Exploring the use of consumer collages in product design

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This paper presents the development, application and evaluation of a method for need identification in food product design, which combines the use of collage techniques and focus groups. Recent findings in neurobiology and psychology have considerable relevance for methodological improvement in consumer research. Based on these findings, a collage and focus group study aiming to identify feelings, emotions and experiences of consumers towards Home Meal Replacements, as well as relevant product attributes, is developed and performed. Its effectiveness is compared with that of (strictly) verbo-centric research previously carried out. Trends in image-based consumer research for product design are discussed.

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Introduction

It has been proposed that the success of food product development processes can be greatly improved if companies focus on creating products that deliver unique and superior benefits to consumers (Grunert, Baadsgaard, Larsen, & Madsen, 1996). Such a delivery of benefits, however, can only take place if companies are able to optimally exploit their technological capabilities in order to meet relevant consumer needs. Thus, the identification of consumer needs, by taking place at the design stage, becomes one of the earliest and most crucial steps in a consumer-led product development process (Dahan & Hauser, 2002; Trijp & Steenkamp, 1998).

In-depth knowledge regarding consumer needs is essential to product development processes since these needs:

- Reflect how current offer is (or is not) satisfying consumers;
- Set the standards to which new products have to comply;
- Often contribute to generate new, unique and superior ways of satisfying consumers.

It is therefore not surprising that a significant part of consumer research is dedicated to the development of methods aiming at the identification of consumer needs and its use in the generation of new concepts (Dahan & Hauser, 2002). Nevertheless, most of the current research in need identification is verbo-centric and views consumers as rational-decision makers, which may not be totally appropriate in the light of recent developments in psychology and neurobiology. These developments point out to a more significant role of emotion and imagery in the context of consumer behaviour. There is thus a need for methods that acknowledge both reason and emotion in decision-making processes, and enable consumers to represent their emotions, feelings and experiences towards products in a non-verbal form (Schiffman & Kanuk, 2000; Zaltman, 1997). We anticipate that the development and application of such methods can help achieve the degree of creativity and consumer insight essential to successful consumer-led food product development.

This paper presents the development, application and evaluation of the combined use of the collage technique (Marshall, 2001; Schiffman & Kanuk, 2000; Solomon, Bamossy, & Askegaard, 1999; Havlena & Holak, 1996; Schlackman, 1989) and focus groups discussions (Marshall, 1997; Schiffman & Kanuk, 2000; Solomon et al., 1999; Casey & Krueger, 1994) as an appropriate methodology for need identification in food product design.
design. The paper starts by briefly presenting the theoretical assumptions that presided to the methodological development. Next, an experimental study is presented, describing the method proposed and the results obtained. Through the comparison of these results with those of (strictly) verbo-centric research previously conducted (Costa, Schoolmeester, Dekker, & Jongen, 2002a, 2000b), some conclusions regarding the effectiveness of the method are drawn. Additionally, its potential application to the design of Home Meal Replacements (HMR), in particular ready meals, is discussed. Finally, trends in the area of image-based consumer research for product design are discussed.

Needs, consumer decision-making and product development

Classical approaches

It is widely accepted that behaviours like the purchase or consumption of products are the outputs of consumer decision-making processes, which, in turn, are triggered by the recognition of needs. Once the consumer is aware of a certain need, he or she will engage in a thought process that eventually leads to a particular form of purchase or consumption, believed to best satisfy that need (Schiffman & Kanuk, 2000). This view of consumer decision-making processes implies the following:

- Consumers are aware of their needs;
- Consumers are logical-problem solvers, i.e., their reaction to need recognition is to engage in careful thought processes leading to the purchase or consumption decisions that best satisfy the need;
- The thought processes are based on words and their meanings;
- Consumers are rational-decision makers, i.e., they are capable of objectively (1) evaluate available products based on their attributes, (2) judge on the ability of these attributes to deliver relevant benefits and (3) select products providing the combination of relevant benefits that maximises need satisfaction at the lowest cost;
- Consumers are aware of the criteria guiding their decision-making regarding product selection (Phillips, Olson, & Baumgartner, 1995; Schiffman & Kanuk, 2000; Trijp & Steenkamp, 1998; Zaltman, 1997).1

The above-stated premises have laid the ground for the operational definition of consumer needs in product development and the development of research methods for need identification. According to Griffin and Hauser (1993), needs are descriptions, in consumers’ own words, of the benefits to be fulfilled by a product or service. These descriptions can be elicited from consumers through the performance of either individual interviews or moderated group discussions (focus groups), in which consumers are asked to provide their opinions about and experiences with certain products or services. This methodological approach thus implies that consumers are always able (and willing) to verbalise the benefits they expect from products in response to verbal stimuli decided upon by others. These authors do recognise that some needs are harder to articulate (i.e., dwell at a deeper level of consciousness) than others. Nevertheless, they state that only 20–30 (individual or group) interviews should be able to provide as much as 90% of the needs related to a certain product category, as long as the interviewees belong to the same consumer segment (Griffin & Hauser, 1993; Urban & Hauser, 1992). The issue of how consumers establish which relevant benefits are to be expected from a product is not specifically addressed.

Recent developments

Increasingly fewer people today will contest that emotion, alongside with reason, plays a decisive role in consumer decision-making (Schiffman & Kanuk, 2000). Recent findings in the field of neurobiology have also provided ample evidence supporting the idea that emotion and reason commingle, rather than conflict, in decision-making processes (Damasio, 1994). However, as discussed in the previous sub-section, research methods concerning need identification are intrinsically biased towards reason. On one hand, they collect and present information regarding consumer needs and their consumption decisions as if the latest are always the result of a conscious and rational process triggered by the recognition of the first. On the other hand, by asking consumers to react verbally to selected verbal stimuli, they encourage the display of the rational aspects of decision making in detriment of its emotional ones. This is due to the fact that people usually find their rational qualities easier to articulate than their emotional ones, especially in a group setting (Phillips et al., 1995; Zaltman, 1997).

Another relevant development in the field of decision-making processes’ research is the increased recognition that thought is image-based, rather than word-based (Zaltman, 1997; Zaltman & Coulter, 1995). Thoughts arise from images, which are topographically organized neural representations that occur in the early sensory cortices. If neurones are sufficiently activated, images can be experienced as conscious thought. Images are

1 The existence of alternative behavioural models that do not build upon strictly cognitive approaches is also acknowledged in literature (Schiffman & Kanuk, 2000). To our knowledge, however, and besides the few exceptions mentioned at the end of section 2.2, this recognition has had little impact on conceptual approaches to consumer-led NPD.
thus internal, sensory-based, representations used in information processing. These images are often visual, since two-thirds of all stimuli reaches our brain through the visual system (Damásio, 1994; Kosslyn, 1994). This knowledge, together with the widely accepted notion that about 80% of human communication is non-verbal, renders our current verbo-centric need identification methods rather inadequate, to say the least. Focus groups and individual interviews, but also many other consumer research tools, rely mostly on literal language to collect, synthesize and report consumer responses. If non-verbal cues are collected at all, they are only infrequently analyzed and reported. However, if we accept that thought processes are, at least partially, image-based, it seems unreasonable to assume that consumers can adequately convey their feelings and expectations about a product by words alone. (Schiffman & Kanuk, 2000; Zaltman, 1997).

Researchers dealing with need identification in product design processes have, nevertheless, attempted to integrate the above-mentioned developments. Dahan and Hauser (2002) have recently revised the definition and scope of consumer needs. It is now acknowledged that consumers may be often unaware of a great deal of their needs, and that needs may not only be the result of word-based, logical inference. In order to improve our understanding of how consumers establish the relevant benefits to be expected from a product category and how the satisfactory delivery of these benefits is inferred from product attributes, the use of the Means-End Chains (MEC) (Audenaert & Steenkamp, 1997; Grunert & Valli, 2001; Reynolds & Gutman, 1988) has been suggested. According to this theory, the expected benefits are the link between the product’s attributes and the relevant (personal, cultural and social) values held by consumers. It is thus this chain of attributes, benefits and values that guides consumers' choice towards products delivering the desired benefits (Dahan & Hauser, 2002; Trijp & Steenkamp, 1998). The MEC’s concept is rooted in a rational approach to consumption-relevant cognitive structures, but also accommodates well emotional and verbo-centric. The resulting chains depict only non-specific knowledge about products, their attributes and expected consequences, and are restrained to the knowledge that can be verbalised by consumers. The data is collected through individual interviews, and both the chain building and its presentation are word-based (Grunert, Grunert, & Sørensen, 1995).

A new stream of consumer research has addressed the issue of enabling consumers to represent their image-based thoughts and their feelings about products in a non-verbal form. Some sophisticated forms of self-expression, like the Zaltman Metaphor Elicitation Technique (ZMET) (Zaltman, 1997; Zaltman & Coulter, 1995), or web-based focus groups (Dahan and Hauser, 2002) — which will be later discussed in this paper — have been considered, but two rather straightforward approaches are the making of collages and psycho-drawing (Havlena & Holák, 1996; Marshall, 1997; Schifman & Kanuk, 2000; Schlackman, 1989; Solomon et al., 1999). In collage studies, consumers are given magazines, scissors, paste and paper and asked to cut out pictures from magazines that represent their feelings, emotions and experiences regarding the product category under study. They then organise these clippings into a ‘meaningful’ collage that is later interpreted with the help of the researcher (Schifman & Kanuk, 2000).

One study has used the collages made by groups of graduate students to explore the nature and meaning of nostalgia (Havlena & Holák, 1996). The collages obtained included images based on both personal and cultural memories and were considered to provide useful guidance for advertising and merchandizing activities. A more recent study made use of drawings made by consumers to elicit their views on health and diet in a moderated group discussion (Sijtsma et al., 2002). The individual perceptions of health and health promoting product attributes were discussed in sessions of six persons with a balance between individual and group tasks on one hand, and expressive and associative components on the other. The use of drawings seemed to lead to an interesting and participants-friendly methodology, providing insight into both the affective and the cognitive aspects related to health promoting product attributes.

There is enough reason to believe that food-related consumption behaviours are, to a great extent, based on oversimplified and irrational decision-making processes. On one hand, food purchase, preparation and consumption mostly involve decisions that are frequent, mundane and deeply rooted in habit. Therefore, these decisions can be characterized by a low level of consumer involvement, a limited search for information and a high level of automated and procedural processes (Grunert, 1995; Steenkamp, 1997). On the other hand, food consumption has a high social and cultural value, and is increasingly seen as instrumental in the achievement and maintenance of a long and healthy life (Roininen, Lähteenmäki, & Tuorila, 2000). If we add to this argument the increasing societal focus on food safety and sustainable food production (Miles & Frewer, 2001), it is not hard to imagine that both rational and emotional aspects of food consumption will continue to play a very important role in consumers’ decision-making. Having in mind the above-mentioned theoretical findings and its applications, we anticipate a need for the further development of methods that acknowledge both reason and emotion in food choice, and enable
consumers to express their feelings and emotions towards products in a non-verbal form.

A combined collage and focus group study concerning meal preparation and HMR

Aim

The general aim of this experimental study was to investigate the feelings, emotions and experiences (FEE) associated with meal preparation and HMR by young (<30 years old) Dutch consumers, through the combined use of the collage technique and focus group discussions. This study’s underlying assumptions were:

- That the meal context and the meal preparation experience themselves are crucial to the understanding of how consumers perceive and evaluate food products, particularly HMR2 (Grunert, 1995; Meiselmann, 2000);
- That consumer collages allow us to gain more insight into the affective aspects of meals and their preparation, while focus groups using the collages as stimulus materials provide the complementing, more concrete aspects.

Given the findings obtained in other, strictly verbo-centric, studies (Costa et al., 2002a, 2002b; Oude Ophuis, Dekker, & Candel, 1994), we were particularly interested to (1) see how consumers compared HMR with their home-made meals and (2) evaluate the appropriateness of this empirical approach for need identification in food product design.

Experimental procedure

Twenty-nine self-standing Dutch citizens (24 women and five men), living in Wageningen, The Netherlands, and aged between 19 and 29 years old were selected to participate in this study, based on a brief screening questionnaire. Selected participants were all single, highly educated people (high school or university diploma), who were in charge of their own meal acquisition and/or preparation on a daily basis. Participants were either students at university (24) or held a full-time paid job (5), and included both users and non-users of HMR.

Five 2-hour sessions, each with an average of 6 participants, were held in the second half of 2001 in the same settings previously used for a focus group study (Costa et al., 2002b). To ensure that the completion of both tasks (making the collages and group discussions) could be easily supervised by the moderator and would yield the desired results, the number of sessions and participants per session was pre-determined (Havlena & Holak, 1996). Each session was divided in two parts of 45 minutes, with a 15 minutes break in between for refreshments. The sessions were all conducted by an experienced moderator assisted by another member of the research team, being the second half of each session video-recorded by a professional cameramen. All participants were previously informed that part of the sessions would be videotaped and were rewarded with a gift for their participation in the study.

In the first half of each session, the first 5 minutes were devoted to introducing the participants to each other, the research team, the general aim of the study and the format of the session. Next, the participants were divided into two groups (A and B) and separately asked to select from supplied magazines images depicting their FEE regarding cooking one’s own meal (A) and using a ready meal (B). The two groups were also asked to cut and assemble these images in meaningful collages in the following manner: the centre should contain images depicting the most important and/or consensual FEE, while the borders should be left to place less important and/or individual FEE determined (Havlena & Holak, 1996). Although this might constrain the lay-out of the collages made, we still wanted to obtain a measure of the different FEE importance (to facilitate interpretation and discussion), and to make sure that both consensual and individual FEE were given a space in the collages.

The choice for a group setting instead of an individual one for the making of the collages was based on careful weighing of the advantages and disadvantages of the two options. We were aware of the possible suppression of the expression of emotions due to the potentially inhibitory presence of other group members. There was also the possibility of introducing additional rational aspects to the collages due to the need of explaining and negotiating the final selection of images and the layout with other group members. However, even in an individual setting, the participants still would be required to select images, decide on the final composition of the collage and finally explain it in-depth to the researcher. Therefore, and given the inconspicuous nature of the issue under investigation, we assumed that the benefit of collectively making, presenting and discussing the collages vis-à-vis individual interviews — like increased creativity, diversity of viewpoints and interest for the task (Havlena & Holak, 1996) — outweighed the potential undue influence of rational processes. Another possibility would have been to ask participants to individually make their collages in advance (Zaltman, 1997; Zaltman & Coulter, 1995) and introduce them at the start of the group discussions. We excluded this option in order to prevent that (1) participants would not show up due to not having made their collages in time or not wanting to present their individual work to an audience; (2)

2 For a description of the range of products encompassed by the concept of Home Meal Replacements, please refer to Costa, Dekker, Beumer, Rombouts, and Jongen (2001).
even a bigger influence of rational processes would take place due to the time gap between being informed of the task and having to present the outcome. Another collage study which also took place in a group setting did not report any unduly influences of this situation (Havlena & Holak, 1996). Moreover, we were aware that standard projective techniques presuppose the presentation of the projections to a small audience (Schlackman, 1989).

The research team supplied each group with scissors, paste, pencils, one A2-sized sheet of light cardboard of a soft and warm colour, and a set of contemporary issues (approximately the same throughout the five sessions) of nine Dutch magazines:

- *Magriet* and *Viva* (women’s magazines);
- *Revu* and *Men’s Health* (men’s magazines);
- *Cosmopolitan* (fashion);
- *Elsevier* (opinion);
- *VT-Wonen* (decoration);
- *Ville d’Art* and *Living* (life-style).

These magazines were selected to provide a reasonably broad range of images, which could be browsed within the time given to complete the task (Havlena & Holak, 1996). Cooking magazines were purposely excluded from the stimuli set to minimize the likelihood of participants making collages depicting only concrete examples of meals and their preparation, instead of depicting the more abstract feelings and emotions associated with them. Since almost all of the magazines supplied contained a cookery section, images of food and meal preparation were still amply available. Word cuttings were allowed to be included in the collages but this practice was not encouraged. Finally, the groups were informed that they had about 35 minutes to complete their task and organise a 5-minute presentation about their collage which would take place at the beginning of the second half of the session. During the completion of their tasks the two groups were kept physically separate and unaware of each other’s collages or collage topic.

The instructions on how the participants should proceed to make their collages seemed to be clearly understood by everybody, and the few questions actually posed were requests to rationalize the task. Some groups asked if they could give a title to the collage, add written words or word clippings, split the poster in two halves to better represent the duality of the topic as they perceived it, or draw schemas elaborating on their purchase or related decision-making processes. Participants were told that although it was up to them to determine the composition of their collages, they should keep in mind that they had been asked to focus on images portraying their FEE. We stressed our desire for individual expression in the making of the collages rather than aesthetic quality or functionality. They were also reassured of the non-competitive character of the task. The participants’ high level of education seemed to be partially responsible for these requests, but we have also noticed that these were more frequent in the groups who had to make a collage about ready meals.

The second half of each session began with each group presenting their collage. The presentations and the collages were then taken as starting point for a focus group discussion involving all the participants in the session, the moderator and her assistant. The following probing questions were used:

- “What do you think about the feelings, emotions and experiences depicted in the collage from your own/the other group?”
- “Are there important images regarding these meals that you can not find back in any of the collages?”
- “Can you identify yourself with (some of) the images depicted in the collages, or do you have another vision on these issues?”
- “Do you think this image is the most appropriate to depict this issue? Why/why not?”
- “Can you elaborate on why this issue is worthy of taken a (central) place in your collage? Why not other issues, such as...?”

The focus group discussion lasted about 35 minutes and concluded with the moderator summarizing the main ideas coming out of the debate, asking for any final comments or questions and thanking the subjects for their participation.

Each of 10 collages made during the sessions was digitally photographed and saved in a computer file. After each session, both the moderator and the assistant viewed the collages made and wrote down their first impressions about the session, focusing on the way the groups had completed their tasks, the presentations and the subsequent discussion. Next, a complete transcript of the second half of each session was made. These transcripts were afterwards content-analyzed by both the moderator and her assistant. Based on the notes, the study of the collages and the results of the content-analysis, two global summaries of the five sessions — one about the presentations, which assisted in the collages’ interpretation, and another regarding the group discussions — were produced in English. These summaries reported the key findings as well as examples of related quotes extracted from the presentations and discussions. During the content-analysis, the relative importance of the different findings was established by a categorization procedure (Costa et al., 2002b; Marshall, 1997; Spiggle, 1994). In this procedure, we searched for regularities and patterns by looking at recurrent (central vs. peripheral) issues and themes emerging from the collages,
their presentations and the group discussions across the sessions.

Results and discussion
The making of the collages
Although the first half of the sessions was not video-taped, in order to disturb as little as possible the making of the collages and due to practical constraints, the moderator and the assistant did observe the strategies used by the groups to approach their task. One of the strategies was to start by mentioning and listing important FEE (whether consensual or not), followed by dividing the magazines among the group members and browsing through them in search of the adequate images. Finally, based on the instructions they had been given, the members collectively selected the images and decided upon the layout of the collages. Three groups making collages regarding their own meal followed this strategy. Another, less formal approach was taken for the making of two other collages (one about own meals and the other about ready meals). Each group member started by browsing through the magazines in search of adequate images regarding self-relevant issues and, later on, the group decided upon the images to be included and the layout. The last, and most formal approach, was taken by four of the groups dealing with ready meals and by one group dealing with own meals. In this approach, the groups first decided on the issues to be included and the structure determining the layout of the collage, and then browsed through the magazines in search of the appropriate images. Once again, it seemed that participants dealing with the topic of ready meals felt the need to be more rational about the making of their collages than the ones dealing with home-made meals. However, the personal traits of the participants of the different groups could also have influenced the nature of the approaches considerably.

Although the approaches chosen by the groups to make the collages differed, a significant share of the selected images remained the same across the sessions. This indicates that the number and type of magazines supplied to participants in this kind of study may be less relevant than previously thought by some (Havlena & Holak, 1996). Most of the participants appeared to have rather clear mental images of the FEE they associated with the topic even before they browsed through the magazines. The magazines seemed to be used more as a source of images fitting their own mental image than a source of mental images per se. This finding fits well with the theory of consumption visions presented by Phillips et al. (1995) and the underlying assumptions presiding previous applications of collage studies in the investigation of consumers’ relationships with products (Zaltman, 1997).

The presentation of the collages
Figures 1–4 show some examples of the collages made, as well as their interpretations as provided by the participants during the presentations. In these examples, we have stayed close to the participants’ own

![Example of a Collage](image)

**Fig. 1.** Example of a collage about ‘cooking one’s own meal’.

Cooking as an inspiring, relaxing and pleasurable activity

- Cooking is a delight to the senses, with all those colours, smells, textures... It makes you look forward to the meal (cinnamon & pepper, girl eating ice cream).
- The making of a good meal demands the use of fresh and natural ingredients (Italian village, lettuce, red pepper).
- Cooking keeps you busy, body and mind:
  - It is a creative activity. You have to decide about the ingredients, the recipe... It gives you the opportunity to try new things (choosing tomatoes, portrait, painting & dirty hands);
  - You need to handle all those pots and pans, not to mention the cleaning-up afterwards (karate girl, senior couple, gardening tools, scouring pad).
- Cooking helps you relax. It forces you to take a break from all your other activities (“Time out”, Italian village).
- Mealtime is the perfect setting for socialising, and that makes all the effort you put into cooking worthwhile (dining table, bottle of wine).
words, in line with the definition of consumer needs provided by literature (Dahan & Hauser, 2002; Griffin & Hauser, 1993). According to the participants, cooking can be either an inspiring, restful and pleasurable event (ideal and rare) (Fig. 1) or an efficiency-driven, stressful experience (realistic and frequent) (Fig. 2). This depends on the time available to shop, cook, eat and clean up afterwards, on whether or not one is eating alone, and on the level of effort and time put into the performance of other daily activities. A central issue in all collages about home-made meals was that these should be simultaneously tasty, healthy (i.e., containing plenty of fresh ingredients, namely vegetables), simple and quick to prepare. Provided there is enough time to cook and eat, meals are also seen as a good moment to socialise, relax and use one’s creativity. One group mentioned that cooking gave them a certain rustic, hands-on feeling they missed in other daily activities (Fig. 1). It was generally believed by the participants that one should strive to cook healthy and varied meals everyday, but they also admitted frequently trading off such beliefs for meals that were easy and quick to prepare.

The results found are comparable to those obtained from a means-end study of the attribute-benefit-value structure behind consumer motivations for cooking.
and/or using ready meals (Costa et al., 2002a). In this study, the elements of an unrelated sample of 16 self-standing Dutch individuals (10 women and six men, aged between 20 and 42 years old, highly educated and living in Wageningen, The Netherlands) have also declared to find cooking a rewarding, pleasurable and relaxing activity. Additionally, though, they stated their desire for meals that are quick to prepare and eat, so they could have more free time to pursue other activities with more valued outcomes. The preparation of more sophisticated meals, and the consequent increase in time and effort devoted to cooking, was said to be left for special occasions, like weekends, festivities, or when having guests for dinner. The successful preparation of complex and/or new recipes, particular when cooking for guests, was seen as a means to attain desired end-states like a sense of achievement and self-esteem.

In another study (Costa et al., 2002b), a sample of 32 self-standing Dutch seniors (27 women and five men, aged between 54 and 83 years old, with an intermediate to high education level and living in Wageningen, The Netherlands) expressed similar opinions about preparing their own meals, in spite of the considerable age difference. These older respondents, however, emphasized more issues related with the sensorial and compositional quality of their meals, and appeared to find the recreational aspects of cooking less important than the respondents in the other two studies.

In spite of the appreciation for convenience in meal preparation, ready meals were not always seen by participants as the ideal solution to replace (or speed-up) home-made meals by the participants (Figs. 3 and 4). The positive feelings brought about by the preparation of a ready meal, in terms of being able to relax and devote less time, energy and thought to the whole meal event, were counteracted by a sense of guilt and regret for not having cooked. These negative feelings were said to be associated not only with health concerns, like not being able to feed yourself a proper home-made meal or spoiling yourself with snacks and fast-food, but also with being afraid to be (or appear to be) too lazy, laid-back or careless. Moreover, participants felt that ready meals were more appropriate for when they were eating alone, and thus should not be served to guests. Finally, they were of the opinion that ready meals’ current assortment was too narrow and not always up to their expectations in terms of sensory quality.

The results found are similar to those obtained by a means-end study regarding the use of ready meals (Costa et al., 2002a). Young non-users of ready meals stated that they found them too fatty and salty. Additionally, they were of the opinion that they contained only minute amounts of vegetables. This, in turn, lead them to the believe that these meals, when consumed regularly, might jeopardize one’s health due to their inadequate nutrient composition. Users of ready meals, however, saw them as fully replacing home-made meals, at least in terms of energy intake and satiety sensation. Above all, they valued the extra time made available by not having to shop and cook so often, which they linked directly to the convenience-related properties of ready meals. In general, the participants of this study also mentioned experiencing (or anticipating) guilt when using ready meals. They associated this feeling with the (decreased) amount of time and effort put into cooking, which they linked directly with the non-fulfilment of their obligations.
In a comparable study, senior respondents displayed analogous concerns about the sensorial and nutritional quality of ready meals, being even more critical about this type of products than the younger respondents from the other two studies. The seniors found the use of ready meals almost always inappropriate since the time- and effort-saving properties of these products were considered to be irrelevant in view of their daily life circumstances (Costa et al., 2002b).

It was interesting to realize that specific patterns of collage making were common across sessions. Collages concerning own meals generally used more of the available paper area, contained bigger and more colourful images and displayed much less clippings of words than those concerning ready meals. Collages about ready meals were usually less appealing, duller and dimmer. Images about own meals often depicted foods, dinner tables and kitchens. The relatively few images of people present in collages about own meals depicted persons that mostly seemed to be experiencing positive feelings or emotions, like feeling creative or proud of oneself. Images concerning ready meals were often of people who either appeared to experience less positive feelings (like tiredness, frustration, anger or stress) or displayed an enjoyment for not having cooked that was negatively viewed by the collages’ makers. Collages regarding ready meals were also much richer in schemes, fixed structures, titles, explanations, opinions and judgements than in feelings or emotions. All five collages dwelled on the topic of “the good few versus the bad many” aspects of using ready meals.

It seems that participants either had difficulties finding images depicting their negative feelings about ready meals, thereby resorting to words, or felt the need to be much more rational about them then about home-made meals. There are several possible explanations for this:

- “Cooking one’s own meal” is a more abstract, much broader concept than ready meals, and thus easier to be envisioned and explored through a collage task;
- Participants’ personality traits like creativity and rationality, their views on the task and issues involved, the groups’ composition, the setting or the selection of images provided have determined these results;3
- Preparing and serving one’s own meal is a daily habit with a high social and cultural value, while the use of ready meals is seen as more exceptional (and in some cases even reproachable) event, and thus requires more explanation and justification.

Given the results of comparable studies (Costa et al., 2002a, 2002b) and reports uncovering feelings of guilt and regret associated with the consumption of HMR in several countries (Gofton, 1995; Thompson, 1996; Voe-dingscentrum, 2001), we anticipate that the last explanation provided is, at least, partially responsible for the findings reported here.

The focus group discussions

The focus group discussions seemed to have diverted the participants’ attention away from the posters, since these were hardly ever mentioned again. This was actually a desired development since the making of the collages aimed at providing a starting point for the discussions and not at overwhelming them. A few exceptions occurred at the last part of some sessions, when the discussion focused on the negative connotations of ready meals and its users. At this stage, some participants resorted to the images depicted in the collages in an effort to provide a better idea of what they were referring to.

Four main topics related with meal preparation were discussed across the sessions. These were:

- Reasons to cook one’s own meals;
- Positive and negative aspects of ready meals, and the advantages of cooking over ready meal usage;
- Other HMR and convenience foods;
- Negative connotations of ready meals and their users.

As it can be seen from items listed above, most of what was talked about during the groups’ discussions was in line with the topics depicted in the collages. Nevertheless, the discussions brought out some interesting topics that had not been mentioned before, like the use of convenience foods. Therefore we are lead to conclude that (1) the collages worked rather well as stimulus material for the discussions, and (2) the collage technique and the focus group complemented each other rather well in supplying a broad range of information.

Reasons to cook one’s own meals

Participants stated that they cooked everyday mainly out of habit or because they felt they were expected to. Some of the specific statements regarding this issue were:

“It has always been like that, my mother cooked and the family sat together at dinnertime.”

“It is one of your daily tasks, whether you like it or not. And you better do it, otherwise people start thinking you don’t care about them, or about yourself, and they are going to nag you about it.”

3 However, we do not find the two last possibilities very likely, as discussed in the Experimental procedure.
Cooking was also seen as a sign of caring for relevant others:

“I really enjoy preparing a special meal when my friends come over for dinner. And actually I don’t mind how much time and money I have to put into it. It is another way of showing them how much they mean to me.”

Once again, cooking was seen as a source of fulfillment, enjoyment and relaxation:

“Cooking is a very creative activity. You have the opportunity to try out new recipes... it is very exciting, not as boring and as predictable as the other household tasks. You are free to improvise.”

“You are momentarily absorbed with your own thoughts, reviewing how the day went.”

“When I am too anxious or nervous, I go into the kitchen and start cooking, trying to get rid of some of the stress built-up inside.”

Some positive consequences of cooking, in terms of social relations and issues like self-esteem and achievement, were also mentioned:

“When you are cooking you know that in a moment everybody is going to come and seat at the table, enjoying having dinner together.”

“You feel really proud of yourself if you manage to cook a particularly nice meal. You see it as being your own special creation of the day.”

“It is very nice to hear your friends praise your meals, like: ‘what a nice meal!’, or ‘Wow, I never had that before!’”

“You want to impress the others with your cooking skills, especially when among gourmets. Everything has to be just perfect.”

These findings are similar to those of a comparable study performed by Costa et al. (2002a), as discussed previously.

Positive and negative aspects of ready meals, and the advantages of cooking over ready meal usage

Relevant positive and negative aspects associated with ready meals’ usage mentioned during the sessions, together with some related statements, are depicted in Tables 1 and 2. Participants pointed out that both the positive and negatives aspects mentioned determined their consumption behaviour towards ready meals, depending on the situation and the self-relevance of the different aspects.

Similar results were obtained by a means-end study involving 26 people from Wageningen, both users and non-users of frozen ready meals (Oude Ophuis et al., 1994). The positive aspects mentioned in this study were exclusively convenience-related, like the ease of storage (reducing the need to shop so often while making meals readily available), ease of preparation and rendering washing up unnecessary. All these aspects were associated with saving time and mental energy, which were in turn devoted to more rewarding activities, like the preservation of social relations and entertainment. The negative aspects had again to do with the highly processed and un-natural character attributed to ready meals.

### Table 1. Positive aspects of ready meal usage

<table>
<thead>
<tr>
<th>Positive aspects of ready meal usage</th>
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<tbody>
<tr>
<td>You have the opportunity to try new and/or different meals.</td>
</tr>
<tr>
<td>You reduce the time you spend shopping for the different meal ingredients.</td>
</tr>
<tr>
<td>If you cook your meal from scratch you end up with leftovers of the ingredients used, since package sizes are usually not adequate for a one-person household. This doesn't happen if you use ready meals.</td>
</tr>
<tr>
<td>You don't have to figure out what you are going to cook for dinner that evening.</td>
</tr>
<tr>
<td>If you have to buy a lot of different ingredients to prepare a dish, it is easier and cheaper to buy this dish already prepared.</td>
</tr>
<tr>
<td>Ready meals are easy and quick to prepare.</td>
</tr>
<tr>
<td>You can use the time your dinner is getting ready to do other things.</td>
</tr>
<tr>
<td>You can invest the time you would otherwise spend cooking in more rewarding activities.</td>
</tr>
<tr>
<td>It is the Friday night feeling: chaos and tiredness, I'm not in the mood to cook, I am already fed up with all the things I had to do today, I'll just buy a ready meal and skip cooking.</td>
</tr>
<tr>
<td>Ready meals can be stored for later use. That's handy since sometimes you just don't have time to shop.</td>
</tr>
<tr>
<td>You simply don't have the time or the facilities to cook your own meal.</td>
</tr>
<tr>
<td>Some ready meals you eat because you actually like them, not because you need to replace your own meal.</td>
</tr>
<tr>
<td>It is a way of indulging myself.</td>
</tr>
<tr>
<td>If I am eating alone tonight, why bother cooking?</td>
</tr>
</tbody>
</table>
meals by the participants, which they felt compromised considerably its nutritional value and thus their own health. The results reported in this sub-section are also similar to those obtained by a comparable study (Costa et al., 2002a), as discussed previously.

As already pointed out by other studies (Costa et al., 2002b; Oude Ophuis et al., 1994), home-made meals are a strong reference point in the evaluation of ready meals. The participants of our study generally felt sure that by cooking everyday they would get more varied, healthier, fresher and tastier meals than by using ready meals. They also felt that cooking was a way to show their relatives and friends how much they care for their well being, as well as for their own. In their opinion, the frequent use of ready meals would not only jeopardise the relatives and friends’ current regard for their cooking skills, but also be a source of reproach from and concern to others.

Other HMR and convenience foods

The negative aspects of ready meals mentioned by the participants during the sessions led them to come up with what they felt to be more suitable alternatives to replace home-made meals. Some of these alternatives were: cooking double in advance, eating in a canteen, eating some sandwiches, home-delivery and take-out meals. We found the motivations for having a take-out meal instead of a ready meal quite curious, since they hardly seemed to be based on an objective evaluation of both products:

<table>
<thead>
<tr>
<th>Table 2. Negative aspects of ready meal usage</th>
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<tbody>
<tr>
<td>Ready meals don't seem natural. They contain all sorts of additives, things that you usually don't have in your own meals. They are covered with plastic and the ingredients are all mixed up in a pulp. It does not look at all like what I get on my plate when I cook. You can just imagine this stuff coming out of a machine. You can immediately see it was mass-produced, not cooked in somebody's kitchen. You miss the personal touch, the care put in it just for you.</td>
</tr>
<tr>
<td>Even the way you prepare these meals is weird: you make some holes in the packages, the whole thing revolves in the microwave for some minutes and there you have it.</td>
</tr>
<tr>
<td>I have the idea I have just eaten something really unhealthy. Everything that comes out of a factory I do not consider healthy anymore, due to all those additives. The same with everything that comes out of a microwave. Processing eliminates most of the vitamins in foods. Only fresh vegetables are really healthy and those you never get in ready meals. It is all processed and packed in plastic. I don't see that as being freshly prepared food anymore.</td>
</tr>
<tr>
<td>They are not really varied from a nutritional point of view. So if you eaten them often, you end up having an unbalanced diet. And since there are never sufficient amounts of vegetables in them, it is even worse.</td>
</tr>
<tr>
<td>You have no way of knowing how the meal was prepared. You are always a bit suspicious of food you don't cook yourself. You have no way of knowing if they really use the ingredients that they claim to use. Of course they tell you that everything is prepared in a safe and responsible way, that the whole process is completely under control, that it is whole freshly prepared and healthy but... You can not help thinking that they are only aiming at making a profit. That they simply use left-overs and poor quality ingredients and try to pass it as a meal. Cheap and efficient.</td>
</tr>
<tr>
<td>You are not really impressing anyone by using ready meals. If people are coming over for dinner, you are not going to put two of these bags in the microwave and say: Here you are! It looks like you did not even bother to cook for them.</td>
</tr>
<tr>
<td>You can not really expect compliments when you serve a ready meal, like: Oh! You really know how to handle a microwave beautifully!</td>
</tr>
<tr>
<td>It is not your own meal anymore. You do not decide on how much salt or pepper, or what kind of herbs, go into it. Somebody else decides everything for you. You choose for the kind of meal you would like to have and that’s it. It is all standardised. With ready meals you can not add something yourself, they leave no room for your own creativity. Thus you do not expect much of them.</td>
</tr>
<tr>
<td>The proportions are all wrong. There is always too much of one thing and too little of another. And it is usually pasta with a kind of lousy sauce. The vegetables are always scarce: you really need a magnifier to find them!</td>
</tr>
<tr>
<td>Some of these meals simply taste bad, while the reasonable ones are often too expensive for my budget.</td>
</tr>
<tr>
<td>Ready meals are not handy when you are having guests for dinner because you have to warm up all those individual packages one by one.</td>
</tr>
<tr>
<td>Some meals really look good on the package’s photo, but once you open them you realise they don't look at all how you expected them to. Some don't even look fit for human consumption!</td>
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</tbody>
</table>

I think that take-out meals just taste better, they taste more like the real thing (ethnic restaurant meals). They certainly look tastier than these vacuum-packed meals you see in the supermarkets.”

“You have the impression that they are freshly prepared meals and therefore healthier. Although they are probably mass-produced as well...”

“You have the idea that someone has been standing in the kitchen for hours, preparing that meal especially for you. However, come to think of it, they probably also just warm up a package for you... But you don’t want to know about that, of course (laughing).”

“It is also a way to spoil yourself and your guests a little, something for a special occasion. It is like sitting in the restaurant, but then at home.”
This positive evaluation of take-out meals is not in line with the results obtained by a means-end study concerning their use (Costa et al., 2002a). The participants in this other study viewed take-out meals as being too expensive and unhealthy, as well as not particularly tasty. They found its use to be appropriate only during the week, when they stated to have little time and energy left to cook dinner. One possible explanation for different results obtained (besides the different samples used), could be that participants in the current study compared take-out meals directly with restaurant meals, while in the previous study the home-made meal was used as a reference point.

Another recurrent topic was the use of semi-prepared ingredients, also known as convenience foods, in order to speed up meal preparation. These products seemed to be well regarded by the participants:

“The use of minimally processed or canned vegetables saves a lot of time when preparing a meal.”

“There are a lot of sauces you don’t know how to make yourself, or that are rather difficult to make. This kind of products makes the cooking easier and quicker, since somebody already did half of the work for you.”

Participants also mentioned why they consider these products to be a better alternative than ready meals to speed up meal preparation:

“An advantage of these products is that they give you the feeling you did something yourself. You still have to stand in the kitchen and prepare your dinner.”

“You feel good about yourself because, in spite of the little time spent on it, you still managed to cook a nice meal.”

“You feel that a meal prepared with these products is more your own meal, since you still had to add something to it — extra ingredients, seasoning, cooking skills, time... You have to do more than just walk to the microwave, and that gives you the feeling you actually cooked yourself.”

To our knowledge, there are no reports in literature about the perceptions of consumers regarding semi-prepared meal ingredients. No comparisons with the findings of other studies can thus be made.

Negative connotations of ready meals and their users

Participants were of the opinion that there is a lot of unwarranted prejudice against ready meals, and that this reflects negatively on how these products are perceived:

“In general, ready meals have a poor image. People see them as unnatural and unhealthy products, although most of the times that is probably not the case. There is just a lot of prejudice against them.”

“You don’t associate them with tasty food. Quite the opposite, you think of them as being dull, uninteresting and unsophisticated products, although the assortment is quite broad nowadays.”

Participants were also willing to provide some of the reasons they thought to be behind this prejudice. One of these reasons is associated with the high social and moral status of cooking one’s own meals:

“I think that a lot of the prejudice against ready meals comes from the fact that you haven’t cooked yourself, as you should. So to use them leaves you with a sense of guilt. You feel guilty because you haven’t put any time or effort into the preparation of the meal you’re eating, except for the fact that you bought it.”

Health concerns were also mentioned in relation to this prejudice:

“If you use ready meals often you don’t feel happy with yourself. You think you are neglecting your wellbeing, because you know they are not the healthiest stuff that you can eat. When I use a ready meal, I try to limit the damage by adding some fresh salad, or I make sure I eat a piece of fruit afterwards. This makes me feel more reassured.”

Participants thought that the fact that ready meals are considered to be relatively novel in terms of preparation process and recipes could explain some of consumers’ preconceptions:

“We are reluctant to accept ready meals because they are new to us. It is not something we would eat at our parents’ house, except for the frozen pizzas perhaps. But those we like to eat, and we don’t even see them as ready meals anymore. Maybe the fact that ready meals don’t taste or look like something you would cook yourself contributes to that.”

“Take pizzas, for example. They are also ready meals in a way, but they seem much more natural to us. I mean, you can clearly see the ingredients they contain. Besides, when you make pizza yourself you also place the ingredients on top of the dough, put everything in the oven and that’s it. So the process of warming up a frozen pizza feels right.”
The role played by eating habits and traditions was also mentioned in relation to this issue:

“At my parents’ there was a fresh meal on the table every night. So, the idea of running to the supermarket to buy this package, put it in the microwave, and call it dinner does not really appeal to me.”

It was also curious to see that, according to the participants, the poor image of ready meals reflected badly on its users:

“Ready meals are seen as something more appropriate for lonely and unhappy bachelors than for families. And that’s an image you don’t want to be associated with.”

“Ready meals are for people who won’t go to the trouble of cooking everyday. They are a form of laziness, because everybody knows you should cook your own meals.”

“Lack of time should not be given as an excuse to use ready meals, because it only takes 10 minutes to cook a decent meal anyway.”

“It’s okay to use ready meals once in a while, like when you’ve had a particularly busy or tiresome day, or when there is still a lot to do after dinner. But you should not make a habit of it.”

Part of the results presented in this section can be related to those of comparable studies already discussed in this paper. However, some new issues related to the negative image of ready meals and their users surfaced during the last stages of the sessions. The new issues were the novel character of ready meals, the influence of eating habits and traditions and the moral judgements passed on ready meal users. These issues, although already present in the collages, had not been explicitly mentioned during the presentations. These findings can be related to the well-established notions that habits and tradition influence food choice considerably (Steenkamp, 1997; Tuorila & Pangborn, 1988), and that consumers in general are averse to innovation (Trijp et al., 1998). The passing of judgement on ready meal users and the enumeration of situations when the use of ready meals is less censurable were issues also discussed by Dutch seniors during a focus group study (Costa et al., 2002b). Such issues can be probably related to feelings of guilt and regret associated with HMR consumption (Gofton, 1995; Thompson, 1996; Voedingscentrum, 2001).

The emergence of new issues during the discussions demonstrates, in our opinion, that focus groups are a rather effective complement of the collage technique. The group discussions allow participants to dwell deeper into issues that may have not been explicitly considered yet (i.e., during the collage making and the presentations), thereby generating more information about the topic under investigation.

Conclusions and future trends

Projective techniques have their roots in psychiatric therapy and motivational research, and are mainly used to retrieve information that is not readily accessible with verbo-centric methods. The use of a particular kind of projective technique — the making of collages — in the exploration of the emotional aspects of consumption has been recently suggested (Marshall, 1997; Zaltman, 1997; Zaltman & Coulter, 1995). While this technique has been applied in the design of advertisement (Havlena & Holak, 1996), its use in consumer research for food product design has been, so far, practically unheard of.

This paper presents the development of a method for need identification in food product design, which integrates the use of the collage technique in regular focus groups’ studies. This method has been applied in a study aiming at the identification of feelings, emotions and experiences associated with meal preparation and Home Meal Replacements, namely ready meals. The outcome of this study served as basis for the evaluation of the effectiveness of the method developed.

Our study has yielded a considerable number of concrete consumer needs, as well as direct and indirect suggestions for product improvement (see Tables 1 and 2). The participants of this study have stated that they expect ready meals to display the same characteristics they value in their own meals. These are the use of fresh ingredients, namely plenty of fresh vegetables, the absence of artificial additives, a natural (i.e., handmade) and tailored preparation process, a reasonable degree of control over the sensorial quality of the outcome and easiness/quickness of preparation. The implementation of such suggestions, however, will probably pose considerable technological challenges.

The current study offered the opportunity to look into the more emotional aspects involved in meal preparation. More specifically, it seems that the high regard for home-cooked meals displayed by the participants of this study negatively influences their perception of ready meals. Through the use of collages, we were able to uncover these more abstract and unconscious aspects. Furthermore, we could present them in a way that is more tangible than the results of strictly verbo-centric research. It is our opinion that the images depicting the FEE investigated by this study can be useful to both product and advertising designers.

It would be interesting to investigate if the positive attitude towards cooking and the (consequently) negative
attitude towards ready meal consumption hinted by our study can be confirmed and generalised. More important yet, it would be interesting to determine the extent to which these attitudes actually influence consumption behaviour. The knowledge generated by this additional study might prove very useful for streamlining product development and advertisement design for HMR.

Our study has shown that collages and focus groups complement each other rather effectively. Collages add to traditional interview techniques by tapping into different knowledge structures and promoting more fruitful discussions. The making of the collages has probably also encouraged participants to be more easily forthcoming with their FEE in a group setting. Focus groups, in turn, provide further interpretation of the collages and a more complete understanding of the issues they portray. Nevertheless, we anticipate that much of the added value of this methodology demonstrated by our study is related to the level of abstraction of the aim (need identification at the design stage) and the object (ready meals’ category) under investigation. We would like therefore to advise potential users to reconsider its application if their aim is, for instance, to question consumers about certain technical improvements of specific food products or packages.

One final question remains: How to proceed from the non-verbal expressions of consumer needs to the actual development of products and their features? Among others, three new developments in non-verbal consumer research seem highly promising in this context — the ZMET, web-based qualitative research and computer-aided/web-based design. The ZMET (Zaltman, 1997; Zaltman & Coulter, 1995) combines the use of established research methods (like semi-structured interviews, storytelling and MEC) with a wide range of self-expression techniques (like collages, drawings, evocations of sounds, smells, etc.) and computer-aided design. The ZMET aims to uncover the mental models, major themes and constructs that guide consumer thought processes and behaviour, and has already demonstrated its usefulness in the investigation of how consumers view products.

The Internet can provide an excellent means to identify customer needs through the observation of purchase behaviour on a web site, or the creation of instant, virtual focus groups in which participants can provide their opinions about product concepts or prototypes (Dahan & Hauser, in press). New web-based methods for concept design and engineering are, among others, web-based conjoint analysis (Mac Ardle, 2000) and the drag-and-drop design (Dahan & Hauser, 2002), in which consumers on-line can associate preferred features with fully configured products by dragging and dropping them onto design palettes.

In addition to the above-mentioned developments, we believe it would be very interesting to combine the possibilities offered by web-based design with self-expression techniques. Image-based, consumer research tools for on-line product design could (1) help reduce development costs, (2) bridge the gap between design and actual product development, and (3) provide the high degree of consumer involvement said to be essential for new product success (Trijp & Steenkamp, 1998). Although many of these methods still require extensive research into their feasibility, efficacy and validity, they open already a whole new realm of exciting possibilities for more efficient and successful food product development.

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