information about the

respondent. Figure 5 shows an example of a screen for the classification questionnaire.

## UNDERSTANDING THE CONSUMER'S FRAMEWORK TOWARDS HEALTHCARE — LOOKING ACROSS ALL THE TOPIC AREAS

Log-in data for the studies provide a measure of interest. The rate at which the study fills up can be construed as a measure of latent interest in the topic. This measure of latent interest can be used to understand how consumers create an external framework with regards to healthcare. This framework of healthcare shows that the consumer, when given a variety of healthcare choices, follows a choice set that is linked to how they perceive healthcare from a top of mind perspective. For example, if you ask them what is healthcare all about, this framework is the way they would explain healthcare from the choice set allowed. The topics of preventive medicine such as physical examinations and healthy eating have the highest interest (ie greatest

**From the following list, please select the remedies/medications that provide you relief for dry/irritated eyes. (Select all that apply).**

- Over-the-counter products such as Visine, Bausch & Lomb Eye wash, etc.
- Herbal remedies such as Tea or Herbal Supplements
- Prescription medication specific for irritated eyes
- Meditation alternatives such as Yoga
- Exercise such as jogging, aerobics, etc.
- None of the above
- Other
- I do not suffer from irritated eyes

**SUBMIT**

Figure 5: Classification screen

number of log-ins), and show that this is how consumers initially create their framework of healthcare. The next level of interest, Allergy Medication and Back Pain Relief Patches, shows that the consumer moves from preventive medicine to self-medication of life-altering medical ailments. Further topic categories, show that the consumer moves from self-medication of life-altering medical ailments to more minor medical ailments. While this may seem intuitive, it has not been shown before.

Delving even deeper, we can look at the actual elements that drive this framework that we *act* on. We find that the key elements that drive the framework continue this theme of *quick fix...fix it now*. The key elements that drive interest are those that are about the product and its ability to provide relief and comfort now, that is, eye drops that deliver moisture and comfort for sufferers, an allergy medicine that gives you effective relief for the most severe allergies, etc. The framework that we act on is less about the long-term benefits and not at all about the informational and emotional aspects. This tells the drug manufacturer or marketer that the key benefits that MUST be communicated to the consumer are those of relief and the speed of relief.

### LOOKING DEEPER AT AN INDIVIDUAL RESULT — EYE DROPS

Eye drops provide a simple data set by which to introduce the results of the study, and the potential value of conjoint measurement and segmentation. We begin with the total panel data as shown in Table 4. Each respondent saw the same set of 36 concept elements. At the individual respondent level, the 60 ratings of interest, one per concept, are converted either to 0 for ratings of 1–6 to denote no interest, or 100 for ratings of 7–9 to denote interest.

The specific criteria for converting the ratings (1–6 vs 7–9) are left to the discretion of the researcher.

At the individual respondent level, we create a simple additive model of the form:

$$\text{Top 3 Box} = k_0 + k_1(\text{Element 1}) + k_2(\text{Element 2}) \dots k_{36}(\text{Element 36})$$

The equation can be interpreted as the part-worth utilities of the 36 elements, and the additive constant,  $k_0$ . The additive constant is the conditional probability of a person saying he is interested in the concept about eye drops without any elements being present. Clearly this is a theoretical value, computed from the data, but it can be used as a baseline. Looking at the column marked ‘Total’, we see that for the eye drop product the average  $k_0$  across the 179 respondents is 47, which is moderate. It says that without any elements being present about 47 per cent of the respondents would be favourable to the idea of eye drops.

The elements have been sorted from high to low, according to their performance by the total panel. This approach allows us to understand the messaging that drives consumer interest. Norms from similar studies suggest the following ranges of utilities, and their interpretation are as follows:

- Utility > 15 = superb performer, adds a great deal to interest
- Utility = 10–15 = excellent performer
- Utility = 5–10 = significant, but not particularly strong
- Utility = 0–5 = modest performer, probability not relevant
- Utility < 0 = detracts from acceptance.

The utilities shown in Table 4 suggest that there is really only one excellent

**Table 4:** Performance of elements ranked by total panel

Base size		Total	S1	S2	S3
		179	106	42	31
			Quick fix	How it works	Major benefit to user
	<i>Additive constant</i>	47	51	36	49
E06	An eye drop solution that soothes, coats and protects the eye	12	10	11	17
E09	Eye drops that deliver moisture and comfort for sufferers	10	10	13	6
E05	Eye drops that add moisture directly to your eyes	9	13	4	0
E10	Provides soothing, long-lasting effective relief	8	6	10	13
E26	May be used as a protectant against further irritation	7	5	13	8
E12	Gently cleanses and soothes irritated eyes	7	5	11	10
E30	Safe and gentle enough to use as often as needed	7	5	6	10
E21	For when your eyes are dry from straining due to reading or working	6	8	4	2
E25	For when you cannot take frequent breaks from work and your eyes get strained and dry	5	8	4	-6
E14	Effectively relieves red, irritated eyes fast	5	1	13	5
E17	You can apply one to two drops as often as needed	5	6	2	3
E08	Eye drops available in mild, moderate and severe formulas	5	8	2	-4
E33	A special formula that has many of the healthy qualities of your own natural tears	5	4	9	1
E27	No prescription needed	5	5	11	-6
E13	Provides long-lasting relief and protection	4	2	5	11
E28	Helps you restore the moisture your eyes crave	4	5	1	5
E02	An eye drop solution that is proven to relieve redness caused by pollen, ragweed and grass	4	-3	27	-3
E20	Great for seasonal relief from pollen and dust	4	1	10	8
E31	Always keep a bottle on hand to clean and soothe your eyes	4	3	6	5
E04	An eye solution treatment for mild-to-moderate dry eyes	4	7	-3	2
E15	Relieves suffering from red, itchy eyes	4	2	10	2
E36	#1 Doctor recommended Eye drop solution	4	2	5	9
E07	Eye drops that contain a fast-acting dual action formula ... temporarily remove redness & relieve discomfort	4	3	6	3
E22	Treats many symptoms like burning, excess tearing or a gritty feeling	3	2	9	-1
E19	Nonpreserved tears is a good treatment for people with sensitive eyes	3	7	8	-16
E29	Provides you with immediate comfort	3	5	1	-3
E34	Because choosing the right eye drop is important	2	3	-1	6
E32	Recommended by pharmacists for decades	2	4	3	-4
E11	Specifically designed to relieve allergy eyes	2	-3	15	-1
E01	An eye drop solution that combines an antihistamine for itch relief	2	-6	22	0
E35	A medicine cabinet essential for all households	1	1	-1	4
E18	You can apply one to two drops up to four times daily	1	-1	3	5
E23	Also available in a more viscous formula for more severe dry eyes	1	-2	1	9
E03	An eye wash that flushes away eye irritants	-1	-3	4	-1
E16	Provides comfort for contact lens wearers	-5	-18	17	11
E24	Avoid drafts from heating or AC vents that can dry eyes	-7	-5	-8	-12

performing element, 'An eye drop solution that is soothing, coats and protects the eye'. The other elements are acceptable, but none really break through. There are only three elements that do poorly. This finding parallels other studies that deconstruct the competitive frame.<sup>17,20</sup> One reason for the modest performance is that the legal requirements are so stringent and rigid that only certain types of elements pass these requirements. The elements cannot promise unusual benefits, because it might be difficult for the company to support those statements. The legal review process also ensures that there are not too many negative performing elements either. The very conservatism that drives positive elements from excellent to acceptable also prevents these unusual, poorly performing elements from being put into communication.

## LOOKING AT SUB-GROUPS, AND THEN SEGMENTING TO FIND MEANINGFUL PATTERNS

A productive way to look at differences in sub-groups uses segmentation based upon patterns of responses to questions. There are many criteria that segment consumers; such as responses to a questionnaire dealing with attitudes, or the pattern of utilities for a set of concept elements. The segmentation in this study was run on each of the eight data sets separately. The segmentation created different clusters of respondents, based upon a measure of their 'dissimilarity' in the pattern of utilities. Since each respondent generated 36 utility values, one per concept element, one can create a measure of 'dissimilarity' between any two individuals by the simple statistic  $(1 - R)$ , where  $R$  is the Pearson correlation coefficient. The distance between two people is 0 when two patterns of utilities are perfectly correlated,

and the distance is two when they are perfectly negatively correlated.<sup>21</sup>

This segmentation based upon response to utilities generates somewhat of a clear pattern of sub-groups, as shown in Table 5. The number of segments to extract from the set of 179 respondents is left to the researcher. A cursory assessment of the results from the two-, three- and four-segment solutions (data not shown), however, suggest that the three-segment solution produces the easiest set of groups to interpret.

### *Segment 1 (Quick Fix).*

This segment comprises the majority of respondents (106 of the 179). The additive constant is moderate (51), meaning that they are predisposed to buying eye drops. The segment is interested in a simple benefit. As long as the product works they find it interesting. They are not interested in reasons why. Many of the authors' previous studies reveal these types of respondents. They assess the concepts with a basically positive predisposition, and respond to a limited number of simple, clear, relevant messages. The strategy to reach these people is to keep the message simple, consistent and tied to a single basic benefit. One interesting finding is that they do not want to hear about contact lens wearers, or other groups. This means communications that particularise the eye drop product will be a turn-off for these individuals. This group is looking for a quick fix to an immediate medial issue. They are not looking for long-term healthcare from their products.

### *Segment 2 (How it works, what it does).*

This segment comprises 42 of the 179 respondents. They show a low additive constant (36) meaning that they are not interested in eye drops *per se*. They,

**Table 5:** Distribution of segments within each of the eight topic areas, and the standard deviation of the percentage

	Base	Quick fix (%)	How it works (%)	Major benefit (%)	Standard deviation (%)
Medicinal shampoo	177	44	19	38	13
Pain relief back patch	182	44	38	18	14
Sleep aid	177	25	53	21	17
Eye drop	179	24	17	60	23
Gas relief	177	30	11	58	24
Physical examination	183	62	16	22	25
Allergy medicine	178	13	24	63	26
Healthy eating	183	64	15	21	27

however, respond extraordinarily strongly to relief from defined external and common problems such as ‘An eye drop solution that is proven to relieve redness caused by pollen, ragweed and grass’ (utility value = 27), and ‘An eye drop solution that combines an antihistamine for itch relief’ (utility = 22). This group may well be those who use eye drops to deal with allergies, in other words, this group is self-diagnosing and self-medicating their healthcare.

*Segment 3 (Major benefit to user).*

This segment comprises 31 of the 179 respondents, and shows a moderate additive constant (49). The only elements that do well are those that promise gentle relief, in a general fashion, such as ‘Provides soothing, long lasting effective relief’ (utility = 13). This segment dislikes the mention of the different sources of discomfort. This group is less comfortable with self-diagnosis and is looking for their healthcare to be a long-term option that provides long-term relief and less immediate short-term relief.

When we look across the eight OTC topics we see that these segments exist across all topics. The distribution of the segments, however, varies. There is generally one large segment, and two smaller segments. For the categories of Physical Examination and Healthy Eating, the Quick Fix segment is largest

with the Major Benefit to the User following with one-third of the size. As the topic area becomes more medicinal such as Allergy Medication, Eye Drops and Gas Relief, we see a focus on the longer-term perspective with the Major Benefit to the User segment becoming the largest. For topic areas like Back Pain Relief and Medicated Shampoos the focus is on short-term relief, and we see the segments following this pattern with the Quick Fix segment being the largest.

**LOOKING DEEPER AT THE ELEMENTS**

One of the key aspects of the data is the set of utilities. We first look at the range of utilities, and finish with the elements that do best and worst. Table 6 shows the distribution of the 36 utilities. To make the presentation easier, the elements have been classified into four categories based on their numeric values. The eight OTC topics have been sorted by the number of elements that do poorly (value less than 0). The topics vary. The most positive set of elements come from the medicinal shampoo; almost all of the elements are positive, and 17 of the 36 elements are moderate to high. The most negative OTC topic is gas relief, with 11 of the elements negative, and 29 of the elements either negative or mediocre. This is an interesting finding in light of the fact that the

**Table 6:** Distribution of the 36 utility values for the eight OTC health topics

	Utilities <0 Poor	Utilities 0–4 Mediocre	Utilities 5–9 Moderate positive	Utilities 10–14 Winners
Medicinal shampoo	1	18	15	2
Physical exam	2	26	8	0
Sleep aids	3	20	13	0
Eye drops	3	19	12	2
Allergy relief	5	17	13	1
Pain relief back patch	6	18	11	1
Healthy eating	7	27	2	0
Gas relief	11	18	6	1
Total	38	163	80	7

elements were constructed from in-market communications on the internet, and the study was presumably taken by respondents who were interested in the particular OTC topic. As the top-rated elements across the studies have to do with providing comfort and relief, this suggests that there are further opportunities in understanding the consumers and what truly drives them.

## DISCUSSION

### A feasible understanding of consumers through internet-based technology

One of the objectives of this study was to determine whether it was possible to create a database for consumers in the OTC area, as had been done with foods. Foods are by nature quite interesting to consumers, because they embody sensory properties, emotional satisfaction, brands and usage occasions. OTC communications are as rich in content, but they cannot be as varied as foods. The ease of setting up, executing and completing these studies with respondents suggest that it is fairly straightforward to extend the food approach embodied in the IT!™ Studies<sup>12</sup> to the OTC world, and that one could go beyond new ideas to a deconstruction of the current competitive communications. The keys to setting up a database are the understanding of how to select elements, and having the self-

authoring technology that makes conjoint analysis easy and affordable.

### The big picture and the even bigger picture

One of the key benefits of conjoint analysis is the ability to abstract a 'big picture' from the set of concept elements. That is, from the reaction to the individual concept elements one quickly understands what elements drive acceptance. Standing back a little from the results and looking at the pattern across all the elements allows the researcher to discern the pattern. That is, there may well be a set of qualitatively similar elements that do well and another set of qualitatively similar elements that do poorly. The discovery of this general pattern, no matter how weak, is the start of the 'big picture'. The picture becomes even clearer when the pattern underlying the different segments is identified and named. For example, in these data there appear to be three segments: one that wants a simple and short summary of the product/benefit, a second segment that wants to know the benefit for them and a third that wants to know how it works. The even bigger picture emerges when one 'discovers' similarities in the structure of consumer mind-sets across different OTC topics. If the three-segment organising principle can be actually shown to be useful in subsequent studies, then this segmentation

structure turns out to be the even 'bigger picture'.

### Holes and opportunities

'Holes' in the category refer to unfilled needs. One way to rationalise the notion of 'holes', for the data set presented here, is to look at the different segments in a particular product category. If the deconstruction has been sufficiently representative in the current competitive array, then the researcher will probably have sampled a large number of messages. Given this proper sampling, a hole might be a segment that has relatively few strong elements appealing to it. For example, segment 1 for eye drops (101 out of 179 respondents) has only two strong performing elements. Therefore, this quite large number of respondents may well be ripe for a new message. Whether in fact one could create a message with a utility higher than 13 (*Eye drops that add moisture directly to your eyes*) is an empirical question. The hole exists. The opportunity is the better concept element.

### The value of larger-scale databases about the consumer mind

The introductory sections of this paper talked about the lack of a database about the consumer mind, in contrast to the existing databases about consumer purchase behaviour. A key problem is that the consumer mind has not been thought of as a source of material to be databased. There is the ongoing recognition that somehow information about purchases, marketing efforts and the like become increasingly valuable as they are aggregated. Marketers often refuse to move forward without information about the marketplace from these databases. At the same time, the information about the consumer is somewhat looser and less organised. Certainly marketers want to know about consumer preferences, and

commission studies that range from simple polls to answer one question, to complex studies that uncover consumer segmentation. The problem is that up to now this information was considered to be relevant to single one-off issues, rather than thought of as something to incorporate into a database. The very notion of databasing attitudes has been limited to such general trend studies as the Yankelovich Monitor<sup>®</sup> and similar types of general tracking approaches. These approaches deal with general attitudes. The current study shows that it is possible to create a new type of study, combining the specificity of a one-off-targeted conjoint study, with a macro view of the category. The combination generates a new type of information source, general in scope, revealing new larger-scale patterns, and yet specific enough to apply to individual products and health-related topics.

### References

- 1 Wells, W. D. (1975). Psychographics, a critical review. *J. Market. Res.* **12**, 196–213.
- 2 Mitchell, A. (1983). *The Nine American Lifestyles*, Macmillan, New York.
- 3 Luce, R.D. & Turkey, J.W. (1964). Conjoint analysis: a new form of fundamental measurement. *J. Math. Psychol.* **1**, 1–36.
- 4 Green, P. E. & Rao, V. R. (1971). Conjoint measurement for quantifying judgmental data. *J. Market. Res.* **8**, 355–363.
- 5 Green, P. E. & Wind, J. (1973). *Multiattribute Decisions in Marketing: A Measurement Approach*, Dryden Press, Hinsdale, IL.
- 6 Box, G. E. P., Hunter, J. & Hunter, S. (1978). *Statistics for Experimenters*, John Wiley, New York.
- 7 Gustaffson, A., Herrmann, A. & Huber, F. (2001). *Conjoint Measurement: Methods and Applications*, 2nd edn, Springer Verlag, Berlin.
- 8 Neslin, A. (1981). Linking product features to perceptions: self-stated versus statistically revealed importance weights. *J. Market. Res.* **18**, 80–86.
- 9 Wittink, D. R. & Cattin, P. (1989). Commercial use of conjoint analysis: an update. *J. Market.* **53**, 91–96.
- 10 Moskowitz, H. R., Gofman, A., Katz, R., Itty, B., Manchaiah, M. & Ma, Z. (2001). Rapid, inexpensive, actionable concept generation & optimization — the use and promise of self-authoring conjoint analysis for the foodservice industry. *Foodserv. Technol.* **1**, 149–168.
- 11 Pawle, J. S. & Cooper, P. (2001). Using internet research technology to accelerate innovation. Proceedings of Net Effects, Barcelona, European Society of Market Research, pp. 11–30.

- 12 Beckley, J. & Moskowitz, H. R. (2002). Databasing the consumer mind: the crave it!, Drink It!, Buy It! & Healthy You! Databases. Institute of Food Technologists. Anaheim, pp. 74–76.
- 13 Moskowitz, H. R. & Martin, D. G. (1993). How computer aided design and presentation of concepts speeds up the product development process. Proceedings of the 46th ESOMAR, Congress, Copenhagen, Denmark, pp. 405–419.
- 14 American Accreditation Health Care Commission. Executive summary: survey of consumers' attitudes towards health web sites and accreditation. Retrieved 28th October, 2002 from <http://www.urac.org/docs/websiteaccreditation/Summary.PDF>
- 15 Cooke, A. (1999). Quality of health and medical information on the internet. *Clin. Perform. Qual. Health Care* 7, 178–182.
- 16 Fox, S., Rainie, L., Horrigan, J., Lenhart, A., Spooner, T., Burke, M., Lewis, O. & Carter, C. (2000). The online health care revolution: how the web helps Americans take better care of themselves. Retrieved 28th October, 2002, from <http://www.pewinternet.org/reports/toc.asp?Report=26>.
- 17 Moskowitz, H. R., Itty, B., Shand, A. & Krieger, B. (2002). Understanding the consumer mind through a concept category appraisal: toothpaste. *Can. J. Market Res.* 20, 3–15.
- 18 MacElroy, B. (2000). Variables influencing dropout rates in web-based surveys. Quirks Marketing Research Review ( [www.quirks.com](http://www.quirks.com) ), paper 0605.
- 19 Moskowitz, H. R., Gofman, A., Manchiaiah, M., Ma, Z. & Katz, R. (2004). Dynamic package design & optimization in the internet era. Paper presented to the ESOMAR Technovate Conference, Barcelona.
- 20 Moskowitz, H. R. & Itty, B. (2002). Functional foods: using information on the web & web interviewing to jump-start development. Paper delivered at the Institute Of Food Technologists, Annual Meeting, Intermountain Division.
- 21 Systat (1997). *User Manual for Systat, the System for Statistics*, Systat Corporation Division of SPSS, Evanston.