PROGRESSIVE OBSOLESCENCE
AND
PRODUCT NON-USE IN
ELECTRICAL KITCHEN APPLIANCES

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ABSTRACT

PROGRESSIVE OBSOLESCENCE AND PRODUCT NON-USE IN ELECTRICAL KITCHEN APPLIANCES

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The aim of this study is to find out the reasons of progressive obsolescence and product non-use in small kitchen appliances and to examine the relation between the consumer's pre-purchase expectations and post-purchase experiences with these products to understand the deficiencies of kitchen appliances which cause consumer to stop using them. The reasons of progressive obsolescence and product non-use might be informative for further studies on this subject.

Throughout the study, the general issues of need, want, purchase motivations, pre-purchase consumer expectations and post-purchase experience, satisfaction/dissatisfaction were discussed through the literature survey. Progressive obsolescence and product non-use were analysed both through literature survey and a field study which was conducted as in-depth-interviews among kitchen appliance users. It has been seen that progressive obsolescence and product non-use is mostly affected by usability of products, by the changing needs and changing life style and by the emerging of new technologies.

Keywords: Obsolescence, progressive obsolescence, product non-use industrial design, kitchen appliances

ÖZ

ELEKTRİKLİ MUTFAK ALETLERİNDE
KADEMELİ DEĞER YİTİMİ VE KULLANILMAMA

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Bu çalışmanın amacı elektrikli mutfak aletlerindeki kademeli değer yitimi ve kullanılmama sebeplerini ortaya çıkartmak ve tüketicinin satın alma öncesi beklentileri ile satın alma sonrasındaki deneyimleri arasındaki ilişkiyi inceleyerek mutfak aletlerindeki eksikleri ve kullanıcıların kullanmayı bırakma sebeplerini anlamaktır. Kademeli değer kaybı ve ürünün kullanılmamasının sebepleri ilerideki çalışmalar için bilgilendirici olabilir.

Bu çalışmada ihtiyaç, istek, satın alma sebepleri, tüketicinin satın alma öncesi beklentileri ile satın alma sonrası deneyimleri, memnuniyet/memnuniyetsizlik konuları literatür taraması ışığında tartışılmıştır. Kademeli değer yitimi ve ürünün kullanılmaması hem literatür araştırması ile hem de mutfak aletleri kullanıcıları ile yapılan derinlemesine görüşmelerden oluşan alan çalışması ile incelenmiştir. Görülmüştür ki kademeli değer yitimi ve ürünün kullanılmaması çoğunlukla ürün kullanılabilirliği, değişen hayat tarzı ve değişen ihtiyaçlar ile yeni teknolojilerin ortaya çıkmasından etkilenmektedir.

Anahtar kelimeler: Değer yitirmi, kademeli değer yitimi, ürün kullanılmaması, endüstriyel tasarım, mutfak aletleri

To My Family, for their endless love and support

To My Husband, for his encouragement and patience

and

To My Twins Tuna and Nil, for brightening my life

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CHAPTER 1

INTRODUCTION

1.1 Motivation for the Study

We are surrounded by "designed products" in our daily lives. Starting from the breakfast, people "use" certain objects that make their lives easier. Turning on the TV, making a cup of coffee and a toast by using the household appliances are normal human actions today.

Technological gadgets are indispensable for human life. They are designed, and manufactured, than purchased and used by consumers to make life easier, for making certain tasks faster and more precise. These products have to satisfy the consumer technically, economically and psychologically. The consumer owns these products because of a need or just because he/she desires it and, after some experience with the product, if the consumer is disconfirmed and disappointed, he/she quits using the product which later become idle and subsequently non-used.

In every house, there are several household appliances that are not being used anymore, as in meantime, they do not respond to the expectations of the users either by their performance, their difficulty in use, or their appearance. Usually the user is somehow dissatisfied with the product although the product is working properly and they do not prefer using the product anymore, which was supposed to be more practical for doing certain works at home. In fact, household appliances should be designed for making everyday life easier, for satisfying user needs and to have long life-spans with their technology, performance and aesthetic values.

1.2 Aim and Scope of the Study

The aim of this study is to find out the reasons of progressive obsolescence and product non-use in small kitchen appliances and to examine the relation between the consumer's pre-purchase expectations and post-purchase experiences with these products to understand the deficiencies of kitchen appliances and to determine the kitchen appliances that become progressively obsolete.   The reasons why people stop using these appliances may give some information for further designs and studies on this subject.

Throughout the literature search it has been seen that there is a lack of research on this subject. Although obsolescence is a quite popular topic for product design, the concepts "progressive obsolescence" and "product non-use" have not been mentioned or examined in detail in literature. Most of the studies mention consumer choices, expectations and marketing researchs, but there were a few number of sources on progressive obsolescence of products.

1.3 Research Questions

The main research question of this study is;

- Why do some kitchen appliances are non-used and become obsolete although they are still functioning properly?

Other sub-questions of the study are::

- Why do people buy products which they subsequently do not use?
- What are the purchase motivations for buying kitchen appliances?
- What are the consumer expectations before using a product?

- How is the consumer's post-purchase experience with the products that they stop using and how does he/she feel about this product?
- Why do consumers still keep obsolete products?
- What is the relation between perceived performance and progressive obsolescence?
- Which kitchen appliances become progressively obsolete?

1.4 Methodology

The research covers two main sections. The first one is the literature search on related topics about the thesis and the second one is the field study which has been conducted as an in-depth-interview.

1.4.1 Literature Search

The literature search prepares a background for the field study so it serves for examining the outcomes of the in-depth interviews. The literature search has been carried out by the author by exploring books, academic articles, design and marketing journals, master dissertations, internet databases. As an addition, consumer forums on the internet have been searched through to understand the thoughts and feelings, likes and dislikes and complaints of the users on kitchen appliances.

1.4.2 Field Study

It has been determined that a field study would be essential for this study to be able to understand detailed consumer opinions on utilization of kitchen appliances. The field study has been conducted as face-to-face in-depth-interviews with 12 electrical kitchen appliance users and the outcomes of the field study have been discussed later in the light of literature search.

1.5. Structure of the Thesis

In the first chapter of this study, the problem was defined; aim and scope of the study and the structure of the thesis were explained.

Second chapter constitutes a research of the concepts of need/want, consumer expectations and purchase motivations and these concepts were explained with the guidance of the literature search.

In the third chapter, consumer's post purchase experience was discussed and concepts of satisfaction/dissatisfaction, pleasure/displeasure and regret and disappointment were explained.

The fourth chapter addresses the main discussion of the study which is the progressive obsolescence and product non-use. First of all, types of obsolescence were introduced and progressive obsolescence was defined. "Reasons of product non-use" is another important heading and it has been examined in this chapter too.

The fifth chapter explains the methodology, process and outcomes of the field work which has been conducted by the author as in-depth-interviews with the kitchen appliance users.

Last chapter addresses the discussions on the field study and recommendations for further designs and studies.

CHAPTER 2

CONSUMER'S MOTIVATION FOR PURCHASING PRODUCTS

Consumers have many different reasons for purchasing products. Some of them are real needs, some of them are just desires. Sometimes, people see a product on TV advertisements and only after seeing it, he/she starts to think about purchasing those products although they do not need them.

2.1 Consumer Needs and Wants

Technological products are designed and manufactured to make everyday life easier, to cover some physical and psychological needs of human being. A product can be satisfiying for the user only if it matches the consumer's needs and wants.

When Chapman (2005) describes need as something missing which is requisite, desirable or useful, Norman (2004) discusses that there is a difference between want and need as needs are determined by the tasks where wants are determined by culture, by advertising, by the way one views oneself and self-image. According to Victor Papanek (1997) contemporary designs mostly care about wants and desires more than the needs.

Either a need or a desire, a product has to fulfil some basic requirements. Khalid and Helander (2006) pointed out three features which are:

> 1. Functional Needs: A product must be able to cover the basic requirement for which it was designed and produced.

2. Psychological Needs: It has to satisfy the emotional requirements like user experience, time saving and safety.

3. Social Needs: It has to have some aspirational qualities in relation with the product like persona or social factors.

Norman (2004) presents product characteristics in three titles. According to Norman visceral design is related with the outlook and aesthetic design of a product. Behavioural design stands for the pleasure and effectiveness of the use of a product and the last one is reflective design, which is related with the self-image, personal satisfaction and memories.

Packard (1960) describes the items people purchase other than their physical well-being as luxury-items and he supports this idea with an example of preparing a cup of coffee traditionally or by using a coffee maker. Although preparing the coffee with a coffee maker is more complicated, the user prefers purchasing this product as it is more fashionable to have one. When an object is not a vital need than it is a luxury item. Pantzar (1997) quoted that "luxury is the mother of invention, when there is no necessity"

> We consume a variety of resources and products today, having moved beyond basic needs to include luxury items and technological innovations to try to improve efficiency. Such consumption beyond minimal and basic needs is not necessarily a bad thing in and of itself, as throughout history we have always sought to find ways to make our lives a bit easier to live. (Shah, A. Behind Consumption and Consumerism, Global Issues website www.globalissues.org, May 2003)

2.2 Consumerism

"Consumption, in its broadest and simple sense is the posession and/or use of goods and services. The reasons why we use those products and the way which we use them are however quite complex. Consumption and lifestyle are inseparable. Quite simply, as our lifestyles change, so do the things we purchase and use." (Berkman, Lindguist and Sirgy, 1996)

According to Morello (1995) there is a deep difference between a user and a consumer. He points out that the user is the one who *uses* and the consumer is the one who *chooses for use*. Throughout this study, both terms will be used for the same individual as the participants of the field study should be the same person who purchases and uses the product.

We can not separate consumption and lifestyle, because when there is a change in our lifestyle, the products that we buy and use also change. This is a little ironic, because our lifestyles are set mostly by products, which also means by designers. So may be it is better if we change this sentence as: "Our lifestyles are changed by the products we purchase, which are introduced to our lives by designers."

Culture is another important point about consumption. Consumption and culture are closely connected and culture literally dictates consumption choices (Berkman, Lindguist and Sirgy, 1996). It is known that there are many differences between the consumer behaviours among different cultures. One product, which is preferred in one country, may not be very successful in the market of another country. Or even there may be different inventions according to the culture and traditions of a society.

2.3 Purchase Motivations

There are several different factors effecting the purchase decision of a consumer. Needs and desires of possessing new things leed people to purchase lots of items which some of them are used regularly and frequently, but a certain number of them are used very less and even never used after one or two practices. At this point it can be asked that: "Why do people buy products that they subsequently do not use?" (Trocchia and Janda, 2002,pp: 188-204)

The answers to this question may differ from user to user but according to Trocchia and Janda (2002), purchase motivations are effected from low costs and discounts, self improvement and social status, regularly being attached to some brands, promotions on tv, impulse buying and just a will to satisfy. These purchase motivations also cause unconscious consumption as sometimes people buy products which they don't even need and just because they believe that having that product will make their life better, easier and they will be time saving.

When a consumer decides to purchase a product, he has to make a decision between several different brands and furthermore, several different models of the same type of product under the same brand name. i.e. when you want to buy a refrigerator, you can come across at least ten different models with the same brand.

The purchase decision is effected by some factors like, brand, cost, practicality, usability, ergonomics, appearance and quality. One big disadvantage for the consumer is that he/she does not have the chance to use a product before buying so that he/she is not able to try the usability, practicality and some other physical characteristics of the product. Here the consumer takes a risk and decides on the puchase according to the outlook of the product and he/she has to rely on the answers of the retailer and the opinions of friends who have already used this product before. Only after taking the product home, the consumer starts using it and this experience might be disappointing if it is not the right thing as he/she imagined.

There are different motivations and motives of purchasing a product: according to Trocchia and Janda, 2002 which are:

1. Need and search for the best
2. Not a vital need but desire for a new product
3. Affected by fashion to be accepted in a group

4. Social status
5. Impulse buying, deciding in the market

Because of the global economical crisis, people tend to search for the best and and the most economical solution while shopping. Even in situation signs of brand loyalty can be observed, as the consumer is hesitant about purchasing an unrecognized brand's product. They usually prefer paying more money for a well-known brand.

CHAPTER 3

CONSUMER'S POST-PURCHASE EXPERIENCE

3.1 Consumer Experience

Consumer experience is a period that starts when a consumer buys a product and continues until the consumer quits using that product in the end with any reason.

Hekkert (2006) defines product experience as "the entire set of effects that is elicited by the interaction between a user and a product, including the degree to which all our senses are pleased (aesthetic experience), the meanings we attach to the product (experience of meaning), and the feelings and emotions that are elicited (emotional experience)." (pp. 157-172)

Having bought a durable product, the consumer then needs to use that product in order to gain the benefits for which it was purchased. When the consumer purchases and starts using a new product, the product's life-cycle and consumer experience starts at the same time. If the consumer is satisfied with the product or in other words, if the product satisfies all previous expectations of the user, then he/she will continue using it until it breaks down or until the user replaces it with an updated model introduced to the market.

If the consumer experience with the product is negative which means that the product has caused the user disappointment and dissatisfaction, there are three main actions that he/she can take. The user can take the product back

and replace it with another model; he/she can discard it in time or keeps the product although he/she is not using the product.
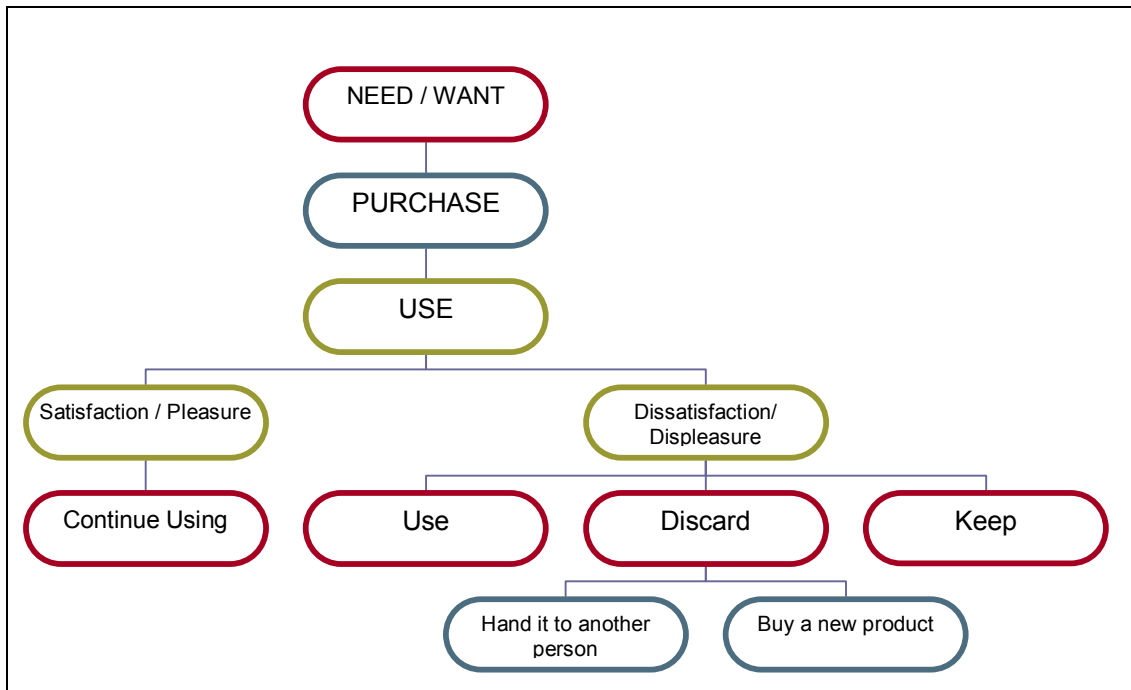
Figure 3.1 Consumer Experience, Results of Satisfaction/Dissatisfaction

Desmet (2008) explains product emotions as indefinite, subjective and mixed emotions. According to Desmet, using a product may evoke many emotions like disappointment, attraction, shame, pride, disgust, contempt, admiration, satisfaction, fear, anger, etc. He also mentions some approaches to product emotions. Emotions of a user may change in time as sometimes the user is satisfied at the beginning but after some time, the product is not enough for his/her expectations. Product emotions are mixed as the user does feel a single emotion towards a product but a combination of mixed emotions.

Inman, Dyer and Jia (1997) proposed a general model of post-choice evaluation. Expected performance which is experienced by the user causes disappointment or satisfaction and the user feel regret or happiness because of the difference between the chosen product and non-chosen ones.

3.2 Satisfaction / Dissatisfaction

In Oliver (1997), satisfaction is defined as pleasurable fulfilment. That is, the consumer senses that consumption fulfils some need, desire, goal, or so forth and that this fulfilment is pleasurable. Thus, satisfaction is the consumer's sense that consumption provides outcomes against a standard of pleasure versus displeasure. Also researchers generally agree that the concept of consumer satisfaction/dissatisfaction is the emotional response in the evaluation of a product or a service experience. (Dick, Hausneht and Wilkie, 1995)

Product appearance is one of the important factors in purchase decision. Crozier (1994) pointed out that a product's outlook can be misleading as the goods that consumers see in the market are sometimes cause disappointment after they start using them with their performance or not being usable or ergonomic in real.

Oliver and deSarbo (1998) explain satisfaction as a feeling of "delight and dissatisfaction as a feeling of "disappointment". According to Henneman (1999), a system with poor usability can result in long task times, high error counts, large support costs, long training times, and as a result, user dissatisfaction. If the user has difficulties while using a product, he/she will not be pleased after some time, and stop using that product. The product which was purchased to make life easier becomes a trouble itself for the user.

The level of satisfaction is determined after the user experience a product's performance which meets or does not meet his/her expectations before using it. Also it has been pointed out that the level of satisfaction can not be easily measured as satisfaction is relative for every person, as it changes over time (one product can satisfy the user at the begining but may become insufficient

after some time) and it may change according to consumer needs and preferences in time. (Berkman, Lindguist and Sirgy, 1996)

> The efficiencies of an industrialized society have resulted in a wealth of material goods, it can be argued that in the midst of so much quantity, there is too little quality. By quality I do not mean the individual components of qulity such as reliability, performance, value, or visual appeal. Rather, I am referring to the simultaneous presence of all these values and something more. The exact nature of the missing ingredients is difficult to define. This absence is perceptible, however, in the fact that most of these objects are not sufficiently satisfying to either our souls or our senses. (Zaccai, 1995)

Results of user satisfaction and dissatisfaction is shown in Figure 3.1. The user needs and/or desires a product and starts using it after he/she purchases. If satisfied with the new product he/she will continue using it until it breaks down. If the user is not satisfied after some experience with the new product, he either changes it with another product if possible or throws it away and purchase another brand or model, or he just keeps this product but never uses it again.

> The prevailing model in the consumer satisfaction/dissatisfaction literature is the expectancy - disconfirmation paradigm, which considers satisfaction / dissatisfaction responses to be a function of the consumer's expectations about the product performance, and some form of comparison between the pre-purchase expectations and the post-purchase performance. Under the basic expectancy - disconfirmation model, perceived product performance which exceeds the consumer's expectations (positive disconfirmation) leads to satisfaction, while perceived product performance that falls below expectations (negative disconfirmation) leads to dissatifaction. (Taylor and Burns, 1999, pp. 90-99)

Chapman (2005, pg.90) argues that the meaning and importance of user experience is mistaken by the producers as they give more importance to produce more and sell more in the first place. According to Chapman, contemporary consumer culture is a wasteland which is lack of experience and detachment and dissatisfaction is driven by the technocratic and over

complicated world of goods. Although today, consumers are fortunate to have more functions, more technology and much more choices of products and are faced less mechanical failure, still they are not happy and satisfied with their experiences, so at the end it is a fact that "more is giving less".

3.3 Pleasure / Displeasure

According to Riel (2000) the oldest definion of pleasure is considered to be the replenishment of a lack, the fullfilment of a desire or the relief from distress.

There is a strong correlation between satisfaction and pleasure. When the user is satisfied with the overall performance of an object, the level of pleasure is high and the user keeps on using the same object as long as he is pleased with it. Literature search exposed severel different approaches to pleasure.

Table 3.1 Types of Pleasure

Author	Pleasure				
Walker, 1989	Pleasures in respect to others	Pleasures of desire	Pleasures of the object itself	Pleasures of use	Pleasures of purchase
Jordan, 1999	Socio Pleasure	Psycho Pleasure	Physical Pleasure		Ideo Pleasure
Khalid & Helander, 2006	Social	Psychologic al	Reflective (Kowledge and expectations)	Narrative (societal values)	Physical

Jordan (1998) also proposes feelings of pleasure for a product in two main parts as pleasure derived from primary functions of the product and pleasure gained from the superior utility of the product. He also points out that product attachment is related with pleasure and he divides pleasure in four main headings:

1. Socio Pleasure
2. Psycho Pleasure
3. Ideo Pleasure
4. Physical Pleasure

According to Jordan, pleasure may result from the product's primary function in situations which these products provide entertainment or relaxation or ease of doing tasks. This pleasure does not cause product attachment as it is a speciality which all products have to perform. As another fact, a product's extra features like greater usability, higher quality or a new technology used might be a source of pleasure also. Product appearance and aestehtic values is another concern about pleasure as a product's outlook evokes aesthetic pleasure (Creusen and Snelders, 2002; Jordan 1998) and pleasure of show off to others at the same time.

Similarly, Khalid and Halender (2006) classified the types of pleasure, they presented reflective and narrative pleasure instead of ideo pleasure.

1. Physical Pleasure
2. Social Pleasure
3. Psychological Pleasure
4. Reflective Pleasure (knowledge & expectations)
5. Narrative Pleasure (societal values)

Walker (1989) suggests that, pleasure is an important determinant in the appeal of design, fashion, shopping and consumption in general. According to Walker, there are five different types of pleasure.

1. *Pleasures of desire:* daydreams and fantasies concerning the future possession of designed goods. These pleasures are strengthened by advertising, window shopping and jealousy of others' possessions.
2. *Pleasures of purchase:* the pleasures of shopping, spending money/buying an ownership.
3. *Pleasures of the object itself:* newness, perfection of finish, of design and aesthetic/decorative factors which appeal to the senses.

4. *Pleasures of use:* the satisfaction gained when the product is convenient to use and performs as well as promised.

5. *Pleasures in respect to others:* the social impression, self image, status or prestige, an impression of wealth or fine taste.

3.4 Disappointment and Regret

When the user purchases a product, there is a certain expectancy about the use and benefits it may provide. When the epectancies of the user are not met with the product experience, disappointment would be inevitable. The feeling of disappointment leads to feeling regret about the purchase choice.

> Regret due to a change in significance is caused by the individual's perception of diminished product utility from the time of the purchase to a certain point in time after the purchase. When an individual buys a product, there is a certain expeted use for it. However, if something happens to make the product less appropriate for that use, or the entire usage situation disappears, then the individual is open to feeling regret due to change in the significance." (Trocchia and Janda, 2002, pp: 188-204)

Why do users buy products which they will regret later? The purchase motivations other than real needs might be the answer to this question. The purchase behaviours of users who feel regret afterwards were pointed out by Savaş (2002) from the answers of users to the question of why they bought the products that they are detached from. İt was the best choice in those circumstances, İt was bought carelessly without thinking, İt was thougth that as useful but it was not needed at all, İt was loved at first sight, İts advertisements were attractive and İt was bought on friends' recommendation.

3.5 Product Life-span

Product life spans are determined by some factors like design, technological change, the cost of repair, household affluence, values of resale, aesthetic and functional quality, advertising and social pressure according to Cooper (2004)

Savaş (2002) pointed out that the most significant factors that shorten the psychological lifespan of products is the emotional relation between consumers and products. According to Savaş, the increasing quantity and industrialisation of products cause less qualified products which do not satisfy the consumers emotionally.

The Final stage in a product's life occurs when the consumer disposes of it. There are major options in product disposition: trash it, save it (either repair it or store it), find a new owner (sell or give it away)

3.6 Usability

Usability and practicality are the two terms strongly related to this study as they were mentioned frequently by the consumers when defining their experience with the products.

"Usability is the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use" (Stanton, 1998). According to Norman (2004), usability is the ease of use that the user can easily understand how a product works and get it performed easily, where Henneman (1999) defines usability as a system attribute that results when users can accomplish their tasks effectively, efficiently and with a high level of satisfaction and he points out that a system with poor usability can result in user dissatisfaction.

A product can be defined as "usable" if it can be easily operated without reading complicated and long user manuals, if it is ergonomically comfortable to use and if the user saves time by using that product instead of doing that task himself. Usability is very much related with ergonomics. Crozier (1994) points out the importance of ergonomics in the design of machines and equipment. Not only the physical characteristics but also the psychological and social needs also have to be considered. If a product can satisfy both physical and psychological needs of a user than it can be taken as a good design.

Norman (1988) suggests that people have difficulties in operating all manner of consumer products: washing machines, dryers, telephones, televisions, stereos, VCR's, refrigerators and so on. "Why do these devices, which are supposed to make our life easier, seem to thwart our best intentions?" One reason is that users of these devices perceive the problem to be with them rather than with the technology. People often blame themselves when failing to comprehend the manufacturer's instructions or when errors occur.

CHAPTER 4

PROGRESSIVE OBSOLESCENCE AND PRODUCT NON-USE

4.1 Definitions and Types of Obsolescence

The term obsolescent means going out of use and loss in value due to reduced usefullness or desirability. This occurs when alternative products become available in the market which have a better performance, introduces better options or lower price. Also it can be described as the state of being that occurs when an object or service is no longer wanted although it is still working properly.

Some products are discarded before they are worn out or broken. The lifespan of products are dependent to three matters: technical, economical and psychological obsolescence. Products are discarded because; they are broken and cannot be repaired, they are economically out of date, new models emerging in the market, they do not fit our preferences and lifestyles anymore.

> Technological products have a fascinating life cycle as they progress from birth through maturity. The same product that was attractive and desired in its youth can be irrelevant and ignored at maturity. (Norman, 1998, pp:45)

According to Vance Packard (1960) the technique of making products obsolete is by making them to wear out or to look shoddy after a few years have limited utility. "This limit on the usefulness of planned quality obsolescence inspired marketers to search also for other ways to render existing products obsolete. The safer, more widely applicable approach,

many soon concluded, was to wear the product out in the owner's mind. Strip it of its desirability even though it continues to function dutifully. Make it old-fashioned, conspicuously non-modern." (pp: 82)

Some other studies also discuss types of obsolescence and give different definitions, naming types of obsolescence in different ways.

> Industry pandered to the public's ready acceptance of anything new, anything different. The miscegenation of technology and artificially accelerated consumer whims gave birth to the dark twins of styling and obsolescence. There are three types of obsolescence: technological (a better or more elegant way of doing things is discovered), material (the product wears out), and artificial (the death-rating of a product; either the materials are substandard and will wear out in a predictable time span, or else significant parts are not replaceable or repairable). Since World War II our major commitment has been to stylistic and artificial obsolescence. (Ironically enough, the accelerated pace of technological innovation frequently makes a product obsolete before artificial or stylistic obsolescence can be tacked on to it. (Papanek, 1997, pp: 67)

Heiskanen (1996) points out three categories of obsolescence from a rather different perspective. According to him obsolescence emerges from failure in use, dissatisfaction of the use and the changes in consumer needs.

According to different references, the concepts about the types of obsolescence seem really conflicting as different authors use different words while describing the same concept like technical obsolescence is also called as functional obsolescence or economical obsolescence may also be described as obsolescence of quality.

In this study, types of obsolescence will be gathered under three main groups which are technical obsolescence, economical obsolescence and psychological obsolescence. Other similar terminology used for these three concepts will be shown in Figure 4.1 to refine types of obsolescence. As this

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study focuses on progressive obsolescence, this concept will be examined in detail later.
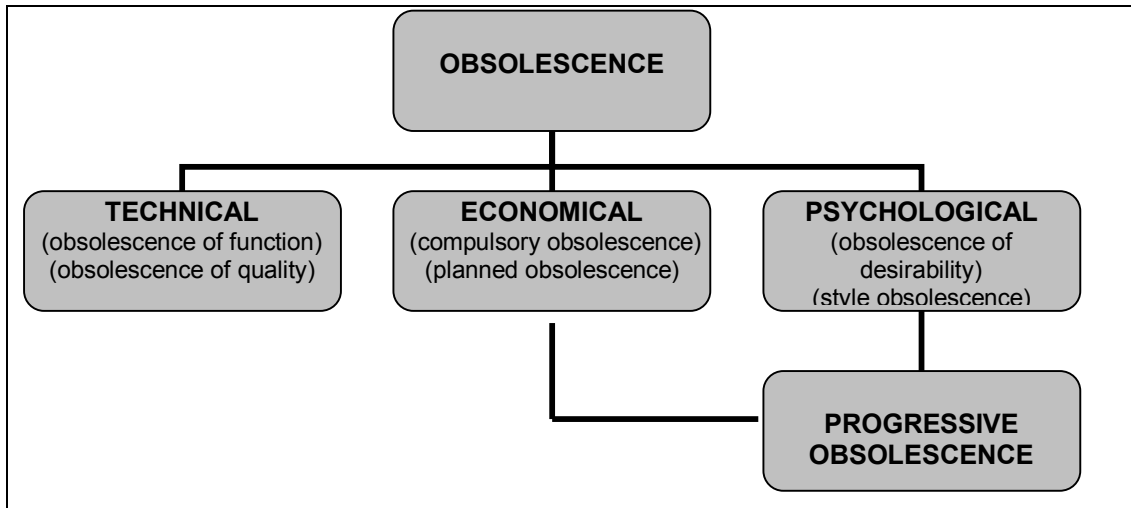
Figure 4.1 Types of Obsolescence

In the light of this literature search, types of obsolescence will be classified as follows:

4.1.1 Technical Obsolescence (Obsolescence of Function and Quality)

Cooper's (2004) definition of technological obsolescence involves functional change, quality and effectiveness and he defines its sources as innovation through new knowledge, reduced environmental impact and information or communication capability.

Some products become obsolete as some parts do not function properly in time and this is called technical obsolescence. If a product naturally breaks down or wears out, if replacement parts are no longer available or if the cost of repairs is higher than the cost of a new product, then that product is technically obsolete. In this case, the user has two choices. If this technical problem occurs within the period of warranty, the user may have it repaired if

possible. If warranty time is over and if it is economically unreasonable to have it repaired, the users put it away and purchase a new and usually an updated model of the same product.

Particular items may become functionally obsolete when they do not function in the manner that they did when they were manufactured. This may be due to natural wear, or due to some intervening act.

4.1.2 Economical Obsolescence (Planned/Compulsory Obsolescence)

Sometimes marketers introduce obsolescence into their product strategy on purpose to achieve longer sales amount by reducing the time between repeat. From the beginning of the production, they know that some parts or even the main parts of the product will be worn out or start not working properly after a certain time which they previously decided. This is called "Planned Obsolescence" or "Compulsory Obsolescence".

Economical obsolescence is defined by Cooper (2004) as the financial outlay and value depreciation and the sources of economic obsolescence are the low performance/cost ratio, reduced value, excess cost of repair relative to replacement and price trends caused by market structure.

At this point there are some good references on this subject which manifest the concept of planned obsolescence very well. Giles Slade (2006) mentions planned obsolescence in his book "Made to Break" as the catch-all phrase used to describe the variety of techniques used to artificially limit the durability of a manufactured good in order to sustain repetitive consumption.

Another terminology used for describing this type of obsolescence is compulsory obsolescence described by Miles (1998) as the foundation-stone of the modern design industry. Compulsory obsolescence involves the intentional design of products for short-term use. In other words, designers

ensure a constant demand for new products by intentionally designing products with limited life spans.

> The ultimate plan is to make and sell something that is actually useful, so people will want it – but make it fragile and easily breakable, so people will have to replace it on a regular basis. (Bremer, 2000, 45)

> The recent fascination of many businessmen with 'planned obsolescence' has been one of the major developments of the post-war period. Its use as a strategy to influence either the shape of the product or the mental attitude of the consumer, represent the quintessence of the throwaway spirit. (Packard, 1960, 85).

We understand that, for the economical cycle to achieve more sales every year, planned obsolescence can be a strategy for the companies although it is not pleasing to know that more sales and faster consumption means more waste each year.

> The original American design ethic, which was meant to find an industrial aesthetic based upon an equal concern for quality, function and fantasy often became subservient to marketing driven strategies of planned obsolescence. (Zaccai, 1990, 34)

4.1.3 Psychological Obsolescence (Desirability or Style)

Psychological obsolescence which is also mentioned as obsolescence of desirability, style obsolescence and covers also progressive obsolescence (Slade, 2002) in different sources which is the type of obsolescence that we will focus on in this study.

According to Packard (1960), the challenge in using this kind of obsolescence is to persuade the people that style is an important element in the desirability of a product. When accepted, you can create obsolescence-in-the-mind by shifting to another style. This obsolescence of desirability is sometimes called 'psychological obsolescence'.

Cooper (2004) defines psychological obsolescence as the degradation of desire or attractiveness to a product either in means of aesthetic, functional or symbolic value and the decline of user satisfaction. He addresses its sources as the changes in perceived needs, trends in design, desire for social status and marketing. Psychological obsolescence is abstract and subjective according to Cooper, as it is related with the attachment to and satisfaction of a product. It emerges from a subjective change in the perceived product performance which is related with learned experience, self development, fashion and aesthetic perception.

In most of the sources, obsolescence has been divided into three types as mentioned above; on the other hand, Granberg (1997) divides obsolescence into two main groups as "absolute obsolescence" and "relative obsolescence" (Table 4.1). Absolute obsolescence is simply determined by the wear and tear of the product. Relative obsolescence is also divided into two groups by Granberg. These are The "Functional Relative Obsolescence" and "Psychological Relative Obsolescence".

RELATIVE OBSOLESCENCE   **ABSOLUTE OBSOLESCENCE**

Functional   **Psychological**   **Potential service-life**
* economic depreciation   * fashion   (technical life or durability)
* technical change   * status
* external factors   * other subjective causes

service-life

discarded or taken out of use   worn out
Time of purchase
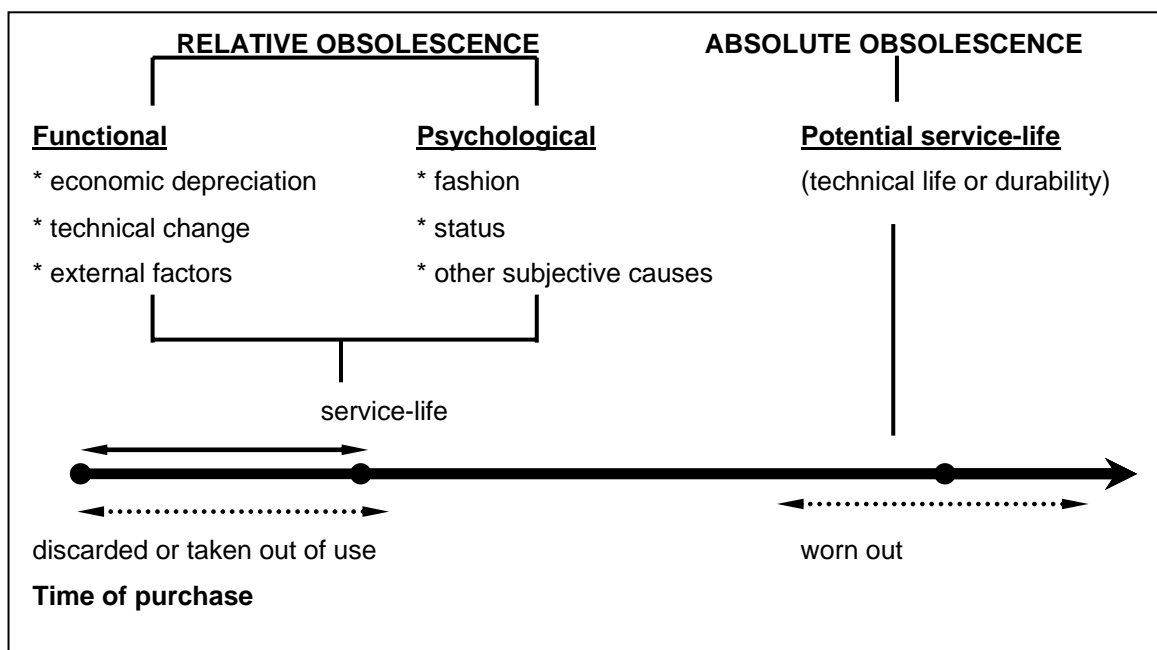
Figure 4.2 Absolute and Relative Obsolescence (Granberg, 1997)

Absolute or technical obsolescence is often called technical life, whose basic meaning in turn, equals the meaning of the word durability. Technical life is the time during which a product gives satisfactory service for what it was originally designed for, i.e. e. until it is worn out. Technical life therefore defines potential service-life of a product. This aspect is the most frequently used and resembles taking a strictly technical view on the product life cycle since its measurement only includes wear, service and repairs, upgrades and other physical aspects. As explained before, relative obsolescence can be further divided into functional and psychological obsolescence depending on which criteria the owner uses in his or hers quality evaluation of an owned product. (Granberg, 1997)

4.2 Progressive Obsolescence

Progressive obsolescence is a term that was first mentioned by Justus George Frederick in 1928, who is a writer of novels, cookbooks, management and economic manuals and advertising news. Progressive obsolescence is pushing consumers to buy durable goods which are not worn out or discarded in time but go purchase goods which are up to date, to buy for modernness, style and social status. (Slade, 2002, pg. 57-58)

Raizman (2003) defines progressive obsolescence as the planned efforts of manufacturers to create demand with a neverending supply of new products. The main point in progressive obsolescence is introducing new models of products to the market that the owned ones would look "old" in a short time so the consumers would replace goods frequently to achieve the desired social status.

Progressive obsolescence is not only related with planned obsolescence but also it is strongly connected to psychological obsolescence. Products are produced to technically worn out after a specific period, but they become psychologically obsolete even before they break down. At the same time, a product which is attractive in the first place may cause displeasure and dissatisfaction in time as new models of every product emerge in the market

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in short periods.   Disconfirmation and regret are other facts that consumers experience after using a product as they face problems of poor usability and impracticality although they were happy with their choice at the begining.

4.3 Product Non-use

The main question of this study was "Why do consumers buy products and subsequently stop using them?"   Individuals often purchase products and services they either seriously under-utilize or never use at all. i.e. kitchen appliances like egg boiling machine, rice cooking machine or popcorn machine and services like club memberships.

Product non-use is the end of a product's life-span.   After a product is purchased, consumers use it frequently at first with the excitement of having a new tool, but some of the products purchased are used less frequently, then occasionally, then seldomly and they are never used at the end, becoming non-used an idle.   The consumer is faced with disappointing results because of unmet expectations or just because they lose their interest in the product or a new and better product appeared in the market so that the consumer desires to have that updated version to satisfy his/her needs.

Trocchia and Janda (2002) made a field study on product non-use titled "An Investigation of Product Purchase and Subsequent Non-consumption" and they exposed four main reasons for product non-use:

- *Functional reasons*,
  Perception of low functionality
  Maintenance diffculties and cost
  Disappointing results of utility
  Difficulties in use
- *Disappointment in purchase*,
  The product has unexpected chareacteristics

The product does not match with the user expectations

The user face diffculties in using the product.

- *Embarressed with choice*,

    *T*he consumer purchases without thinking enough

    The user is anxious about physical injury

    The consumer looses interest in the product.

- *Changes in life situation,*

    Birth of a child

    Physical injury

    Change of educational and career goal

    Change of geographic location.

Another question asked through the study was "What do consumers do with the functioning product(s) that they don't use anymore?" According to Cooper (2002), people store items to pass them to their children. Although it seems like a nice gesture, when they pass them to their children, these items will be already old fashioned and technically archaic for them.

Product non-use is a fact that arise from the distinction between expectancies from and perceived performance of the products. Consumers do not use some products and they are detached from those products as they do not satisfy them anymore.

4.4 Product Detachment

Product attachment has been mentioned frequently in literature whereas product detachment has not been investigated much. Reasons of product detachment might be conducive to understand the reasons of product obsolescence and non-use.

Özlem Savaş, throughout her MSc. Thesis, has conducted a field study about product attachment and detachment and revealed the reasons of product

detahment in detail. Savaş (2002) explains the detachment from products as "the result of product's unsuitability and contradiction to the individual's identity. Detachment was observed as the conflict and divergence between the product and the individual, rather than the simple ignorance of the product." According to the field study outcomes of Savaş (2002) the possible reasons of product detachment were grouped as follows.

Table 4.2 Reasons of product detachment (derived from Savaş, 2002)

UTILITARIAN	The dissatisfaction with the product's functioning and instrumental aspects	Uselessness
		Performance
		Out of use
		Cost
PERSONAL	Products that do not provide anything for the construction of personal self or that do not fit to individual's self definition	Dislike / boredom
		Inappropriateness to self
		Needlessness
SOCIAL	Products undesirable effect on the individuals impression in the society.	Social Status
		Image
		Other's opinions
FORM	Product's inability to create an aesthetic value and individual's dislike of the product's form related qualities.	Physical Accounts
		Style
PURCHASE	The conflict of the feelings between the time of purchase and the time of use of the product.	Superfluous
		Expectancies
		Marketing
ENVIRONMENTAL	The changes in the individual's life or in the market that affect the need for and use of the product.	Living Condition
		Technological Obsolescence

CHAPTER 5

FIELD STUDY

5.1. Introduction and Justification

This field study aims to find out the reasons of why users stop using some kitchen appliances while they are still working properly. To achieve a detailed consumer opinion, feelings and perspectives, an in-depth-interview has been conducted.

A pilot study has been carried out to clarify the interview questions. It has been conceived that when samples are asked a single question about kitchen appliances, they start giving information about every aspect of kitchen appliances' use and most of the further questions were to be answered before they were asked. After the pilot study with 5 respondents, some of the questions have been revised to achieve a more informative data at the end. The pilot study has been essential to determine the key issues to be followed in the main study which are;

1. The respondent has to be a person who has at least one non-used or under – utilized product in her kitchen.
2. The respondent has to have purchased the product herself, as outcomes may be different if the product is a gift of somebody else,
3. The respondent must have used the product herself (self feelings are important)
4. The respondent must be keeping the product which is non-used.

Before the main study, the respondents were asked that if they had a non-used product still kept in their kitchen which they purchased themselves.

5.2. Methodology of the Field Study

The field study is done by the author as face to face in-depth-interviews among electrical kitchen appliance users. First of all, main questions have been prepared which have been previously revised according to the outcomes of the pilot study. (Appendix A1, A2) Samle group has been determined by inviting people to attend this study and all respondents have been visited in their houses to answer the questions face to face.   All interviews have been analysed to achieve a conclusion on the subject.

5.2.1 Sample Group

Sample group of the study are selected from people who live in İzmir in a close neighbourhood so they have approximately the same socio-economic level. The samples for this study are chosen from the upper-middle class consumers which means that they earn better than middle class, have a higher education level which means they are supposed to be more conscious about consumption. 60 people were invited to help with this study and 12 people agreed to participate as a result. These 12 respondents were all women as kitchen appliances are mostly used by them. The age of the respondents change from 32 to 65 years old, half of them are working and retired and half of them were housewives, all of them were married and had children aged between 1 year old and 15 years old. The age and occupation relations are shown in Table 5.1.

Table 5.1 Ages and Occupations of the Respondents

OCCUPATION	TOTAL #	AGE			
		30 - 40	40 – 50	50 - 60	60 +
Working	6	1	2	3	
Housewife	6	3			3

5.2.2 Assumptions

Consumers purchase kitchen appliances as they think these products will make their life easier, but some of these products cause disappointment and the consumer quits using but still keep it in case he/she might use it again some day. This means that some kitchen products are non-used or under-utilized and become obsolete and this is caused by emerging new models in the market, by fashion, by changing needs, by perceived performance, by disappointment, low functionality and changing life styles.

5.2.3 Limitations

The most prominent limitation was the 'gender', because all participants of the field study were women as all men were working and they were not interested in using kitchen appliances. In fact it might be better to have men's opinion on this subject. The second limitation was the limited geographic distribution as the author did not have the chance to travel because of some personal reasons.

Another limitation has been the number of respondents. 12 respondents were the people who accepted to attend this study out of 60 people who have been invited and have given negative response for participating as some of them were working and did not have time to participate and some of them did not want to participate because of some personal reasons. During the face to face interviews, the author also faced some difficulties in providing full concentration on the subject as some of the respondents had to deal with their small children at the same time.

5.2.4 Data collecting

Tape recording and note taking methods are used to collect data during the interviews. Most of the respondents gave permission for using tape during

the interview and the others have been interviewed by taking quick notes. Data collection has been carried out in two weeks time by visiting the respondents in their houses, interviewing face to face and the duration of each interview is between 45 minutes to 1 hour. Also pictures of non-used appliances (Appendix C) were taken by the author to be able to discuss the differences between the design of the old models and the new models of these appliances derived from the internet.

5.2.5 Design of the Interview Questions

All questions of the interview are open-ended, so that the researcher did not affect on the answers of the respondents by giving multiple choice questions as in a questionnaire. It was aimed to get direct opinions of the users about the utility and non-use of products to understand the reasons of progressive obsolescence. Also the format of the interview may be called semi-structured as some questions were not asked in order but they came with the flow of conversation as well as other unwritten questions ad some probe questions directed by the researcher according to the progress of the interview. Interviewing technique have been preferred rather than a questionnaire to let the respondents to expound their ideas deeper on this subject.

5.3 Outcomes of the Study

Analysing an in-depth-interview is a different study than quantitative research methods. First of all, all conversations which have been recorded during the interviews were to be transcribed and they were written separately with the notes taken during the interviews about some details and reactions of the respondents (Appendix A3 and A4). Reading through the interviews, some similar patterns, themes and thoughts were analysed and to be able to compare these opinions, a

chart (Appendix A5) has been prepared for grouping the answers in a meaningful way such as type of the participant, social group, age or occupation. Also some respondents were identified who were more excited for giving answers than some others who prefer to give short answers. (Information taken from "*Tips on Analyzing Interview Responses"* title in "Conducting In-depth-interviews" Boyce, Neale, 2006)

5.3.1 Non-used Electrical Kitchen Appliances

The first question of the interview was "Are there any electrical kitchen appliances that you stopped using while still functioning and which you still keep? Please name them?" All respondents without exception answered this question "yes" and the numeric results of their answers are as shown in Table 5.2. According to the answers to this question, the three most non-used appliances are food processor, juice extractor and deep fryer. There are also some other non-used and obsolete appliances like coffee maker, toaster, bread maker, egg boiling machine, popcorn machine and microwave owen.

The participants were also asked to name all electrical kitchen appliances they own to understand their interest in and frequency of using technological products. All appliances the respondents have are shown in Table B1 which can be seen in the Appendix Table B1.

Table 5.2 Non-used Electrical Kitchen Appliances

NON-USED APPLIANCES	TOTAL #	AGE			
		30 - 40	40 – 50	50 - 60	60 +
Food Processor	7	1	2	2	2
Juice Extractor	5	4		1	
Deep Fryer	4	2		1	1
Toaster	3			2	1
Coffee Maker	2	1			1
Bread Maker	2		1	1	
Microwave Owen	1				1
Popcorn Machine	1	1			
Egg Boiling Machine	1			1	

5.3.2 Time of Purchase

The time when the non-used products have been purchased and how long the respondents have used them were asked to have an idea about the duration of obsolescence and the life-cycle of these products. The question was essential to make a comparison between the non-use of older and newer appliances, but the main problem was that, it has not been easy for the respondents to remember the exact time or year which they purchased the products. They answered this question by giving ranges like "4-5 years ago" or "something like 15 years ago" which were not satisfiying and helping to make a discussion over them.

5.3.3 Purchase Motivations

When the question "What are the reasons for buying that product?" was asked, the respondents answered quite differently. This question was essential for being able to understand the relation between purchase decisions and post-purchase experience and also product non-use. Only 3 respondents answered this questions meaning that they bought that product because they "needed". One of them said:

> *I was sick then and I could not eat fruit and to be able to drink fresh fruit juice, I needed the juice extractor. (Housewife, age 32)*

6 out of 12 respondents mentioned fashion and they said that they bought those appliances as they were fashionable in those times or they have seen that appliances in a friend's house.

4 out of 12 respondents gave answers meaning that "they *thought* they needed or *would* need that product". They either have seen the product in advertisements or have heard that other people in their circle purchased those products which may show a need for belonging to a social group. One respondent told:

> *Both of them (food processor and Turkish coffee maker) were fashionable at that time, everybody that I knew purchased and so did I. (Housewife, age 62)*

One other respondent answered:

> *I heard about the bread maker from some friends of mine, it sounded great to make my own bread. (Accountant, age 48)*

There was also some answers which refer to culture and traditions. A young woman who will get married has to make some preparations before marriage

which she would need after marriage like dinnerware, cookware and bedclothes and this dowry contains kitchen appliances and white goods too.

> *I bought the food processor and fryer for my dowry without thinking as they were fashionable those years and every woman had them in their kitchen. (housewife, age 39)*

It can be said that other than real need, desire for the new, fashion, advices, functional reasons and social status are important motivations for purchasing electrical kitchen appliances. The reasons mentioned by the respondents were grouped under some headings as shown in Table 5.3.

Table 5.3 Purchase Motivations

PURCHASE MOTIVATIONS	TOTAL #	AGE			
		30 - 40	40 – 50	50 - 60	60 +
Fashion	6	1	1	3	1
Need	4	1		2	1
Functional	3	2	1		
Social Status	3			2	1
Advice	2		1		1
Desire for the new	1			1	

5.3.4 Features Considered Before Purchase

Respondents were asked which features they have considered while purchasing the products that they do not use anymore. This question was not really easy to answer for the respondents as many years passed over their purchase time and it was observed that they preferred answering this question in general. The answers to this question were analysed and the features considered for purchasing a product were grouped as shown in Table 5.4. Accordingly, brand was the most important feature affecting the consumer choice and price, usability, quality, usability, outlook and campaigns followed.

Table 5.4 Features Considered Before Purchase

FEATURES	TOTAL #	AGE			
		30 - 40	40 – 50	50 - 60	60 +
Brand	9	4	2	2	1
Price	8	2	1	2	3
Quality	2				2
Usability	2	1	1		
Outlook	2	1		1	
Campaigns	1				1

Consumer choice was another important aspect in this study to understand the relation between the choice reasons and further disappointing results in the consumer experience process. Why do consumers choose a specific product instead of many choices in the market? What is the most important feature for them? At this point, reminding that the in-depth-interview has been conducted with people from upper middle class and answers will be evaluated accordingly.

9 out of 12 respondents answered "brand" as the first important factor in purchase decision process. Users prefer purchasing the products of reliable brands as they think that they will perform better than less-known brands.

> *I prefer giving more money for a brand that I know instead of paying less for an unknown one, I think well-known brands would be better. (housewife, age 39)*

8 out of 12 respondents gave importance to the price of the appliances they purchased. One of them told that she makes comparison between prices and that she bought an average one. 2 out of 12 respondents talked about the quality, 2 of them mentioned usability and ease of use, and 2 of them said outlook of the product was important for them. One respondent said that some brand campaigns were important for her. One of the respondent said she did not remember which features she considered.

5.3.5 Pre-purchase Expectations of the User

The following question of the field study was "What were your expectations about the product(s) before using?". The answers of this question will be analysed with a further question about the experience and feelings after use.

6 put of 12 respondents expected the product to accomplish its primary function properly. And also 6 people expected the products to help them to prepare food faster for time saving. 4 out of 12 respondents have expected the product to make their life easier and again 4 people mentioned that they want to achieve more comfort in the kitchen.

One of the respondents expected the product to work properly and another respondent who did not use her coffee maker and popcorn machine answered this question as:

> *I expected to have nice coffee in the morning and popcorn at nights while we are watching TV or movies. (architect, age 36)*

Practicality was pointed out by one respondent by which she meant the ease of maintenance and utility.

Table 5.5 Pre-purchase Expectations of the User

EXPECTATIONS	TOTAL #	AGE			
		30 - 40	40 – 50	50 - 60	60 +
Usability	6	2	1	1	2
Time Saving	6	1	2	2	1
Making Life Easier	4	2		1	1
Comfort	4	1		1	2
Practicality	1	1			

5.3.6 Post-Purchase Evaluation

The respondents were asked to explain their opinions and feelings after using the products they stated to be non-used. The answers given have been gathered under six main headings as shown in Table 5.6.

4 out of 12 respondents answered this question as they have been pleased in the first place and that they used the products for some time, but they noticed that these products were not as practical as they thought they would be. 3 out of 12 respondents were noticed to feel regret about their choice and purchasing the product and 3 out of 12 respondents said that they did not find these products practical and 2 respondents complained about usability. 2 out of 12 respondents felt disappointment with the product after they used and 1 respondent aged over 60 said that:

> *I purchased the food processor, I was so excited but then I have noticed that I was even not able to use it properly even if I tried to read the manual, so I felt pity. (housewife, age 62)*

One other respondent said:

> *After a week, I got bored of cleaning and trying to put all pieces together. I was angry at myself to buy such an impractical product. (housewife, age 35)*

Table 5.6 Post-Purchase Evaluation

OPINIONS AND FEELINGS	TOTAL #	Age			
		30 - 40	40 – 50	50 - 60	60 +
Regret	3	1			2
Not Practical	3		1	2	
Not Usable	2	1	1		
Disappointment	2			1	1
Pity	1				1
Boredom	1	1			

5.3.7 Reasons for not using

Many respondents were of the same opinion that they quitted using these products as they did not find the product as "practical" as they thought it would be. Defining the word "practical" was not really easy as the there was no exact definition in literature so these respondents were asked if they could expand what they meant by saying practical or impractical. According to the answers given to that question, Users accept a product as practical if:

- the product performance is high ,fast and precise,
- the product is easy to use,
- the product can be set up easily,
- the product is easy to maintain (they mean ease of cleaning),
- the product is rather small in size so that it covers less space in the kitchen,
- the product is not time consuming

Changes in the life-style and life conditions is another outcome of this question as for example the user have bought a juice extractor for her children when they were younger but they stopped using it when they grew up. Also one respondent talked about the change in her kitchen size;

> *Before coming to Izmir, I have been living in Marmaris in a very big detached house and I had a very big kitchen with three long countertops. I am vey fond of using electrical appliances so I bought most of them, even a bread maker and I was able to put all my appliances on my countertop, they were easily reached whenever I needed. Then we moved to this house and the kitchen here has a very small countertop, I had to put most of the appliances in the cupboard so I usually forget about them or even I feel too lazy to take them out, use them, clean them and put back in the cupboard. (cosmetician, age 51)*

Another respondent who purchased the juice extractor when she got sick and could not eat vegetables stopped using the product just after she was recovered.

One of the respondents told that:

Using the food processor was too complicated for me with lots of small parts to be changed all the time for different tasks and I had to look in the manual every time and still could not manage. It was so boring for me.   (housewife, age 63)

Table 5.7 Reasons for not Using

REASONS OF NON-USE	TOTAL #	AGE			
		30 - 40	40 – 50	50 - 60	60 +
Difficult to clean	7	2	1	2	2
Poor Usability/too many pieces	5	1	1		3
Not practical	5	1	1	1	2
Space problem	5	2		2	1
Replacement with update	3	2	1		
Not pleased with the result	2	1			1
Change in lifestyle	1			1	
Find useless	1				1

3.5.8 Reasons for Keeping

Respondents were asked why they still keep the non-used products. One common answer to this question was that, they keep and don't throw or give away the non-used products as these products were still working and as they thought they might need them in the future

One respondent mentioned culture. According to her, keeping and not throwing things is part of our culture. The same respondent told that if a person sells a good that he/she owns, the neighbourhood or friends might think that they are in trouble economically. Another respondent told that:

> *I was planning to give the food processor to my daughter when she got married but it was so old fashioned then, she did not want to take it and she purchased a hand blender. (housewife, age 63)*

Table 5.8 Reasons for Keeping the Product

REASONS FOR KEEPING	TOTAL #	AGE			
		30 - 40	40 – 50	50 - 60	60 +
Might use it later	4	2	1		1
Culture	1			1	
Does not know what to do	1	1			
Gave it away but still not being used	1	1			

CHAPTER 6

DISCUSSIONS AND RECOMMENDATIONS

6.1 Discussions

The aim of this study was to find out the reasons of progressive obsolescence and product non-use in electrical kitchen appliances. Accordingly, in-depth-interviews have been conducted among 12 kitchen appliance users.

As having the gender as a constant in this study (as all respondents are female), and also they are from the same socio-economic class, there have been two factors that may effect the expectancies, experiences and opinions of the respondents: age and occupation.

Throughout the study and during face-to-face interviews with kitchen appliance users, a probe question was asked to understand the respondents' relation with electrical appliances to understand if they are fond of using technological products or not. The respondents were asked to list all electrical kitchen appliances they owned. (Table A5.1.1) This table also shows the non-used appliances marked with dark color to be able to understand the relation between the number of products owned and used.

It has been observed that respondents aged between 30 and 60 own more number of kitchen appliances than the ones who are over 60 years old. (Table 6.1.1) As the number of appliances increase, the number of non-used appliances also increase. Younger respondents seem to purchase more number of appliances which implies that they are more fond of using

technological products than older respondents, but still their interest in products does not change the fact that younger respondents also own non-used appliances kept in their kitchens. During the in-depth-interviews, it has been detected that the working women prefer using electrical kitchen appliances like kettle, coffee maker and hande blender more. Housewives are more fond of using mixer, tea maker and kitchen scale different than working women.

Table 6.1.1 Owned and Non-used Appliance Analysis

	AGE			
	30 - 40	**40 – 50**	**50 - 60**	**60 +**
# of owned appliances	7-11	6-9	7-13	4-7
# of non-used appliances	1-3	1-2	1-5	1-3

6.1.1 Discussions on Non-used Appliances

As an outcome of this study, there were three kitchen appliances that were detected to be obsolete and non-used the most. These are Juice Extractor, Deep Fryer and Food Processor.

These three appliances have common and different features which cause the users stop using them. The answers of the users have another common aspect that they are disappointed and dissatisfied about the overall performance of these products and they feel regret about their purchase choices.

Juice Extractor

- the dimensions of the product (covers too much space)
- having too many pieces (difficult to maintain and store)
- extracting very less juice but much more slag (does't perform good)
- difficulty of cleaning

DeepFryer

- the dimensions of the product (covers too much space)
- needs to put too much oil in it and it can not be used several times
- difficulty of cleaning

Food Processor

- the dimensions of the product (covers too much space)
- having too many pieces (difficult to maintain and store)
- poor usability
- difficulty of cleaning

Pictures of some of the non-used products have been taken by the author as a documentation (Appendix C). New models or replacement pictures of these products have been searched and added to this study also to be able to see the progress and improvement in design of these appliances. (Appendix D)

Juice extractors have been the most disappointing electrical kitchen appliances according to the outcomes of this study with their poor performance which means they can not expose as much fruit juice as users expected, covering too much space and having too many pieces to put together and clean afterwards. Examples of a former juice extractor is shown in Figure C7. The new juice extractors (Figure D1.1 and D1.2) may be better with their outlook but still their performances are not satisfiying.

Deep fryers the respondents own, being purchased 15 years ago, were bulky and round, looking like a pressure cooker. (Figure C1,2,3) whereas the new models of deep fryers are designed smaller, like the one named "Actifry" introduced by Tefal, which is designed to use one spoon of oil and fry food quicker. (Figure D2.2) A development and change in deep fryers can be seen in Figure D.2.1 also.

It has been observed that food processors did not improved much in means of overall design but they have better outlooks instead. (Figure C3, C4, C6 and Figure D3.1). Today, consumers prefer and purchase hand blenders instead of food processors as they are smaller in size, as they are practical with less parts and as they are more user friendly with their usability and ergonomy. (Figure D3.2)

6.1.2 Analysis of Pre-purchase expectations and Post-purchase Evaluations

Pre-purchase expectations and post-purchase experiences about the products have been examined in this study to be able to enlighten the reasons of progressive obsolescence and product non-use which is shown in Table 6.1.2. The expectancy and disconfirmation relation is exposed under two main groups which are physical and psychological expectancies and evaluations.

Physically, users expect the product to be practical, to function properly, to be easy to use and to be time saving. Psychologically, they expect the appliances to bring comfort to their lives, to make their life easier and to satisfy their need of belonging to a social group.

Post-purchase evaluations of the users point out disconfirmation as the products non-used do not satisfy the users psychologically and/or physically.

Physical disconfirmations about the products are defined as impracticality, dissatisfaction with the primary function of the product, poor usability and storage problems because of both the size of the products and the space problems in their kitchens.

	Pre-purchase Expectancies	Post-purchase Evaluation
PHYSICAL	Practicality	Impractical
	Functioning properly	Dissatisfied with the function
	Usability	Poor Usability
	Time Saving	Storage Problem
PSYCHOLOGICAL	Comfort	Boredom
	Make life easier	Disappointment
	Belonging to a group	Regret

Table 6.1.2 Pre-Purchase Expectancies and Post-purchase Evaluation

6.1.3 Reasons of Progressive Obsolescence and Product Non-use

According to the outcomes of the study, the reasons of progressive obsolescence and product non-use in electrical kitchen appliances are:

1. *Utility:* difficulty of operating, realizing that the product is useless
2. *Performance:* not practical, disappointing results
3. *Maintenance:* difficulty of setting up, difficulty of cleaning
4. *Fashion:* old fashioned, purchased a replacement
5. *Time:* time consuming
6. *Storage:* covering too much space on the countertop, small kitchens, dilatoriness to take out of the cupboard
7. *Environment:* changes in life style and living conditions

8.   *Social:* belonging to a social class by having fashionable products

Users of electrical kitchen appliances expect the products they purchased to perform well, to function properly, to be practical, to be time saving, to be easy to use and clean, to be easy to store and reach, to be fashionable to feel themselves better by belonging to a social group.

These factors render electrical kitchen appliances obsolete and non-used while they are still functioning properly. The consumers purchase those products because of a real need, because of desire for the new, because they thought they might need them,   because they are fashionable and because the ownership of certain products is important for their social status.

UTILITY	Difficulty of operating
	Realizing that the product is useless
PERFORMANCE	Not as practical as expected
	Disappointing results
MAINTENANCE	Difficulty of setting up mutiple pieces
	Diffliculty of cleaning
FASHION	Old fashioned
	Purchased a replacement, a new model
TIME	Time consuming instead of time saving
STORAGE	Covering too much space on the countertop
	Small kitchen space in houses
	Dilatoriness to take out of the cupboard
ENVIRONMENT	Changes in life style
	Changes in living conditions
SOCIAL	Belonging to a social group by owning fashionable products

Table 6.1.3 Reasons of Product Non-Use and Progressive Obsolescence

Consumers take into consideration some features while purchasing electrical kitchen appliances. Brand is an important factor for the consumers as they

think that the product will perform better and satisfy their expectations if it is a well-known brand. Price also plays an important role in purchase decision for kitchen appliances. Consumers evaluate different brands and prices and purchase those goods accordingly. Quality and outlook are also important for consumers' purchase decision as well as some campaigns and special discounts.

Outcomes of the field study show that consumer expectations from electrical kitchen appliances are usability, practicality, comfort and they expect those products to make their lives easier and to be time saving.

Consumers' post-purchase experience and evaluation were analysed in this study.   Consumers usually feel regret about their previous choices of purchase after they start using the products. The distinction between the pre-purchase expectations and perceived performance after purchasing and using the products, consumers conceive that those products were not as practical as they thought they would be or the products are not usable enough and too complicated which leed them to disappointment, boredom and pity.

The non-used products are not discarded by their users most of the time, in case they might need them in the future. Even though the consumers later purchase some replacements of these products, which are updated and fashionable, the older electrical kitchen appliances are still kept in the closet.

According to the outcomes of the field study, the non-used kitchen appliances are the food processor, the deep fryer and the juice extractor the most.   Some other appliances are, toaster, coffee maker, bread maker, microwave owen and egg boiling machine.

6.2 Recommendations

This study about progressive obsolescence and product non-use in electrical kitchen appliances may give ideas to industrial designer and manufacturers about the pre-purchase consumer expectations, post-purchase consumer experiences and reasons of products' becoming obsolete as there are very few number of references on the subject and these information would guide them to achieve better designs for kitchen appliances.

The most three non-used appliances would be taken into consideration by designers especially and the deficiencies of these products might be re-evaluated and improved.

Hand blenders have been preferred by consumers after they emerged in the market instead of food processors, but food processors have more function and larger container different than hand blenders and may still be needed for larger amount of food preparation works in the kitchen. Food processors should be designed having less pieces, more user friendly and easy to operate, and cleaned at the same time.

Deep fryers have improved and better designs contemporarily and some of the respondents have already purchased new fashion fryers without discarding the old ones. The reason for them to chose the new models are the fryer's consuming less oil and covering less space on countertop.

Juice extractors have not been improved much in means of form, only the new models have been aestetically impoved. The problem with the juice extractors are similar to food processors like difficulty of setting up and difficulty of cleaning. Also respondents complained about the primary function about they think that it gives very less juice than they expected.

Progressive obsolescence and product non-use would be avoided by designing and manufacturing more user-friendly, practical and sustainable products regarding the post-purchase evaluations of the consumers. Kitchen appliance users need practical, time saving, ergonomic, easily set up and cleaned, fashionable and compatible with the changing life styles and living conditions.

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APPENDIX A

A 1 In-depth-interview Introduction

Öncelikle bu çalışmaya vakit ayırdığınız için teşekkür ederim.

Bu çalışma Orta Doğu Teknik Üniversitesi Endüstri Ürünleri Tasarımı Bölümü Yüksek Lisans tezi araştırması için yapılmaktadır ve konusu elektrikli mutfak gereçlerinin kullanımını kapsamaktadır.

Görüşmemiz en fazla bir saat sürecektir ve ses kaydı alınarak yapılacaktır. Bu çalışmanın sağlıklı ve en doğru şekilde aktarılabilmesi ve sizden gelecek yorumları kaçırmadan kayıt altına alabilmek için gereklidir. Ses kaydının anlaşılabilir olması için görüşme sırasında yüksek sesle ve net konuşmanızı önemle rica ederim.

Kişisel hiç bir bilginiz de bu çalışmada yer almayacaktır. İstemediğiniz hiç bir soruya cevap vermek zorunda olmadığınız gibi, görüşmeyi istediğiniz anda bitirebilirsiniz.

Sormak istediğiniz herhangi bir şey var mı?

Bu çalışmaya katılmak istiyor musunuz?

A 2 In-depth-interview Questions

İsim-Soyad:

Yaş:

Meslek:

1. Kendi satın aldığınız ve çalışır halde olmasına rağmen kullanmadığınız ve sakladığınız elektrikli mutfak gereçleri var mı?

2. Bu ürünü ne kadar zaman önce aldınız?

3. Bu ürünü almanızdaki sebepler nelerdir?

4. Ürünü satın alırken hangi özellikleri gözönünde bulundurdunuz?

5. Kullanmadan önce bu üründen beklentileriniz nelerdi?

6. Ürünü kullanmaya başladıktan sonraki ilk duygu ve düşünceleriniz nelerdi?

7. Ürünü ne kadar süre kullandınız?

8. Ürünü kullanmayı neden bıraktınız?

9. Ürünü kullanmadığınız halde neden hala saklıyorsunuz?

Ek soru 1: Mutfağınızda bulunan elektrikli mutfak gereçlerini sayar mısınız?

Ek soru 2: Elektrikli su ısıtıcısını kullanıyor musunuz?

Bu çalışmaya katıldığınız için çok teşekkür ederim.

A 3 In-depth-interview Example 1

İsim-Soyad: Figen ...

Yaş: 51

Meslek : Güzellik Uzmanı – Serbest Ticaret

1. Kendi satın aldığınız ve çalışır halde olmasına rağmen kullanmadığınız ama sakladığınız elektrikli mutfak gereçleri var mı?

Var az kullandığım ekmek kızartma makinası. Tabii şu anda, daha önce çok kullanmıştım. Fritöz var. Yumurta pişirme makinası, çok az sadece rafadan yumurta yapmak için kullanıyorum

2. Bu ürünü/ürünleri ne kadar zaman önce aldınız?

En az 10 sene önce

3. Bu ürünü almanızdaki sebepler nelerdir?

Mesela ekmek kızartma makinası, sabah kahvaltıları için, yumrta pişirmeyi beceremediğim için (*gülerek*) makina (*yumurta pişirme*) aldım, rondoyu pratik olduğu için aldım.

4. Ürünü satın alırken hangi özelliklerini gözönüne aldınız?

En önce markasına önem veririm, sonra fiyatına. Sonra da iç özelliklerini karşılaştırırım, hangisinin hacmi büyük, hangisi ne kadar elektrik yakıyor. Bazen tavsiye üzerine de aldığım olmuştur.

5. Kullanmadan önce bu üründen beklentileriniz nelerdi?

Ben hiç bir zaman aa yeni bir makina çıkmış alayım dememişimdir. O anki ortamımda ve yaşamımda ihtiycım olduğu için almışımdır. Yumurtayı çatlatmaya başlayınca yumurta makinası olduğunu öğrendim, gidip aldım. Doğru ve çabuk iş yapabilmek benim için önemlidir, bu ihtiyacı hissettiğim zaman bunu karşılayan ürünü alırım. Fritözü de hızlı bir şekilde kızartma yapabilmek için aldım.

6. Ürünü kullanmaya başladıktan sonraki ilk düşünceleriniz nelerdi?

Hiç memnun kalmadım, cazip gelmedi. (*Fritöz için*)

7. Ürünü ne kadar süre kullandınız?

1 sene kadar kullandım.

8. Ürünü kullanmayı neden bıraktınız?

Kirliliği, yağın çok durması, çok yağ tüketmesinden dolayı bırakıp yine eski usül tencerede kızartmaya başladım.

Not: (Hayat şartlarının değişmesi de önemli bir etken, artık iki kişiler, oğlu küçükken daha hızlı ve praktik şeyler yaparmış, tost gibi, rondo da mama yapmak gibi. Şimdi ihtiyaç duymuyor. Bir de şimdiki mutfak tezgahında yer olmadığından el altında değil)

9. Ürünü kullanmadığınız halde neden hala saklıyorsunuz?
Bizim toplumumuzda atmak pek yoktur. Elbiseyi de atmaz, eşyasını da atmaz.

Notlar: Genç (60 yaşa kadar) ve kentli kesim çok daha rahat kullanıyor elektrikli ev aletlerini. Kalabalık aile olanlar hala kullanıyor veya tek başına olmasına rağmen hala ekmek makinasını kullananlar var. Ekonomik ve kültür seviyesine göre daha sık kullanıyorlar.

Türk kahvesi makinası. Bir kişiye kahve yapmak için onu çıkartmak gereksiz olduğundan çok kullanışlı bulmuyorum.

Ek soru 1: Mutfağınızda bulunan elektrikli mutfak gereçlerini sayar mısınız?
Mikser, El Blenderı, Mutfak Robotu, Yumurta Pişirme Makinesi, Yoğurt Makinesi, Çay Makinesi, Kahve Makinesi, Su Isıtıcısı, Katı Meyve Sıkacağı, Mikrodalga Fırın, Fitöz, Ekmek Makinesi, Tost Makinesi

Ek soru 2: Elektrikli su ısıtıcısını kullanıyor musunuz?
Evet, her zaman kullanırım

A 4 In-depth-interview Example 2

İsim-Soyad: Nuray ...
Yaş: 39
Meslek : Ev hanımı

1. Kendi satın aldığınız ve çalışır halde olmasına rağmen kullanmadığınız ama sakladığınız elektrikli mutfak gereçleri var mı?
Var tabii. Mesela büyük mutfak robotu, fritöz bir de katı meyve sıkacağı

10. Bu ürünü/ürünleri ne kadar zaman önce aldınız?
15 sene önce, evlendiğimizde çeyiz niyetine aldık beyaz eşyalarla birlikte, o zamanlar böyleydi çeyiz alışverişi

11. Bu ürünü almanızdaki sebepler nelerdir?
Lazım olacaklarını düşündüm evlenince, o dönemin modasıydı bunlar, herkes alıyordu zaten, çok düşünmeden alınmış şeyler yani

12. Ürünü satın alırken hangi özelliklerini gözönüne aldınız?
Markasına dikkat ettim, kaliteli bir marka olması önemiliydi benim için. En önemlisi çünkü ucuza tanınmamış bir marka alacağıma biraz daha para verip güvenilir bir marka alırım.

13. Kullanmadan önce bu üründen beklentileriniz nelerdi?
Hayatımı kolaylaştırsın diye aldım, daha rahat, daha çabuk, daha zahmetsiz iş yapabilmek için mutfakta.

14. Ürünü kullanmaya başladıktan sonraki ilk düşünceleriniz nelerdi?
Çok kullandım ben, memnundum önceleri aslında. Katı meyva sıkacağı çocuklar küçükken iyi oluyordu ama sonra hiç kullanmamaya başladım çocuklar büyüyünce

15. Ürünü ne kadar süre kullandınız?
4-5 sene kullandım herhalde

16. Ürünü kullanmayı neden bıraktınız?
Çok yer kaplamaları, yeni ürünler çıkması daha pratik ve küçük olmaları
Mutfak robotu yerine blender aldım mesela, fritözü birine verdim, yeni çıkan küçük fritözlerden almayı düşünüyorum

- Neden düşünüyorsunuz?

Arkadaşlarımdan alanlar oldu, memnun kaldıklarını söylediler, küçük olduğu için mutfakta daha rahat kullanabilirim, bir de daha az yağ kullanılıyor onlarda.

17. Ürünü kullanmadığınız halde neden hala saklıyorsunuz?

Bir gün lazım olur diye ve kıyamadığım için. Fritözü başka birine verdim ama diğerleri duruyor dolapta.

Ek soru 1: Mutfağınızda bulunan elektrikli mutfak gereçlerini sayar mısınız?

Mikser, El Blenderı, Mutfak Robotu, Çay Makinesi, Kahve Makinesi, Su Isıtıcısı, Katı Meyve Sıkacağı, Mikrodalga Fırın, Fitöz, Tost Makinesi

Ek soru 2: Elektrikli su ısıtıcısını kullanıyor musunuz?

Bazen çaydanlıkla da ısıtırım ama acele işim varsa kettle kullanırım

A 5 In-depth-interview Results

Table A5.1.1 In-depth-interview Results

	Age	Occupation	Appliance(s) non-used	Purchase time	How long used	Purchase motivations	Features considered	Expectations before using	Opinions and/or feelings after using	Reason for not using	Reason for keeping
1	32	housewife	Juice Extractor	2-3 years ago	until I recover 7-8 months may be	I was sick and couldn't eat fruit so I bought it	Brand and ease of use	I expected it to make fresh fruit juice	I have seen that it is not that much usable	to many pieces, difficult to clean, gives very less juice but more slag indeed	I did not keep, gave to my parents but they don't use it either
2	35	housewife	Juice Extractor, toaster	6-7 years	for 1 month may be	I bought for the children so that they can drink fruit juice and make toast for them	brand and price, outlook is also important for me	to be able to prepare things easily and practically	After a week, I got bored of cleaning and trying to put all pieces together. I was angry at myself to buy such a difficult product.	difficulty of use, it is not practical. Both of them cover to much space on countertop and I don't have space	I don't know what to do with them
3	36	architect	coffee maker, popcorn machine	4-5 years	5-6 times at most	I love coffee and popcorn	brand and price	I expected to have nice coffee every morning and popcorn at nights	I was pleased with the coffee machine, also having popcorn was nice at first	Both of them are difficult to clean	may be I will use them later
4	39	housewife	Food Processor Juice Extractor Fryer	15 years ago	4-5 years	I bought before my wedding ,they were fashionable at that time, I thought I will need them	Brand, I prefer giving more money to buy a reliable brand	make my life easier, make things faster and effortless	I was pleased at the beginning	covering too much space, bought new models, smaller ones like hand blender instead of food processor	I keep in case I might need them some day, I gave the Fryer though

Table A5.1.2 In-depth-interview Results (cont.)

	Age	Occupation	Appliance(s) non-used	Purchase time	How long used	Purchase motivations	Features considered	Expectations before using	Opinions and/or feelings after using	Reason for not using	Reason for keeping
5	48	Accountant	Food Processor, bread maker	15 years - 6 years	FP for 10 years, BM for 3-4 times only	Food processor as it was popular, bread maker as I heard from friends and it sounded nice to make my own bread	price, brand and usability	to prepare food quicker and to make healthy food (bread)	Used the food processor and liked it and used for some time, then hand blenders came up so I bought one. I didn't need the FP anymore. Bread maker is nice but difficult to use for me, I don't have time.	I bought a new product, I couldn't use bread maker much, not practical for my life	they are still working, may be I will need some time.
6	49	civil servant	Food Processor	10 years ago	3-4 years	it was multifunctional	reliable brand	to make cutting, chopping and blending faster	I have seen that it is not that much practical as people told me	fixing, separating and cleaning all parts bores me	I use it very few
7	51	free commerce, cosmetician	Food Processor, Juice Extractor, Fryer, Egg boiling machine	10-15 years ago	1 year	they were fashionable, I needed the Juice Extractor	Brand and price	making tasks faster and easier	used for some time but didn't find practical afterwards	Difficult to clean, I have less space now in the kitchen	It's about the culture, we don't throw things
8	51	Biologist	Toaster	18 years ago	4-5 years	it was a new product and I wanted to have it	I really don't remember	to work properly	I was not pleased and disappointed as it was not practical at all	I have seen that it is not practical, covers too much space, has to be cleaned every time you use and I can live without it	May be I might need it in the future

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Table A5.1.3 In-depth-interview Results (cont.)

	Age	Occupation	Appliance(s) non-used	Purchase time	How long used	Purchase motivations	Features considered	Expectations before using	Opinions and/or feelings after using	Reason for not using	Reason for keeping
9	52	retired teacher	Food Processor, Fryer, toaster	10-12 years	after I retired, I stopped using	I thought I needed them in my kitchen as everybody I knew had	brand, outlook and price	to make my life easier as I was working	I used them for some time, I was pleased at that time	I bought a hand blender instead of FP, I heard that fryer is not healthy as the oil is used several times and I don't need the toaster anymore, my children liked it now they are not living with us	I never thought about it, I just keep them
10	62	housewife	Food Processor, coffee maker (Turkish)	Food Processor 15 years, coffee maker 1 year	very few	Both of them were fashionable, everybody purchased so did I	price, quality and campaigns	to have more comfort while cooking in the kitchen. To make better Turkish coffee	I couldn't use the food processor properly so I felt pity	Food processor is too confusing for me and it is difficult to clean all small parts. Coffee maker is too big for one or two cup of coffee so I only use it when there are many guests.	I keep them because they are working and I paid for them. What should I do?
11	63	housewife	food processor	15 years ago	not more than 10 times	I have seen in my friend's kitchen and thought that it will help me preparing food easier	I didn't think about it much, I just compared prices and bought an average one	I expected to prepare food easier as I hate chopping and blending things myself	I felt so stupid and I regretted to buy it (why didn't you take it back?) I thought I would give it to my daughter when she gets married.	it was too complicated for me with lots of small parts to be changed and I had to look in the manual every time and still could not manage. It was so boring for me	I was planning to give it to my daughter when she got married but it was old fashioned then, so I couldn't give
12	65	retired lawyer	Fryer, Microwave Owen, bread toaster	Microwave 2 years, others 18 years	not more than 10 times	I thought we needed them and heard that fryer was practical	price, brand and quality	Frying food quicker, having a nice toasted bread and cooking food quicker	All of them were disappointment and regret	Fryer covers much space, needs lots of oil and difficult to clean. Toaster either burns the bread or makes nothing. Microwave Owen is useless for me	I am not sure, I couldn't throw them away because they are functioning.

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B1 Kitchen Appliances Owned by the Respondents

Table B1 Kitchen Appliances Owned by the Respondents

OCCUPATION AND AGE

GROUP	APPLIANCE	housewife 32	housewife 35	architect 36	housewife 39	accountant 48	civil servant 49	cosmetician 51	biologist 51	retired teacher 52	housewife 62	housewife 63	retired lawyer 65
FOOD PREPARATION	Mixer												
	Hand Blender												
	Food Processor												
	Egg Beater												
	Kitchen Scale												
	Slicer machine												
	Yogurt Machine												
DRINK PREPARATION	tea Maker												
	Coffee Maker												
	Kettle												
	Juice Extractor												
ELECTRICAL COOKING	Microwave Oven												
	Deep Fryer												
	Bread Toaster												
	Bread Maker												
	Toaster												
	Rice Cooker												
	Electrical Grill												
OTHER	Popcorn Machine												

owned and still used products

non-used and obsolete products

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APPENDIX C

Pictures of Non-used Products

Figure C1 Krups Deep Fryer – Front View


Figure C2 Krups Deep Fryer – Side View

Figure C3 Krups Deep Fryer - Inside

Figure C4 Arçelik Food Processor

Figure C5 Krups Food Processor

Figure C6 Arçelik Egg Boiling Machine

Figure C7 Arzum Food Processor

Figure C8 Arçelik Juice Extactor

APPENDIX D

New Models or Replacements of Non-Used Appliances

(pictures taken from the internet)

D1 New Juice Extractor Models

Figure D1.1 Philips Juice Extractor

Figure D1.2 Arçelik Juice Extractor

D2 New Deep Fryer Models

Figure D2.1 Tefal Deep Fryer Models

Figure D2.2 Tefal Actifry Deep Fryer

Figure D3.1 Arzum Food Processor

Figure D3.2 Arzum Hand Blender