ETHICS FOR INDUSTRIAL DESIGN:
AN ETHICO-POLITICAL CRITIQUE OF SUSTAINABILITY IN INDUSTRIAL DESIGN

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ABSTRACT

ETHICS FOR INDUSTRIAL DESIGN:
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This thesis analyses the concept of sustainability as applied and reflected in industrial design practice in a theoretical way. The discourses on sustainability in general are explored in terms of ecology, economics and politics. The underlying motives resulting in unsustainable ways of production and consumption practices are attempted to be located in contemporary society.

Keywords: Industrial Design, Ecology, Sustainability, Consumption

ÖZ

ENDÜSTRİ ÜRÜNLERİ TASARIMI İÇİN ETİK:
TASARIMDA SÜRDÜRÜLEBİLİRLİK ÜZERİNE ETİK-POLİTİK BİR ELEŞTİRİ

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Bu çalışma, endüstri ürünleri tasarımına yansımış ve uygulanmış haliyle sürdürülebilirlik kavramını kuramsal olarak incelemektedir. Sürdürülebilirlik üzerine yapılandırılmış söylemler ekoloji, ekonomi ve siyaset ile ilişkilendirilerek incelenmekte, günümüz toplumundaki üretim ve tüketim pratiklerinin sürdürülebilirlikten uzak olmasına neden olan etmenler belirlenmeye çalışılmaktadır.

Anahtar Kelimeler: Endüstri Ürünleri Tasarımı, Ekoloji, Sürdürülebilirlik, Tüketim

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CHAPTER I

INTRODUCTION

> We live and die rationally and productively. We know that destruction is the price of progress as death is the price of life, that renunciation and toil are the prerequisites for gratification and joy, that business must go on, and that the alternatives are Utopian. This ideology belongs to the established social apparatus; it is a requisite for its continuous functioning and part of its rationality.
>
> Herbert Marcuse, *One-Dimensional Man* (1966)

An attempt to understand culture and its components in their actuality is the indispensable part of understanding what the world is. And the same could be considered for practice: Practice on its own, without reinforcing itself by consulting with humanities, i.e. social sciences, would lack the necessary ethos, a structural frame on which the action should be constructed. Contemplation on the nature, purposes and results of an action paves for it the way to validity and adequacy.

This thesis is an attempt to bring humanities into dialogue with industrial design in the ways that while the former includes the implications of the latter in order to understand its subjects in general; the latter, welcoming the contributions of the former, provides itself with the theoretical consultancy.

The role of industrial design in contemporary society and the current conditions of the world cannot be underestimated, especially in an age when the relationship between human beings and nature is almost purely constructed through the mediation of objects and services, which are

produced by technological means; and their activities, processes, implementations and integrations in life, and also their comprehension as objects and activities have to go through a design process, which is mostly performed by industrial design in concert with other professions such as design engineering, production, marketing, advertising, etc.

Furthermore, as the industrial design profession is not solely practical activity, but one which has several social, economic and psychological aspects, the examination of these can validly be assumed to be helpful in understanding the profession itself. Industrial design is a subject of an academic discipline now. Thus, some basic theoretical definitions and inquiries concerning the practice itself are absolutely necessary.

1.1. CONCEPTUAL FRAMEWORK

Industrial design is a practice which has been carried out since the beginning of industrial production: deciding on/creating forms and functions of mass-produced objects and their relations of any kind with the production and consumption processes and with the user/consumer. Heskett (1993, 7), at the very beginning of his work *Industrial Design*, speaks of the continuous augmentation of the surroundings shaped and controlled by human power, ongoing for the last two centuries; and that it can be considered as a man-made world. This man-made world generated a qualitative, as well as a quantitative change in life. The qualitative change corresponds to both the conditions of social life and to the natural realm with the effects of production and consumption of goods. Although the profession of industrial design seems to be mostly practical, primarily having technical aspects, when its reciprocal determining relationship with culture is considered, it becomes obvious that contributions from theoretical realms such as sociology, psychology, political economy and philosophy are crucial.

The meaning of the term industrial design can be conceptually comprehended in a broader context, referring to the bulk of activities which forms a team of bridges between the object in general and the subject in general. The term, then, includes, at first glance, the activity of making decisions about production; thus being a bridge between the nature and the idea of the object, as the production is the transformation of material into object. Moreover, it also includes the activity of making decisions about consumption, the point where the technological complex infiltrates into the realm of the social.

Sparke (1986, xix) states that design is characterized by a dual alliance with both mass production and mass consumption, the two phenomena that determined nearly all its manifestations within the framework of industrial capitalism which created and continues dominating design. Thus, design cannot be evaluated in isolation from these, but, on the contrary, the conditions in which it exists, and the results it brings about should be examined in the above stated context.

With some other agents, such as supply of materials, production, distribution of goods, economy and finance in general, and politics, joining the determination process of the relationship between the objects and their users, subjects, design has also a strong authority in shaping this very relationship. The mode and duration of it, from the beginning to the end, partly is in the responsibility of the designer.

1.2. POINTS OF DEPARTURE

While Richardson (1993) announces that industrial design is in a crisis of identity, purpose, responsibility, and meaning, which have gone uncommented upon by the practicing community, he proposes the questions on the viability, boundaries and the values of the profession. He also asks what the impacts of design's products in societal and cultural

contexts are. His answer is pessimistic as he finds it inappropriate to attribute a dominant role to designer, neither in determining the function, and thus nor in having influence on the ideological issues concerning products. Designer, according to Richardson, has to dwell with the form of the product, by which s/he has to validate in the eyes of the public not only the product, but also the process and ideologies behind it, in such a way as to make them appear unquestionably natural or, conversely, by distancing, by obscuring, or distracting them. The solution to this problem partly lies in the necessity that designers have to place themselves in a position of social consciousness and responsibility (Richardson 1993, 34-43).

However, according to Buchanan (2001), the issues popularly discussed in design circles, generally tend to lack concentration on some essential aspects which constitute the structural principles and necessary conditions for the practice. These include the basic purposes to be achieved while doing design. Buchanan, in his article "Human Dignity and Human Rights: Thoughts on the Principles of Human-Centered Design" (2001), expresses his feelings of surprise when he attended a design conference held in South Africa. In the opening speech of the conference, a politician of the country talked about designers' duty to be aware of their responsibility for human dignity. According to Buchanan, the ones who should bring the issue forward should be the design community; however, the scope of human-centered design discourse hardly reaches to the borders of this ethical and political realm. Those discussions generally reach to the extent that they only include ergonomics, sustainability, ecology, etc. A practice which is utmost active in modifying culture should not miss the basic principles of inalienable human rights. Buchanan thinks that design cannot be ignorant of its moral and intellectual purpose toward which technical and artistic skills are directed (Buchanan 2001, 35-39).

A certain degree of truism can be attributed to the statement that the nature and conditions of design activity should be redefined, but this time drawing focus on these basic aims, according to above mentioned conditions. Buchanan, in "Rhetoric, Humanism and Design" (1995, 23-66), explores the process of change in definition of design. The subject matter of design activity, creation of alternative artificial solutions for human needs is different from that of scientific activity in that while science is conditioned with the determinacy of its subject to be discovered, design invents and plans its activity and objects in an indeterminate area. This indeterminacy both gives the practitioner an opportunity to dwell in a free area and at the same time in a vacuum in which it is difficult to set structural principles, the lack of which can lead to unethical practice.

The subject matter, Buchanan (1995) continues, is the activity of conception of and planning the products and the activity itself. Thus, design is the study of how products come to be as vehicles of argument and persuasion about the desirable qualities of private and public life as there are endless numbers of alternatives among which some of them would be chosen. This proves design to be rhetorical. Rhetorical aspect of an activity is logically prior to its poetical aspect i.e. the making stage, although they both are simultaneous. The arts, crafts and production in general used to reflect this holistic nature until the industrial revolution, after which designing was separated from the act of producing. However, it is the utmost necessity to reexamine the importance of design as rhetoric, because it corresponds to an ethical awareness while reaching decisions about matters which may be other than what they are.

In contrast with Richardson's before mentioned account, Buchanan gives a clue about the possibility of attributing a power of rhetoric to industrial designer, by which designer can both create and extend a space of choice. This realm of choice is the necessary condition for the ethical evaluation of industrial design.

1.3. AIM OF THE STUDY

There exist various responsibilities of design activity in terms of its results in natural, social and psychological contexts. The evaluation of these responsibilities necessitates an appropriate categorization of the results, a clear account on the relationships between these categories, and a proposal of the basic principles to ethically measure the actions undertaken, i.e. whether they are good or not.

The aim of this thesis is to examine the effects of industrial design practice in two main steps: The first step is the exploration of contemporary ecological conditions, on which industrial design has an important effect. After exploring the relationships between the ecological conditions and industrial design practice, several proposals for the solution will be discussed. The second step is to investigate the details of the causes of such conditions, examining the consumption phenomenon with its social, psychological and philosophical aspects, where industrial design again has a significant power of determination.

For a proposal of ethics for industrial designers, the thesis starts with the ontological fact that the conditions of existence of human kind in the world has been under an increasing threat, which originates from the contemporary modes of production and consumption. Thus, the basic ethical principle is determined that the activities performed for the improvement of these conditions are ethically good, and the rest are bad. This basic principle will be elaborated and articulated by the examination of the above mentioned aspects, and taking the answers from design practice and their critique into account.

The epistemological part includes the examination of the reasons why man is in such a relationship with nature, acting in a hazardous way; and seeking the answer in the special relationship between human-

subject and the objects around him/her; i.e. the commodity form, where design plays a significant part in determining this relationship.

To sum up, the argument begins from a macro perspective of global facts as results of the contemporary relationship between subject and object. Then, it progresses by focusing on the comprehension of this relationship in its atomic form. The general course of this study revolves around industrial design, although the attention is given to the realms that surround and determine industrial design practice. This study attempts to analyze, and is limited with the discourses on the concerning subjects, in order to derive a set of basic principles for ethical design.

CHAPTER II

ECOLOGY: PRODUCTION

2.1. INTRODUCTION

The main subject of this chapter is to review the un-ecological practices that form the background of, and result from the manufacture and consumption of products, the reasons and results of which come to the fore, and the exploration of the relations between these and industrial design.

A general view of environmental issues and current facts will be summarized in this chapter. Analyses and discourses from various circles connected to the problem at hand, such as politics, economics, and business will be comparatively discussed. Following a brief description of the historical background of ecological thinking, the current discourses of some proposals from design circles and those of financial circles concerning environmental and ecological issues will be located with a critical perspective.

A thorough analysis of the new candidate currently brought forward for the global solution of the problem, i.e. sustainability, follows. The subsequent sections include the discussions on the reflections of sustainability on design. After a historical overview, current design discourses concerning ecology, sustainability and environmental issues will be positioned, and their value in creating a genuine contribution to managing ecological lifestyles will be questioned. These last parts comprise the critique of design as one of the main moderators of contemporary lifestyles, thus one of the main agents of prevailing risks.

2.2. ECOLOGICAL FACTS

The conditions of existence of human life are under a serious threat. Martell (1995) considers ozone depletion, global warming, acid rain, vehicle fumes, waste disposal and other forms of pollution of land, water and the air to be major and escalating problems with serious consequences. These global problems are caused by industrial and technological processes embedded in political and economic relations and tied to social lifestyles and cultural value systems. He continues that these are linked to industrial processes which can be stopped, slowed, pursued more selectively or replaced with alternatives. (Martell 1995, 2-3)

Reviewing the report titled as *Limits to Growth,* by Meadows et. al. schematically, Martell (1995) also sketches a pessimistic, though strongly probable, picture of what the results of ongoing industrial growth and its social implications would be in the year 2100. Accordingly, the results of a series of calculations performed by a software, which takes the ratios of growth in industry between years 1900 and 1970 and assumes different combinations of actions, are as follows:

> Standard Run (1): assumes growth in all factors
> Industrialization > resource depletion > capital diverted from investment to search for resources > collapse of industry > collapse of dependent service and agricultural sectors > lack of food and health services > population decline
>
> Run (2): assumes problem of depletion solved by high source availability
> High source availability > high industrial output > high pollution > increased death rate > eventual resource depletion
>
> Run (3): assumes problem of depletion solved by technical developments
> High resource availability > high pollution > eventual halts in industrial output, food production and service industry > high death rate
>
> Run (4): assumes pollution solved by technical developments
> Rising population and industrial output > overexploitation and exhaustion of arable land > food shortages > capital diverted to agriculture > collapse of industrial output > population falls
>
> Run (5): assumes technical development increases land yields
> Increases food and industrial outputs > higher pollution > higher death rate > eventual resource depletion

> Run (6): assumes voluntary birth controls reduce population
> Voluntary population controls > insufficient reduction in population > food production crisis > population falls
>
> Run (7): all solutions combined
> Land overuse > food shortages > resource depletion > excessive pollution > food production crisis > rising death rate
>
> (Martell 1995, 28)

Although the report is rightfully criticized as being pessimistic and excluding humans' technological and political capacity to adapt, some recent studies on the subject endorse the opinion that the total decline is soon.

By giving reference to Lester Brown's annual survey *State of the World*, Hawken (2001) states that every living system on earth is in decline. Combustion of hydrocarbons to the atmosphere brings the danger of unknown climatic results. The distribution of the resources is so unjust that 20 percent of the earth's population are chronically hungry or starving, while the top 20 percent of the population consume 80 percent of the world's wealth (Hawken 2001, 393).

These simple facts are so obvious that they have been, and still are expressed by many people many times. However, neither the details of frightening dimensions of ecological threat, nor those of disappointing conditions of the remaining natural resources is the main subject of this chapter. These are considered as the results of a process, in which industrial design plays a significant part. The current ecological conditions are only the facts that are considered as the *raison d'être* of constructing an ethical framework for designers, and proposing principles to evaluate their practice accordingly, in such a way that ecological criteria could be fulfilled. The aim is not merely to develop an environmental ethics for designers, but to explore the environmental

aspects which should be considered as the indispensable parts in determining particular principles of ethics.

Rolston III (2001) remarks the emergence of ethics in crisis and supposes the biological conditions as the starting point to derive the principles:

> When we face up to the crisis, however, we undergo a more direct moral encounter. Environmental ethics is not a muddle; it is an invitation to moral development.
>
> [...]
>
> The vitality of ethics depends on our knowing what is really vital, and there will be found the intersection of value and duty. An ecological conscience requires an unprecedented mix of science and conscience, of biology and ethics.
>
> (2001, 127)

Since the crisis is obvious, under which conditions the encounter should be constructed? What will pave the way for the designer from the biological to the ethical? A summary of current discussions on the subject would be useful to construct a framework for the necessary derivations. Throughout the following sections, the ethical premises of some environmentalist currents are summarized and recent design attitudes relying on these are discussed.

2.3. RESPONSES TO THE FACTS

Environmental-ethical issues have been discussed in academic circles since the early 1970s with the questions revolving around such major concerns as, what valuable means and from where such value comes; whether this value attributed to an entity is instrumental, which is derived from its utility, or intrinsic; whether the value is created by human beings or something already exists by itself in the world, i.e.

whether the value is subjective or objective; where this value originates from; how human beings should act, given the conclusions drawn from value theories; and whether it is possible to determine a single set of ethical principles or to seek for ethical frameworks to act in context with a pluralistic approach (Palmer 2003, 15-17).

With regard to the above mentioned questions, environmental ethics are categorized into two main groups, namely, anthropocentrism and ecocentrism (Smith 1998, 4). According to anthropocentric approaches, the value of the nature originates from its utility for human beings; nature is valuable only if human beings have transformed it into some useful products. Anthropocentric approaches are categorized under the title "environmentalism". This refers to a traditional view taking 'nature' as an entity that surrounds human beings, reducing the natural world to a bulk of resources that should be used wisely for the benefit of humanity. However, the terms 'ecology' and 'ecocentrism' refer to a more critical and transformative perspective, locating humanity within the larger system or whole, i.e. nature. Ecocentrism focuses on the well-being of the whole without giving priority to the interests of any subgroups included in nature (Clark 2001, 342).

Some pragmatic environmentalists argue that the sterile abstractions in theories of environmental ethics are not enough to solve the actual problems. On the contrary, environmental ethicists' urgent calls for a new environmental worldview and excessively revised ontological schemes take them away from concrete solutions to the problems, and lead their attentions away from the resources already present within the shared moral and political traditions. Thus, they propose to construct a new practical approach by which the role of environmental ethics would gain a power in policy deliberation and decision making (Minteer and Manning 2003, 319-321).

Minteer and Manning's conservation of current political and moral systems finds its embodiment in pragmatic methodology, in which an upheaval of democracy and reference to public opinion by an empirical study to support the idea of ethical pluralism are defended. Monistic ideas, arguing that a number of analytically derived moral principles can be taken as the basis for ethical judgments in environmental actions and decisions, are charged with leaving little, if not any, room for public discussion, debate and criticism of their arguments and with being designed to avoid public deliberation (Minteer and Manning 2003, 325).

This political criticism, however, turns out to be a weak one when pragmatists' proposal to return to public opinion is examined. The proposed empirical method works in such a way that it collects the data from the democratic public to sketch a picture of mainstream ideas about ecological concerns, and is limited to a descriptive study. Neither the present mode of awareness in public, nor its potential for change is criticized. However, the main problem is posited working out the possibility of transforming the public practice in such positive ways into a more environmentally-concerned mode.

Avner de-Shalit (2001, 403) argues that liberalism, with its anti-chauvinism, according to which the moral agent does not automatically exalt its own virtues and discredit others, in both political and academic circles, has provided a working framework for the evolution of the "Green" ideas. However, while it allows and encourages discussion of environmental issues, it cannot permit its outcome, i.e. the implementation, maintenance, and justification of environmental policies, because of its insistence on the policy of neutrality and an aggregate of autonomous decisions of individuals in politics. While liberalism takes the wills of individuals as criteria for action, environmental issues call for a politics of the common and consequently for interventionism (de-Shalit 2001, 419).

2.4. SUSTAINABLE DEVELOPMENT

Hawken (2001) suggests that the contemporary commerce system has to undergo a fundamental change integrating economic, biological and human systems to create a sustainable and interdependent method. These changes would involve such objectives as the reduction in the consumption of energy and natural sources among developed nations by 80 percent within 40 to 60 years; the provision of secure, stable, and meaningful employment for people everywhere; honoring human nature and market principles; being perceived as more desirable than our present way of life; restoration of degraded habitats and ecosystems to their fullest capacity; relying on current solar income; and being fun and engaging, striving for aesthetic outcome (Hawken 2001, 394).

Sustainable development has arisen from a pioneering set of suggestions for the solution of the problem, i.e. the proposal of natural capitalism, which anticipates that the natural modification of the current system of production, distribution and consumption, i.e. capitalism, would be satisfactory in solving the problems of ecology.

Birkin (2001) questions the set of suggestions, such as application of environmental management systems, whole-system engineering, life cycle assessments, demand management, industrial ecology, recycling, waste and energy reduction programs to existing business framework. Birkin argues that these modifications are not satisfactory for the requirements of sustainable industrial activity, as they represent the environment in significantly negative ways such as additional costs, penalties, licenses, permits, and other obstacles against making profit. Some other steps should be taken to persuade the business circles about the benefits of such a change. These steps include new knowledge, which enlightens about social and natural realities; new values and meaning, which

consists of finding novel ways to solve the problems, implementing other core values besides the economic ones; new skills, developing systematic solutions to achieve the best result in the complex structure instead of changing few factors with the help of diplomatic and political skills besides technical ones; new metrics, changing the criteria of measuring costs, which now are based on free-market criteria, in market demand; new goals, apart from monetary wealth; and new management; which combines all these together.

Carvalho's concern (2001) is much more focused on the wider picture in which the above mentioned activities would take place. Giving reference to Ghabbour, Carvalho states that the sustainability project, unless performed globally in an equitable fashion, would be an economic burden for the majority of human race; and that there is sufficient evidence that it will not be done so; because the international actors would not be eager to increase their economic vulnerability in the name of sustainable development for the well-being of future generations. The sectors acquiring huge amounts of benefit from the current development model, namely national elite sectors, core economies and international capital are very comfortable with *status quo*, which could possibly be threatened by the change in the name of either social justice or ecological conservation unless it confirms the dominant interest. Carvalho also makes clear that the belief in sustainable development as it currently is and in its potentiality for feasibility would not work, as the small changes proposed would neither avert environmental catastrophe nor improve the lives of those living in underdeveloped areas. On the contrary, it would continue to mean exploitation and destruction of the world's resources, unless a paradigmatic shift is employed in the structure of international political economy towards an equitable and stable economic context. Hoping for this shift in the current conditions means being too optimistic according to Carvalho, given that he observes that although it has been over a decade since the first international reports on the redirections of priorities relating to development were published, attempts have failed to

recognize the necessity of this shift at both international and domestic levels (Carvalho 2001).

Technical decisions about choice of technology, energy use and forms of production are not the only requirements for sustainability. Besides these, restrictions on growth, resource extraction and pollution, and radical changes in social lifestyles and values (either voluntary or necessary) are also implied (Martell 1995, 47).

2.5. SUSTAINABILITY IN/BY DESIGN

It is widely accepted in academic circles, and sometimes even in business circles, that the environmental crisis is a predicament of inappropriate design, a result of the ways in which cities developed, industrialization carried out, and nature used (Shu-Yang *et al.* 2004, 98). Shu-Yang *et al.* suggest that the dominant system of industrial production and mass consumption in the "developed" world operates as if it is designed to achieve the destruction of its conditions of existence. Two General Motors executives, advocate the following idea:

> The traditional model of industrial activity – in which individual manufacturing processes take in raw materials and generate products to be sold plus waste to be disposed of – should be transformed into a more integrated model.
>
> […]
> In an industrial ecosystem, the consumption of energy and material is optimized, waste generation is minimized, and effluents of one process are used as resources in another process.
>
> (Frosh and Gallopoulos, as quoted in Shu-Yang *et. al.* 2004, 100)

Integration of the concepts of ecology and economics gave birth to the notion of full-cost accounting, which is a novel understanding of nature in that resource depletion and environmental damage be valuated as

costs (natural debts) and used in the calculation of profit; so that the damage to the environment could no longer be considered as a free external factor (Shu-Yang *et.al.* 2004, 101-103).

Thus, ecodesign, in its general meaning, is defined by the writers as below:

> Eco-design is an all-encompassing concept, as it deals with the sustainability of:
> - The enterprises of families, neighborhoods, and cities;
> - The construction of buildings in a manner that decreases resource use and environmental damage to the degree possible;
> - The manufacturing of certifiably green products;
> - The organic production of foods and other renewable resources;
> - The integration of these various activities within ecologically planned mutualisms, such as industrial and business parks, which are designed to maintain high production while reducing the use of resources and minimizing waste; and
> - The maintenance of indigenous biodiversity.
>
> (Shu-Yang et al 2004, 101-102)

However, maintaining the standards of quality of goods and services, and allowing people to have a comfortable and equitable lifestyle are still attempted to be kept in the brave new sustainable world, just as in the definition of sustainability.

2.6. HISTORY OF ECODESIGN

Fuad-Luke (2002), in the introduction to the book *Ecodesign:The Sourcebook*, states that designer's challenge of the 21st century is to avoid or minimize the adverse impacts of all products on the environment. He indicates the necessity of steering the debate on more sustainable patterns of production and consumption, rather than leaving it all to the political and commercial forces of the day (2002, 8). Fuad-Luke also gives a brief history of green design as follows.

As reviewed by Fuad-Luke, before the Industrial Revolution, green design was a norm for many cultures. However, innovation in farming machinery in Europe, particularly in Britain, destabilized the natural employment structure in rural areas in such a way that an important part of the rural population migrated to towns to work in the factories at the beginning of the 19th century. This pattern was multiplied in many regions of the world during the following century. British Arts and Crafts movement's examination of new methods of combining lower impact with increased production was partly due to their awareness of environmental degradation. Modernist movements and organizations in Europe such as Deutsche Werkbund, Bauhaus, De Stijl, etc. inherited the basic premises of shaping the objects according to their functions, producing high-quality and durable good, which went hand in hand with the idea of economy of material and energy use.

Shortage of materials and energy supplies was experienced in Europe from 1945 to 1950s. This lead to the legitimization of the rationality of design summarized by the motto "less is more". Afterwards, during 1960s, the hippie movement manifested its doubt on consumerism and being inspired by the dwellings and lifestyles of nomadic people, hailed 'back-to-nature' themes. This era produced alternative technologists who advocated the application of appropriate levels of technology for the basic needs, and designers experimenting with new forms by using recycled materials and examining alternative design, production and sales systems. The energy crises in 1971 and 1974 drove the producers to examine the life of a product in Lifecycle Analysis. In 1971, Viktor Papanek invited the design profession to face their social responsibilities instead of focusing on commercial interests. In 1980s, there was an improvement in environmental legislations, growing public awareness of environmental, and an increasing power of green consumerism on the market. These drove designers and producers to make environmental-friendly products. However, this would not last long as the move was

overcome by market-driven products from emerging capitalist-driven 'global economy'. The publication of Brutland Report, titled as *Our Common Future,* in 1987 gave a momentum to green design debate, resulting in the definition of 'sustainable development' and re-invitation of industrial designers and the corporate world to tackle the impacts of products on the environment. Since then, lifecycle assessment programs have been increasingly integrated in design processes in order to construct sustainable product design (Fuad-Luke 2002, 8-11).

Designers, states Fuad-Luke, can be considered to have more potential to slow environmental degradation than economists, politicians, businessmen, and even environmentalists, since they have a catalytic power both in the promotion of sales of so-called green products, making greater profit for business, and in the promotion of green lifestyle to a wide area, thus saving the earth (Fuad-Luke 2002, 15).

Fuad-Luke's manifesto for eco-pluralistic design includes the intention to satisfy real needs instead of transient, market-driven needs; reduction of resource use, especially that of non-renewable natural capital; encouragement of recycling and modularity through design; education of the clients and the users about the environmental issues; dematerialization of products into services wherever possible; challenge with the *status quo* surrounding existing modes of production, sales and consumption practices; and create a more sustainable future in general by design (Fuad-Luke 2002, 15).

2.7. CURRENT CONDITIONS IN GREEN DESIGN

Industrial design has a few important words to say, when sustainability is the concern. The proposals generally tend to focus on durability of products in their certain aspects such as material durability and

psychological durability, and the necessity of achieving both is strongly emphasized.

Van Nes and Cramer, in their article "Influencing Product Lifetime Through Product Design" (2005, 286-299), focus on the reasons of replacement purchases of durable products, whose high frequency is obviously in conflict with the striving for a sustainable society, and seek the ways to positively influence the amount of replacement through product design in order to reduce the environmental burden of product use. They focus on the ways to extend the product lifetime, as it is environmentally desirable. For some of the products, when the newly available ones are more energy efficient than the ones in possession, lifetime optimization is more appropriate. For lifetime extension, several design directions, whose effectiveness depends on the consumers' replacement behavior, are proposed. Van Nes and Cramer overview the literature on the studies, which examine a valid base for these proposals. The timing of the replacement purchases and economic, technological and psychological factors influencing the replacement behavior were explored. Van Nes and Cramer group these factors into following categories:

1. *Product characteristics*. The product characteristics refer to those aspects of the product that provide an added value of one product over another.

2. *Situational influences or external influences*. Factors extrinsic to the product, meaning working from outside and not a part of the essential nature of the thing.

3. *Consumer characteristics*. The consumer characteristics refer to those differences between people that explain why, in the same situation, different people make different choices.

(Van Nes and Cramer 2005, 290)

As the aim is to explore the arousal of the replacement decision, the writers support these categorizations with their own empirical study and find out four general motives for the replacement behavior, which are:

1. *Wear and tear*. The product is replaced because one or more function(s) of the product in possession are defective or the product does not function at all.

2. *Improved utility*. The product is replaced because of a combination of factors. One reason is that the product does not function properly. This is combined with the desire for an improvement with regard to the *safety* and/or the *economy of use* of the product.

3. *Improved expression*. The product is replaced because of a combination of factors. One reason is that the product does not function properly. This is combined with the desire for an improvement with regard to the *comfort of use* and/or the *quality* and/or the *design* of the product.

4. *New desires*. The product is replaced in order to meet new desires. The product in possession is not defective. The new desires could be of all kinds: comfort of use, design, quality, social value, safety etc.

(Van Nes and Cramer 2005: 293)

Based on these findings, Van Nes and Cramer deduce five design strategies to extend the lifetime of products and to save the environment: *design for reliability and robustness*, guaranteeing that the product will not be easily broken or damaged; *repairable design*, making it simple for the consumers to repair the products by themselves, by using modules in products; *upgradeable design*, enhancing modular parts to upgrade the product by the consumers themselves again; *design enhancing product attachment*, making product disposal harder with the help of emotional attachment; and design for variability, offering variation to the user without need for additional parts. They also underline the principles like *good accessibility, transparency, modularity* and *understandable design*. Also, designers are advised to anticipate upcoming possibilities and potential defects, and thinking about what will happen during the lifecycle of the product before designing in the development process (2005, 296-297).

Another approach of a similar kind is overviewed and criticized by Verbeek and Kockelkoren (1998). Eternally Yours!, a group of Dutch industrial designers, finds the most common approach to eco-design –Life Cycle Analysis- insufficient as it leaves a fundamental problem unaddressed: the short lifetime of the products. Producing less polluting products is good. However, when they are replaced at high speed, it adds up to the same results. Durability and longevity are as necessary as sustainability. Eternally Yours! offers answers to technical, economic and psychological lifespan of products. Accordingly, these are choice of materials which do not become unattractive while aging; proposal of services, thus, shifting the focus from production and sales to maintaining relationship with customers; and using the products' symbolic and iconological functions to make them fit to the customers' lifestyles. Verbeek and Kockelkoren argue that these ideas are weak, since they focus on the immaterial nature of objects, rather than material aspects of objects, and thus are not sufficient to increase the life span of products. The objects, according to the writers, should be rediscovered as engagement agents in such a way that novel perceptions of users would be constructed to be able to have an appropriate relationship with them. This project includes a novel design activity which results in transparency of objects in such a way that they allow us to reintegrate them into our action in cases of breaking down. This does not only enhance repairability, but also a certain kind of sustainability in the user's relationship with the object. As for the phase of functioning, the possible opportunities of engagement should be offered in such a way that the object does not leave the user aside and ask for only consumption. The writers state that our relationship with the world takes place through objects. Thus, these proposals about the relationship with objects can also be considered as a kind of living activity besides the commodified usages of the objects.

Still another proposal to increase the psychological lifespan of products comes from emotional design circles. The challenge is to create an

attachment of users to products. Cupchik (1999) states that the more an individual relates consciously or unconsciously to the sensory/aesthetic, cognitive/behavioral, and personal/symbolic qualities of an object, the more profound will be the attachment. As the object is essentially a tool, design process, first, aims at goal orientation. The object, thus, should be designed in such a way that it embodies, in its structure and function, an idealized conception of its design and purpose. This means that design of the object must be directed towards a successful use, and eliminate possible difficulties or failures in usage. A second part for a strong attachment involves the coherency of the image of the object in sensory, technical and personal meanings (Cupchik 1999, 79-80).

2.8. BUSINESS ACCOUNT ON GREEN DESIGN

While the designers seek for ways to design products according to ecological concerns, Berchicci and Bodewes (2005) discuss some of the difficulties they possibly would experience while proposing greener designs for the business enterprises. The writers argue that environmental new product development, a general term encompassing a range of issues, from redesigning of existing products to the creation of new products and services driven by environmental concerns, is still a debated term regarding what constitutes a green or environmentally friendly product. Besides, expectedly, companies are suspicious about the possibility of being “green and competitive” at the same time, since when the environmental targets are added to the fundamental product requirements, they are considered less important than cost-related or time-to-market criteria (Berchicci and Bodewes 2005, 273-275).

The success of the product, according to business principles, depends on the attributes it contains in a by definition balanced fashion. Environmental attributes, such as recyclability, recycled content, fuel efficiency, toxic content reduction, emission-related performance, efficient

packaging; though considered as distinct from the more traditional ones such as price, quality, safety and reliability; should not conflict with them since when they have an obvious effect on profitability, customer needs and market share, they may take precedence over environmental goals (Berchicci and Bodewes 2005, 279).

The power of market requirements drives designers into a dilemma, because the product could fail to address market demand possibly while it satisfies the social and environmental needs. Thus, greening includes an utmost challenging complexity and indeterminacy, whose integration into a product can be seen as a nuisance rather than an opportunity for market success (2005, 280-2).

The conditions in the business side concerning the possibility of greener design practice are pessimistic. Not surprisingly, the equations in the priority hierarchy consider the monetary aspect. Even when the difficult work of application of the above mentioned principles and implementation of the strict environmental necessities into product development and production are considered, there seems to lack the concerns on the other end of the bridge: the consumption.

Moreover, Dobers and Strannegard (2005) state that even if industrial production has become more efficient in economic terms, most products and services and the way they are consumed seem to slow down the pursuit of sustainability, since production and consumption are becoming more and more fashion-driven, depending on aesthetics and well designed products and services (2005, 324-5). Design is considered to be one of the most important agents of unsustainable situation of the current age, as the aesthetization of lifestyle as a whole turns out to be guilty of over-consumption. They state that the term “industrial designer” was first coined in USA in the 1920s, and it implied the making of products more attractive, demanded, status loaded and modern. The intention to awake consumer appeal was transformed and generalized

into ideas of “attitude”, “lifestyle”, “passion”; thus industrially designed products became the symbols of lifestyle in 1980s. The incorporation of the term “experience” in design and consumption made it reach the peak of merging of production and consumption. Thus, the self-expression of the consumer via consumption objects legitimately gained an authority in the daily lives of people.

Dobers and Strannegard state that since design could well be seen as a solution for a desired state of sustainability, it is inevitable that it would carry its own characteristics and historical structure into the problem solving process for sustainability. Thus, the pursuit of sustainability in design, according to them, has to begin by focusing critically on the aesthetization of consumption in design-driven lifestyles to reach at the core of the problem (2005, 326).

In commercial success, the implementation of artful creation of aesthetic offerings, of images and brands took over the effective manufacturing of goods (Dobers and Strannegard 2005, 327). The image became the key to understanding how we make sense of the world, and the stimulus driving cognition, interpretation and preference (Zaltman 2002, cited in Dobers and Strannegard 2005, 327). It serves as a function in legitimization and attraction. Design-work, being the agent which implements those, can well be considered as a fundamental issue both to understand and to change these conditions. Dobers and Strannegard claim that the studies on sustainable consumption focus on the consumer and on consumption as bracketed in time and space: on the ‘point of purchase’. However, an alternative way to comprehend consumption as a process embodying an identity project and an ongoing construction of lifestyles would do more good.

Dobers and Strannegard clarify that the consumer class are archetypal users of television, telecommunication and the internet, along with

contemporary media culture and commercial ideologies that these widely distributed products transmit (2005, 330).

However, it is widely accepted and documented since the early 1990s that societies organized around consumption have been suffering from an increasing frustration, embodied in existential ambiguity, social anxiety, increasing isolation and individualization. Interactions through and with products and services has increasingly been replacing interactions between people, results in an epidemic spread of loneliness, and social and cultural alienation.

The writers find the solutions proposed to those problems, such as national and international legislation, the development of advanced technologies reducing the use of material and nonrenewable energy, dematerialization, environmental management systems and natural capitalism, unsatisfactory, as these come short in understanding the underlying needs and ambitions of individuals and human interaction.

2.9. A CRITIQUE OF GREEN DESIGN

Whiteley (1993) asks whether the Green design critique is a significant one, or it is a mere tautology, as what can be named "sensible design has always used materials economically and safely, in accord with nature and natural principles" (1993, 47). So-called green principles should be standard in the regular design practice. The reason why the public interest in Green issues lessened in 1970s, according to the writer is that the issues were on a macro-environment level, whose seemingly abstract concerns were global and removed from most people's daily existence. While they could not understand the complexity of the ecological system as a whole then, now, people are engaged on an individual level through consuming. Thus, the consumers perform their ecological commitment

through buying products which are supposed to be planet-friendly (1993, 49-50).

However, there is a deeper problem in this:

> ...the majority of people do not connect the micro with the macro: do not believe (or want to believe) that it is the social, economic and political system of consumerism as a whole that might need to be radically reformed if ecological balance and sustainability are to be achieved.
> ...
> It is suggested that most mainstream consumers are unwilling to buy an ozone-friendly hairspray, for example, for ethical or public-spirited reasons. The research revealed that consumers expect either a financial incentive or a personal reward for their 'enlightened' choice.
>
> (Whiteley 1993, 52)

It turns out to be necessary to examine people's understanding of nature, their relationship with nature, and their choices in the market through a mediation of consumption.

2.10. UNSUSTAINABLE WAY OF LIFE

Hay, in his double articles (2005 a, b), attempts to explore the root causes of our unsustainable way of life and proposes solutions to achieve the opposite. He finds it unsatisfactory to leave the work to be done to legislative and financial agents, and suggests that everyone carrying on such a life has to go through a personal development. To achieve such a diffusion of manner to individual lives, he find it essential to question our premises about life, nature, technology, production and consumption, reshaped by modern thought. He states that technological approach in environmental management has proven ineffective to be implemented on a global scale, as it does not delve into the root causes of the environmental crisis, i.e. the values and ethics underlying the decisions

made. It also fails to engage the human spirit, as it is amoral. Hay charges the ideas on sustainability and sustainable development with being too homocentric-anthropocentric, and the ethics behind the structure of sustainability unquestioned. The typical way of dealing with these issues represent the characteristics of shallow ecology. According to Hay, technological fix is advocated for short term solutions, nature is considered as having only instrumental value, progress is the aim, and only minor reforms are deemed enough. However, without addressing the cultural causes of the crisis, and analyzing the values inherent in the dominant paradigm by which people comprehend the world, this crisis cannot be resolved, and sustainability project, thus, is destined to fail.

Hay states that for too many members of modern Western society, the problems do not seem to be too pressing, as they usually live in fairly comfortable settings where problems are only getting worse slightly each year, and thus they do not need to change their personal lives in radical ways. The threat is not so close to an average member of a Western society. Nevertheless, eco-psychologists interpret the psychological effects of contemporary society's disconnection with nature, separation from nature in daily life, unnatural way to domestication, and common feelings of insecurity and *angst* as an *original trauma*. As the real cures to these urgent problems are compensated with manipulative consuming practices, such as acquiring status, personal gain, possessing things, knowledge and even people for a feeling of control, the genuine healing comprising the action to regain the connection with nature is veiled behind the virtual economical actions.

Hay advocates the necessity to make the principles of *voluntary simplicity* and *enoughness* common for lifestyle, and to question the dominant conception of reality in an epistemological fashion. Perceptual and ethical paradigm shift is considered to be essential (Hay 2005a, 2005b).

2.11. CONCLUSION

Industrial design profession has developed above mentioned discourses and practices according to the ecological concerns. However, these solutions are dominantly shaped by a wider set of conditions determined not by industrial design itself, but by the surrounding determinants, most of which lean on the general premises aiming at the preservation of current economic, politic and social conditions in charge, i.e. *status quo*.

Some critiques explicitly remark that there is something more to do than simple in-system modifications, which are not satisfactory, in order to reconstruct a sustainable way of life. Even the sustainability itself has some immanent contradictions. It can be deduced that sustainability as such cannot be achieved without a social and epistemological shift especially focusing on the relationship currently exists between people and objects. The analysis of determinants of such an epistemology will be carried out in the next chapter.

CHAPTER III

EPISTEMOLOGY: CONSUMPTION

3.1. INTRODUCTION

> The life-process of society, which is based on the process of material production, does not strip off its mystical veil until it is treated as production by freely associated men, and is consciously regulated by them in accordance with a settled plan. This, however, demands for society a certain material ground-work or set of conditions of existence which in turn are the spontaneous product of a long and painful process of development.
>
> Karl Marx, *Capital* (1961 [1887])

The problems, whose reasons are discussed in the preceding sections, are due to the lifestyle. These include the modes of production and consumption, which form a corresponding culture with the ways of comprehension most of the members of the contemporary society have. Technical fix and choice of materials are proven insufficient in achieving the obligatory modifications to save the life on Earth in an equitable and enduring way. Thus, it is time to turn to social issues.

In this chapter, the main objectives are, first, to consult social ecology for a deeper understanding of the reasons why people behave the current way; second, to explore the phenomenon of consumption in detail; and third, to dig deep into the modern epistemological mode of the

relationship of human subject with the world, finding the determinants of this mode in earthly practices such as production, leisure, consumption etc., in order to construct a valid basis to deduce ethical principles for a novel design practice.

3.2. SOCIAL CONSTRUCTION OF NATURE

The current system of production and consumption has been active in the creation of the current culture, including the common understanding of subjects, objects, nature and society. A shift in the common reasoning is deemed necessary.

Eder (1996) poses his doubts on the presumption that ecological reason, whose influence has been counted on since the ecological crisis made it impossible to ignore the self-destructive relationship of advanced societies to nature, would solve the problems. This very reason entails two discourses, namely, the exploitation discourse of industrialism which has determined our relationship to nature until now, and the pollution discourse of environmentalism which judges nature according to what it can endure. This former discourse has the same perception of nature, i.e. as an object of human needs (Eder 1996, vii).

Adam (1998) agrees the idea that the intellectual history especially in Western industrial societies emphasizes the difference between human culture and nature, as well as the distance between human mental activity and physicality of being. He finds the roots of the development of environmental hazards in the very successes of this progressive dissociation. This dissociation finds its echo in the everyday conception of nature as green fields and pretty countryside, existing out there, for leisure, stress relief, aesthetic consumption and redemption (Adam 1998, 24-25). She also states that, although the level of concern with nature and the environment is in a direct relation with the degree of human

alienation and the extent to which nature as uncontaminated nature is rapidly disappearing, for the largest part of the public of industrial societies, the problem is still external, i.e. the hazards have not yet penetrated to bases of existence. Thus, the issue is still conceived in such a way that it is detached from the self and its causes are understood externally, in environmental, not natural terms (Adam 1998, 28).

Pred (1998), citing Buck-Morss, states that it is impossible to comprehend everyday life practices without referring to hypermodernity and to one of its major elements, i.e. hyper consumption. He also argues that tastes, preference and notions of distinction are not the products of autonomous mind, but always directly or indirectly constructed through participation in daily practices and corresponding power relations. It is because want, desire, awareness of need are not stimulated and tastes are not shaped primarily by the presence and features of a particular good, but mostly by social interaction in institutionally embedded activities, conversations during daily life, discourses and representations in public and private spaces, and the mass media (Pred 1998, 151-3).

In spite of this continuous contact with items, which are the various appropriation of transformation of material nature, Pred asks how material nature could have been divorced from culture and society in such a way that acts of consumption have become so denaturalized. His answer is that this is by virtue of the spread of industrial capitalism in which everyday practices (both leisure and labor) coincided with a corporeal removal from work processes directly involving the transformation of nature's raw materials. Industrial capitalism, with its immanent conditions, resulted in a reconstitution of the relationship between humans and the material world. Alienation of laborers from any direct contact with nature reflected its principles into the patterns of denaturalized consumption. Implication of rigid time discipline in work places, transference of this to leisure activities, monetarization of urban daily life not only made the two compartments similar in pattern, but also

masked the social relations of production and redefined the nature of things in such a way that the natural world, bodily labor, products of transformed nature became reduced to comparable values. In other words, they were commodified and thus got away from their natural material qualities, in favor of secondary, unnatural exchange qualities and values (Pred 1998, 153-6).

Lefebvre (1991) too observes that the development of individuality used to occur outside productive labor, in people who could remain outside the social division of labor and devote themselves to leisure alone, until the advent of bourgeois society. However, things changed afterwards, in modern times, when the individual had to divide his everyday life into work and leisure activities. This bipartition hides a unity resulting from the reflection of labor patterns in leisure activities. The advanced fragmentation of labor found an echo in the life of individual in which s/he had to involve in complex social relations, but became more and more isolated. Individual consciousness split into two, i.e. private and public consciousness (Lefebvre 1991, 29-31). A dialectical pattern is obvious between the fragmentation of labor and socialization in leisure.

Coincidence of labor and leisure parts, and corresponding discourses reveal themselves in the situated practices of daily life, encompassing private and public exchanges, and discourses of consumption entangled with those of progress, national identity, racial superiority, etc., masking social conflicts and discontents to facilitate social control. Thus, the exploitation of nature by industrial capitalism was shown totally apart from the exploitation of human labor by which it became possible (Pred 1998, 160-162).

It can be deduced that both the relations and modes of production, and, by virtue of an indispensable reflection of these patterns in practices and discourses of daily life, those of consumption, constitute the

comprehension of material nature in modern man in such a way that eco-blindness is inevitable on the basics.

3.3. SOCIAL ECOLOGY

An alternative perspective on these issues is constituted by social ecology. In social ecology, Merchant (1992) states, ecological Marxists emphasize not the control and domination of nature, but rather the ways in which ecological theories and green social movements can help to transform people's awareness and practices toward the non-human nature, and thus to turn away from anthropocentrism (1992, 135). Social ecologists envision a social change as such, which is based on a transformation of the global capitalist economy and its legitimating worldview into a sustainable economy and process-oriented ecologically-based science. This can be brought about by social movements, especially those concerned with environmental health and quality of life (Merchant 1992, 142).

Kothari (1990) agrees with Merchant in that transformation of the relations of production is deemed necessary as the basic causes of the contemporary problem are these relations themselves. However, the market economy is given an even more significant role in organizing nature and society. The writer states that the environmentalist label and the sustainability slogan have become deceptive jargons that are used as convenient covers for conducting business as usual. The great economic schism that is dividing the world into extremes of affluence and deprivation, with concentrations of poverty, scarcity, and unemployment in one vast section, and over-abundance, over-production, and over-consumption in another and much smaller section, makes the necessity to seek for the causes in the economic construction of the society obvious. The material progress and industrialization, the way modern humanity constructed its world, was supposed to end the condition of scarcity for

humankind as a whole, however, it has made it worse. The writer supposes that there is something wrong with the basic model of life humankind has created in the modern age. Besides moving beyond the political, socioeconomic and technological structures, curtailment of wants and quitting consumption as an end in itself is necessary (Kothari 1990, 27-35).

3.4. CONSUMPTION IN RELATION WITH CAPITALIST PRODUCTION

One of the normal and necessary features of capitalism, according to Smart (2003) is the continual pursuit of forms of social and technological innovation that promise to transform production and consumption, i.e. how things are produced and consumed, as well as what is produced and consumed. This double determinacy stems from the mechanism revealed by Marx. According to Marx, consumption is the complementary component of production, since product becomes a real product only by being consumed, and the need and/or motive for production is created by consumption. This means that there is no production without a need, but consumption reproduces the need. However, as production provides the object with specific features, it shapes the manner of consumption too (Smart 2003, 54-56).

As science has increasingly been deployed in the service of capitalist production, the quantity of labor lost its significance both in the production of wealth and in the lives of the laborers. Labor is no longer directly involved in the production process, and thus the worker becomes the watchman and regulator of it. The determining power of labor in workers' lives leaves its places to the activity of consuming. Through participation in consumer activity, identity and status is acquired and social integration achieved. This passage from producer to consumer society was made possible by the transformation of the world of work (Smart 2003, 57).

The work ethic once had made it possible to transform the pre-industrial workers, whose lives had been shaped by the rhythms and forces of nature, into the disciplined factory operatives of industrial capitalism, determined by the foreman, the clock and the machine. Now, Smart states, the determining power of work ethic has been transferred to the consumption of material goods, in such a way that today's capitalism dominates social and economic life through material goods and services. Consumer needs have to be continually conditioned in the way labor power is produced through a process of cultural conditioning. This is accommodated to the routine requirements of the modern industrial capitalist workplace through the work ethic and related disciplinary technologies that produce appropriate forms of human subjectivity (2003, 60-62). Decisions about the purchase of goods are strategically too important to be left to unconditioned customer choice. So, demand is managed through a network of communications, merchandising and selling organizations, advertising industry and other related services (Smart 2003, 63).

Jagger (2000) agrees with Smart on that the transformations such as the decline of the traditional worker together with growing salience of lifestyles based on leisure and consumption activities, the rise of the media and advertising, and the decline of heavy manufacturing industries and the growth in service sector industries have the major role in the establishment of consumer society. Conventional wisdom concerning the virtues of hard work has been overshadowed by an emphasis on consumption, hedonism and play (Jagger 2000, 45). Consumption is motivated by the ideology that pervades modern capitalism. This ideology prioritizes the production, sale and acquisition of consumer goods and services, i.e. consumerism; and the norms and values which give importance to cultural goods as commodities. It also mediates cultural activities through consumption that constitutes the consumer culture (2000, 46).

"Mass consumption was the necessary other of mass production" (Alt, as cited in Jagger 2000), and "[t]he consumer revolution was the necessary analogue to the industrial revolution, the necessary convulsion on the demand side of the equation to match the convulsion on the supply side" (McKendrick, as cited in Jagger 2000). This correspondence is not the only point of similarity between production and consumption. According to Gabriel and Lang (1995, 9-10), consumerism is a phenomenon which describes social reality as well as shaping the perceptions of it. A central feature of consumerism is the separation of the production of commodities from their glamorized circulation and sale. Yet the patterns of consumption are crucially linked with the developments in the nature of production.

3.5. CONSUMPTION AS SIGNIFICATION

Douglas and Isherwood (1999) claim that consumption is a ceremonial activity which is used to anchor cultural meanings in order to generate visible public definitions. Choices in consumption create systematic differentiations and hierarchies anchored in the social intentions of individuals (1999, 81-83). The writers further state that demand cannot be derived solely from the physical features of commodities. Commodities are used to communicate with others and to give a meaning to what is going on (1999, 108)

For Baudrillard, one of the immanent features of consumer culture is the dominance of the exchange-value of commodities (the price for which goods can be sold in marketplace), which has erased their original use-value (their purpose or utility) to such an extent that they are now free to take on any meaning depending on their position in a system of signifiers that is self-referential. In other words, signifiers, like television advertisements, 'float' freely with the loosest possible connection to actual

objects. With the advent of the commodity as sign, consumer goods became attractive for their symbolism – for the imagery surrounding them and what this might 'say' about the person who buys or uses them (Jagger 2000, 49).

This unusual invasion of signification is not limited to advertisements and messages, but extends to the complete realm of the social. It would be enlightening to quote Baudrillard's *The Consumer Society* in length:

> Today, we are everywhere surrounded by the remarkable conspicuousness of consumption and affluence, established by the multiplication of objects, services, and material goods. This now constitutes a fundamental mutation in the ecology of the human species. Strictly speaking, men of wealth are no longer surrounded by other human beings, as they have been in the past, but by *objects*. Their daily exchange is no longer with their fellows, but rather, statistically as a function of some ascending curve, with the acquisition and manipulation of goods and messages [...]
>
> (Baudrillard 2001, 32)

Moreover, these objects, according to Baudrillard, are not presented alone to the consumer, as referring to a specific utility, but as a collection, even as a system of objects in their total meaning. This collective and systematic presentation makes consumption grasp the whole of life.

> In the phenomenology of consumption, the general climatization of life, of goods, objects, services, behaviors, and social relations represents the perfected, "consummated", stage of evolution which, through articulated network of objects, ascends from pure and simple abundance to a complete conditioning of action and time, and finally to the systematic organization of ambiance [...]
>
> (Baudrillard 2001, 36)

According to Baudrillard, after the management of virtually unlimited productivity with the use of technostructure, the fundamental problem of

contemporary capitalism has become the need to dispose what is produced:

> It becomes vital for the system at this stage to control not only the mechanism of production, but also consumer demand; not only prices, but will be asked for the price. Either prior to production (polls, market studies) or subsequent to it (advertising, marketing, conditioning), the general idea "is to shift the locus of decision in the purchase of goods from the consumer where it is beyond control to the firm where it is subject to control."
>
> (Baudrillard 2001, 41)

He summarizes the genealogy of consumption in the history of industrial system. First, the order of production produces the productive machine/ force, a radically different technical system from traditional tools. Then comes the production of the rationalized productive capital/force as a radically different rational system of investment and circulation from the previous forms of wealth and exchange. The transformation of traditional workmanship into an abstract and systematized productive force, i.e. wage-labor force follows. And last, the order of production produces the system of needs, as a rationalized, controlled and integrated mode of productive demand/force (Baudrillard 2001, 46).

> As a system, needs are also radically different from pleasure and satisfaction. They are produced *as elements of a system* and not *as a relation between an individual and an object*. In the same sense that labor power is no longer connected to, and even denies, the relation of the worker to the product of his labor, so exchange value is no longer related to concrete and personal exchange, nor the commodity form to actual goods, etc.
>
> (Baudrillard 2001,46)

The factors determining consumption are not immanent to consumption itself, but are constituted by the necessities faced by the system of production. Consumption is constructed according to intentions of

production, and thus it becomes the cultural aspect of legitimization of the system in charge. The legitimization of consumption at individual level becomes possible by the common conceptualization of needs. Moreover, the system of constructed needs and corresponding consumption become the indispensable part of the culture, which is considered irreversible.

> [...] needs are nothing *but the most advanced form of the rational systematization of productive forces at the individual level*, one in which "consumption" takes up the *logical* and necessary relay from production.
>
> [...]
>
> Consumption is a collective and active behavior, a constraint, a morality, and an institution. It is a complete system of values, with all that the term implies concerning group integration and social control.
>
> Consumer society is also the society for the apprenticeship of consumption, for the social indoctrination of consumption. In other words, this is a new and specific mode of socialization related to the rise of new productive forces and the monopolistic restructuration of a high output economic system.
>
> (Baudrillard 2001, 46-52)

The logical process of production and consumption, according to Baudrillard, is one and the same: The *grand logical process in the expanded reproduction of the productive forces and of their control*. This imperative, which belongs to the system, enters in an inverted form into mentality, ethics, and everyday ideology, and that is its ultimate cunning: in the form of the liberation of needs, of individual fulfillment, of pleasure, and of affluence etc. (2001, 53)

Leisure and consumption, constructed by the same pattern with the labor and production is an immanent *leitmotiv* in Baudrillard's comprehension of conditions of modern living in many of his works. Baudrillard, in his book *The System of Objects* defines consumption as production, and

performs a strong analysis of the elements of modern living, considering the objects of consumption as similar to the units of a language system and tries to undermine the systematic action of capital on the culture.

After a brief introduction to Marxist alienation *The System of Objects* will be reviewed in dialogue with another work from Marxist circles, i.e. Wolfgang Haug's *Critique of Commodity Aesthetics*, in order to explore the mechanism behind the rise of consumption in relation with industrial design.

3.6. MARX'S ACCOUNT OF COMMODITY: EPISTEMOLOGICAL BASIS OF ALIENATION

Marxist alienation theory focuses on the division of labor, the production, distribution and economical exchange modes, which resulted in the isolation and fragmentation of comprehension of objects as commodities, on which the subject's knowledge became less and less. Marxism constructs the idea of false-consciousness on the atom of these material relations. Man's perception of objects is modified by those material-economic conditions of production. The ideological reflection of this can be found in the political alienation of working class as a false-consciousness about their position in economical-political sphere. Exploration of how this process goes can be found in Marx's *Capital*.

Referring to Marxist comprehension of objects as commodities is not familiar to design circles. Boradkar states that the debate of design history is not habituated to fundamental discussions of capitalism and political economy, but can gain from the inclusion of such material, as it will challenge existing definitions of objects, encouraging designers to engage in a broader dialogue. Thus the design discipline may become less instrumentally pragmatic and more informed by the social, political and economic concerns central to cultural studies (Boradkar 2002).

Marx begins his analysis of capitalist production with the analysis of commodity as the wealth of capitalist societies presents itself as "an immense accumulation of commodities". Marx's definition of commodity, in the very beginning of his *Capital*, as "an object outside us, a thing that by its properties satisfies human wants of some sort or another" gradually expands to an immense analysis of the components of such an entity and its relations in the social realm. The utility of a thing, which is limited by the physical properties of the commodity, has no existence apart from that commodity. This makes it a use-value and becomes a reality only by use or consumption. Use-values are the material depositories of exchange value. Exchange-value is only the mode of expression, the phenomenal form, of something contained in it, yet distinguishable from it (Marx 1961, 35-37). The exchange of commodities is characterized by a total abstraction from use-value. While in the form of use-value, commodities are of different qualities, as exchange values, they are of different quantities. The common substance that manifests itself in the exchange-value of commodities, whenever they are exchanged, is their value.

> The value of a commodity would therefore remain constant, if the labor-time required for its production also remained constant. But the latter changes with every variation in the productiveness of labor. This productiveness is determined by various circumstances, by average amount of skill of the workmen, the state of science, and the degree of its practical application, the social organization of production, the extent and capabilities of the means of production, and by physical conditions.
>
> […]
>
> To become a commodity a product must be transferred to another, whom it will serve as a use-value, by means of exchange. Lastly nothing can have value, without being an object of utility.
>
> (Marx 1961, 40-41)

According to Marx, use-value, i.e. materiality of the commodity is completely isolated from the exchange-value, so that "not an atom of

matter enters into its composition". The value of a commodity has a purely social reality which is manifested in the social relation of a commodity to another commodity.

So far the commodity is comprehended as a value in use, there seems to be nothing mysterious about it, whether it is considered as the product of human labor and with its properties satisfying human wants. It is clear that man, by his industry, changes the forms of the materials furnished by Nature, in such a way as to make them useful to him. However, when it is transformed into a commodity, it becomes transcendent. The mystical character of the commodity, thus, does not originate in their use-value, but from the commodity form itself, which is the manifestation of labor in a social relational form. Marx states that the value relation between the products of labor has no connection with their physical properties and with the material relations arising from there. The commodity fetishism, i.e. the special comprehension of products of labor as something more than that, results from the fact that commodities are products of the labor of private individuals or groups who carry on their work independently of each other (1961, 71-73). As the useful articles are produced for the purpose of being exchanged, their character as values is taken into account before the exchange, during production. The labor of the individual itself appears to the individual under those forms, which are impressed upon that labor in everyday practice by the exchange of products. Marx further states that the characters that stamp products as commodities and whose establishment is a necessary preliminary to the circulation of commodities, have already acquired the stability of natural, self-understood forms of social life (1961, 75).

This means that the production of commodities, being a historically determined mode of production, i.e. of bourgeois economy, also generates the forms of thought expressing the social validity of these conditions. However, naturalization of these specific forms of conditions of production, and the specific comprehension of the object in the mode of

commodity is misleading, since in different forms of production this ceases to exist (Marx 1961, 76).

This specific mode of production, i.e. production of objects for exchange, makes the objects solely exchange-values, and thus, the comprehension of objects is shaped accordingly. For the producer, as s/he produces it for exchange, the commodity possesses no use-value except being the depository of exchange-value. The use-value is only for the one who will purchase the commodity. During exchange, the buying-selling reciprocity necessitates the parties to realize the commodities as values expressed in exchange value. So the commodities must be realized as exchange-values before they are realized as use-values (Marx 1961, 85). In monetary economies, as the exchange is mediated by a third commodity, i.e. money, commodities express their value in this form and the intermediary processes vanish leaving no trace behind.

Bocock (1997) states that as the objects and experiences of consumption are created, organized, packaged and coded to generate a certain response from the consumer, a certain kind of alienation emerges. Consumption becomes a mental experience, i.e. a symbolic process of signification, rather than being a process of satisfying the needs of the body. Neither autonomy nor creativity works during the process of consumption (Bocock 1997, 58).

This process can be interpreted as a loss of knowledge, gradually in every step of the exchange, in such a way that generates an epistemological gap between the object produced, the producer themselves, and the buyer of the commodity. This epistemological gap between the subject and the object through such complex process, results in the liberation of determinacy in the evaluation of objects, which is mostly fulfilled by the social construct. This social construct is the work of the current system.

3.7. DESIRE IN CONSUMPTION

Belk et. al. (2002), claims that studies on consumer motivation have been challenged by pleas to consider pleasure seeking and experiential consumption, where desire plays an important role. It becomes necessary to consider the descriptors used to characterize states of desire in order to envision an alternative to the needs paradigm. (Belk et.al. 2002, 99) However, while needs offer a rational explanation of behavior, desires do not. No object is inherently desirable, in contrast, desire is very much a social and personal construct, which in turn, construct the subject reciprocally (2002, 100). Coupled with the insight that desire keeps on producing itself, it keeps on attempting to produce the subject, and in order to do this there must be new things to desire, the consumer self that is produced is constantly changing as well as constantly escaping itself (2002, 104-105).

The subject, in Marxist terms, is assumed to be produced by society, while at the same time it changes and determines the society. This formulation is similar to the relation of text and context in linguistics. The solution achieved for the dilemma includes the assertion of reciprocal determination. The subject in the society is an actor in social and economic relations, but it is also exposed to them. Marxist theory asserts that the process of giving meaning and expressing the self is determined by modes of production as they are the sole determinants of conditions of material existence of both relations of production and the agents within them (Coward and Ellis 1985, 115-6). Ideology is a practice of representation. It produces meanings and requires subjects upon whom they will be constructed (Coward and Ellis 1985, 122). The *problematique* in Marxist theory of subjectivity, considering subjects as determined by forces which they cannot direct or control, finds a solution in theory of psychoanalytic theory, which gives a more satisfactory answer to the construction of revolutionist subjects during the meaning process, emphasizing on the importance of language (Coward and Ellis 1985, 115).

Lacan's emphasis on the determining influence of signifier (language) on the construction of the subject, ties his theory to ideology and the comprehension of the material subject in social processes (Coward and Ellis 1985, 165-6). The unconscious is a complex, discontinuous and chaotic structure, which prevents the subject from being an adequately coherent and complete one (such as the one that Cartesian modern man represents). This leaves a room for determinacy of ideological discourse, which itself is determined by sexual and family life. This point was recognized, however, ignored (or repressed) in Marxist thought (Coward and Ellis 1985, 166-7).

Analysis of dreams, differentiating dream thoughts from dream contents, by Freud, had given the clue about the importance of language and symbolic system in understanding the unconscious and thus the meaning processes in the mind. Lacan's interpretation of Freud, formulating the slide of the signified according to the signifier constitutes the passage between psychoanalysis and ideology theories. The construction of mind, hence, is tied to collective symbolic realm, in such a way that it can be analyzed in terms of semiotics (Coward and Ellis 1985, 171-175). The only possibility to give a signifier a meaning is to refer to an 'other' signifier, and this is mostly an ideological meaning which was already given to objects beforehand. The position of material objects as symbolic and ever-unsatisfactory compensation of discourse of desire is deduced from this.

Unconscious is defined not as storage of unsatisfied emotions, but as repressed representations excluded from the collective realm. The expression of desire in dreams and neuroses, the castration of infant with the Law of the name of the father in Oedipal term, the processes of fantasy and love all occur in the realm of the symbolic, i.e. in language. Thus, it is not possible to assert that these are private, subjective experiences, but are structured in accordance with a social logic. This logic changes over time by virtue of some economic or other determinant.

The logic of capitalism while creating needs through desire can be analyzed in a similar way.

Lacan explicitly assumes that the causes of present disorders in human psychology are related to the intrinsic need of capitalism to multiply false demand for more products to satisfy 'false-needs' (Evans 1998, 20).

> The human individual sets out with a particular organism, with certain biological needs, which are satisfied by certain objects. What effect does the acquisition of language have on these needs? All speech is demand; it presupposes the Other to whom it is addressed, whose very signifiers it takes over in its formulation. By the same token, that which comes from the Other is treated not so much as a particular satisfaction of a need, but rather as a response to an appeal, a gift, a token of love. There is no adequation between the need and the demand that conveys it; indeed, it is the gap between them that constitutes desire, at once particular like the first and absolute like the second. Desire (fundamentally in the singular) is a perpetual effect of symbolic articulation.
>
> (Lacan, as quoted in Quigley 1998)

Replacement of needs with desires as a valid reason for purchase is legitimized in the consumer culture. Needs are anticipated, controlled, denied, postponed, planned for, addressed, satisfied, fulfilled, and gratified through logical instrumental processes, whereas desires dominate thoughts, feelings and actions in such a way that is impossible to satisfy.

Thus, the rhetorical power in charge in the design and promotion of products becomes obvious. Promotion of desire in the current state of determining power in consumption and social relations is the work of the current capitalist system. In Haug's work, cultural changes and their after-effects in capitalist society are considered through a Marxist perspective, in which the accumulation and valorization of capitalist mode of production, distribution and consumption is the sole determinant of the transformation of superstructure.

Wolfgang Haug (1986) begins his critique with the analysis of the 'exchange' phenomenon as he finds the origin of commodity aesthetics in the contradiction created by the process. When money comes into the process of exchange as the third commodity, the abstraction and expression of value, the exchange is divided into two, buying and selling. The approaches of the two sides, the seller and the buyer, towards one and the same object of exchange differ there. The exchange-value completely frees itself from its relationship with the use-value, and the interests of the corresponding agents shape their understanding of the object. For the seller, use-value is a temporary mode which has to turn into money as soon as possible. The aim of commodity production is not producing use-value, but to sell the commodity. Hence, there are two realities produced in commodity production: use-value and the appearance of use value. The appearance of use-value aims at shortening the time between commodity's production and its sale. Commodity aesthetics comes into stage in this gap and uses it in various ways (Haug 1986, 13-18).

Haug goes on to summarize the change in trade tradition by the activities carried out by merchants who performed trans-regional foreign trade and presented military supplies, textile and luxury goods. In trade of luxury goods, the aesthetics, sensuality and attraction begin. The discourse on luxury goods used these and the bourgeoisie gained money and power over aristocracy through the ever-growing trade activity (Haug 1986, 18-21).

The age of mass-production did not change much in this sense. While the labor-time per piece and the expense on raw material were reduced, the appearance of the commodity changed in such a fake way that hid the process of production, and fasten the process of selling with the appearance of use-value exaggerated. While the use-value was totally erased in the evaluation of quality, the appearance, with the competition

among brand-names, became the only criteria. Thus it was completely isolated from real needs and usage, and became a psychological entity summarized in these concepts: reputation, prejudice, stereotype, representation of the public, imagery, dominant image. None of these are about the object itself. The relationship between the reality of the commodity and its image began to cease, so that when an object of need is bought by the direction given by its image, a void is reached (Haug 1986, 22-39).

Production and selling is not enough for the capital. The cycle should go on and widen. The quality of use-value has to be reduced to sell more. This reduction is compensated by ornamentation and aesthetic innovation. Fashion and style find their origin in the very need of capital to valorize itself endlessly. Sexuality is the most important tool to create the powerful motivation for people to buy. Repression of instincts and the virtual satisfactions created by the above mentioned application of aesthetics in the modern world sexualize the sensuality of the brain. Commodity compensates the lack of satisfaction by erasing the feelings of guilt and anxiety in the process. Hence, commodity tends to appear like a sexual object. However, illusory satisfaction does not feed; on the contrary it causes hunger (Haug 1986, 40-56).

The effects of this mode of commodity presentation can be seen in sales-talk in which the real activity of selling is tried to be hidden. In order to increase the sales, the image and activity of sales-people are reshaped in such a way that not only the sales-people are made into natural sellers by some psychological motivation programs, but also their appearance become more important. Haug argues that the rise in the importance of the image begins in this maneuver of recreating the sales-people and spreads into the general public (Haug 1986, 57-64).

Commodity begins to be displayed in different ways from the traditional categorical method, but in settings which create total life styles and

consumption of group of commodities. The consumer herself is transformed into a kind of commodity to be displayed, purchased and consumed (sexually). The definition of the target-population is remade by these activities and unsatisfied longings, fears and anxieties of people are used in the process (Haug 1986, 69-77).

Smart claims that the trick of producers, retailers and advertisers is to keep alive and strong the belief that consumption is the way to achieve fantasy fulfillment. Production of new, improved, better designed, more contemporary and fashionable goods is necessary to make consumption a cultural imperative. The goods of the day will surely be displaced another day. This acceleration in exchange and consumption strongly contributes to the alienation process in consumption (Smart 2003, 158).

The very same process is argued to be present in alienating production. According to Lefebvre, labor not only produces commodities, but also produces itself and the workers as a commodity and it does so in the same proportion in which it produces commodities in general (Lefebvre 1991, 59). However this is hidden by the analytic separation of the economic and the social. The determining power of market economy in social values occurs both in the form of glorification of consumption and that of making the production processes and labor invisible (Smart 2003, 173-174).

Haug states that, all of the above mentioned effects are created in the realm of sensuality, so that they appear as natural processes of competition. Commodification of life-style and the living-being itself, according to Haug is the only thing that can be expected from a late-capitalist society, which leads to further corruption of mankind (Haug 1986, 87-93).

Although this pessimistic (even catastrophic and infernal) prophecy can be charged with being subjective, it can easily be supported by some

studies in cognitive psychology. Surely, the presumption that capitalism will result in the corruption of mankind is an ethical criticism of market economy. Several analyses on the marketing methods and advertising (both graphical, verbal and cinematographically) clearly explored and expressed their unforgivable vices and crimes against humanity and human consciousness. Two of these studies can be read as succeeding one another: *The Hidden Persuaders* by Vance Packard (1968) and *Subliminal Seduction* by Wilson Bryan Key (1974).

The Hidden Persuaders is a study on 'motivational research', the name given to then newest aspect of modern life: Persuasion of mass by methods of all means of communication with the help of outputs from psychoanalytical and cognitive studies. The use of advertisements and product-presentations is planned in a strictly controlled complex fashion in which the modern man is turned into an absolute consumer, not only of the products, but also the political discourses. Basic instinctual tensions of human-kind are abused from the age of childhood to death. It is not surprising to hear Packard telling that the center of motivational research is America. It is well known that American psychology tradition has long ago separated itself from European *ecolé* in its tendency to 'industrial psychology'. By the help of outputs from analyses of working conditions in the capitalist society, it is 'scientifically' modified in such a way that labor power of workers (of all kind) could be exploited at maximum rate. The new attempt is to spread the same activity to the realm of consumption from production. This involves modification of men as customers.

Subliminal Seduction carries the analysis further while studying the new technologies of mass communication. Key, explores the details of subliminal persuasion methods of new media techniques which exploit the basic tendencies and characteristics of human consciousness (and subconscious), i.e. its 'weakness' about sexuality, the features of subliminal perceptual mechanisms, the persuasive (even imperative)

perception of hidden verbal and metaphoric expressions in advertisements. The effects of this kind of perceptions on human psychology were reported to be such that they support Haug's pessimistic prophecy: The ones who were exposed to the subliminally seductive material were reported to experience nightmares, depression and express neurotic symptoms (Key 1974).

Baudrillard's work, *The System of Objects*, reflects a more sophisticated Marxist approach which is enriched with the touch of semiology and psychoanalysis. According to Baudrillard, consumption is not a passive process of absorption and appropriation, as the opposite of production, but an active systematic movement of relationship upon which the whole cultural system is based.

However, it is important to note that, in a different and more articulated way, Baudrillard too states that consumption has nothing to do with the reality of objects, needs and functions. He argues that consumption is the term to describe only our present society, having the meaning of virtual totality of all objects and messages created as a coherent discourse. It is systematic manipulation of signs. Thus, he carries the argument to a discursive realm. The thing to be consumed is the idea of a virtual relationship in a ready-made system of signs. In order to make something consumable, it should first be transformed into a sign among system of other signs. Similar to Haug's opinion that objects of consumption compensate unsatisfied desires, fears, anxieties in an illusory way, in Baudrillard's view the virtual relationship that is consumed compensates the vanished relationship between people, and the one between subject and the object. Since the necessity of the correspondence to reality is also abolished, consumption has no limits (Baudrillard 1996, 199-205).

Baudrillard begins his study by the assertion that he will explore a spoken system of objects where the question is how people relate to objects and how their behaviors change. The technological changes to the

object are considered as essential; however, as we are not aware of them, technology is at the same time an abstraction. Everyday object hides its technological substructure, and brings to fore something else. An adequate analysis of the everyday object cannot be reached only by the analysis of technology, as it always contains something more (Baudrillard 1996, 3-11).

First, Baudrillard analyzes interior designs, whose elements in traditional modes used to have an ability to connote to a family structure which contained real relationship and set of meanings. However, by the shift from traditional to modern, the emphasis on the function liberated objects from their contextual meanings. Just as the man in the bourgeois society is liberated only as a consumer and user, the object is liberated only in its function. The relationship between objects that traditionally existed, ceases away in the modern and leaves the object with lack of meaning and syntax. In modern interiors, symbolic values and use values of the objects are gone, and organizational values of them are underlined. Use of lights, walls and windows, lack of mirrors, portraits and clocks all sum up to the ceasing inwardness and closure of people and families and reflect the openness, free relations, communications and the organizational skills of the modern man. The functional elements of interiors posit the owner of that interior as functional too. Although these new interiors are serially produced, the discourse of presentation contradicts this fact with the assumption of personalization (Baudrillard 1996, 15-29).

All the elements of interior design which once had corresponding social meanings traditionally, become the elements of atmosphere. The colors and materials used are abstracted from their meaning and naturalness, as the abstraction gives the opportunity to manipulate the new endless combinations. The naturalness only rests as an abstraction of holiday, and meaning as an arbitrary systematic of elements to produce an atmosphere. The functions of the interior elements are all reduced to their

partition in a fictive whole. There is a systematic cultural connotation in interior design and it clearly indicates and symbolizes a life without working, but leaving a leisure time for sexuality, entertainment, etc. While old furnishing displayed material difficulties in life, new furnishing proposes the possibility to live without working. The same thing happens in the use of objects. All the traces of effort and discontinuity are erased, and an image of control is placed instead. Nature enters into the discourse as an abstraction again in the forms of objects. Imitation of nature is employed just in order to signify the idea of function. Thus the experience of man with the object lacks any correspondence with reality (Baudrillard 1996, 30-60). Baudrillard's argument is parallel with Lefebvre's theoretization of leisure: He states that there is an increasing emphasis on leisure characterized as distraction. Rather than bringing any new worries, obligations, or necessities, leisure should offer liberation from worry and necessity. Liberation and pleasure are the essential characteristics of leisure (Lefebvre 1991, 33).

Because of the liberating character of leisure, Lefebvre states that it differentiates itself not only from work, but also from family-life. The difference between peasant life and life of industrial worker is the inherence of the labor activity of the former in their entire life. Their work place was all around the house and work was not separate from the everyday life of the family, neither was their so-called leisure, i.e. festivals, etc. (Lefebvre 1991, 30). The loss of contextual traditional meanings of objects and interiors is coherent with the isolation of individual leisure.

Capitalist mode plays with time and transforms human perceptual approach through objects, on time, labor and consumption. This can be seen in the analysis of the system of production and presentation of objects in never-ending models and corresponding series among which all the consumers seem to be able to choose. Also, conditions in purchasing methods such as buying by credits, and ones in advertising methods support this idea. All consumers are late to their objects of consumption

in all of the activities above. In addition, they all help to place personal desires and drives into a collective structure, where they can only exist (Baudrillard 1996, 137-196).

In the books mentioned above, mostly a discursive analysis is carried out taking many examples of presentations of consumer goods (i.e. works of advertisement industry which reconstructs the culture to valorize the capital). Deciphering the mainstream discourse of consumption which implicitly or obviously employs sexuality, they try to reveal the relationships between capital and culture, and remark the important (and mostly irreversible) impacts of this discourse on the cognitive processes of human consciousness.

3.8. DESIGN IN HUMANIZING TECHNOLOGY

Industrial design practice creates a real (material) or virtual interface between the object and the user. Advanced technology feeds the process in a two-fold mechanism: i. the objects become detached with their functional definitions as the functional parts do not have to extend in a pre-determined spatial size, and, ii. the production and design techniques become more and more virtual that the possibility of witnessing the production process ceases away in an irreversible fashion. So the producer and the designer become more and more detached from the object s/he produces/creates by the very process of immaterialization.

The cognitive processes of billions of people are strongly determined by their perceptual experiences with objects and with their real or virtual interfaces. As discussed above, one of the most important arguments about design is the problem of alienation. This is created by the creation of interfaces. Real (material) or virtual interface is considered to be the medium between a functional unity and the consciousness which is to implement it, doing the necessary translations from the language of the former to the language of the latter. Industrial designer decides on the

form of an object, which has to communicate with the user by this or that way. Any button for a function is an element in material interface, while any digital sign is an element in virtual one.
While performing this duty to bring the user in to dialogue with the object and its function through the translation of their visual and spatial languages, designer makes the usage of the object possible, which, otherwise, without this translation, would be impossible. The functioning mechanisms and circuits of current objects containing a complex structure of technological parts, which are not achievable by regular man, are brought closer to their comprehension and made easier to use. This can be considered as humanizing the otherwise inhuman structure, i.e. technology.

Marxist account on industrial design, which is discussed above, while focuses on the practice of industrial design solely as the creation of commodity aesthetics, comes short in taking into account the beneficial act of it in translating the technical language into a humanized one. A certain degree of truism can be attributed to the view that, under the rule of capitalism, industrial design mostly acts in a destructive way in the above discussed concerns, the very contribution of design into the life by such functional interventions cannot be turned a blind eye.

3.9. MASS CONSUMPTION AS RECONTEXTUALIZATION OF CULTURE

Another objection to the Marxist account comes from Miller (1995). In contrast with the above mentioned group of studies, there are some alternative (more positive) accounts on consumption, one of which is discussed below, focusing on the role of consumption in the creation of culture. A counter fashion of modification of culture is deemed possible, even indispensable in Miller's work, *Material Culture and Mass Consumption*.

Miller thinks that the quantitative rise in the production and mass distribution of material goods is simultaneous with a lack of concern with the nature of the artifact, and that the immediate and sensual physicality of the object belies its actual nature (Miller 1995, 3). He claims that a further understanding of the place of goods in society requires a general perspective on the relationship between people and things. He is rather optimistic about the current way of this relationship in industrial societies, and that it, with the consumption activities of mass populations, has the potential to offer a model for feasible social change (1995, 6). Miller rejects the Marxist analysis that emphasizes the rupture in social relations through which people are effectively reduced to objects, and objects in turn interpose themselves in relationships between people. He posits the process of objectification as a positive model of the subject's potential development, rather than as a negative critique of a rupture in any such development (1995, 13). Objectification has been defined as "the relationship between on the one hand a subject which is human (and usually collective), and on the other, first, culture as all external form, and latter, the artifact as the humanly produced material object". Objectification, according to Miller can be considered as a way of the resolution of subject-object dichotomy, and can be transformed in such a way that it would lead to progress from the period of contemporary unhappy consciousness, and regain the possibilities immanent in the development of the subject, and the society. This optimism results from the assumption that the tendency is always towards some form of reappropriation through which the external can be sublated and therefore become part of progressive development of the subject. The subject may at certain periods appear lost in the sheer scale of its own products, or be subject to the cultural mediation of a dominant group, and thus fail to perceive these cultural forms as its own creations, however this state is necessary for the next step above (1995, 178-180).

It is true, according to Miller that people live in a state of unhappy consciousness, which is called alienation by Marxist perspective. It is also

true that the causes of this state lie in the nature of industry which is run on the logic of profitability, whose criteria of success is the expansion of the capital rather than the impacts of its products (1995, 185). He also agrees that objective culture has become unimaginably vast, producing goods as symbols of wealth, fashion and modes of social oppression, which are pure commodities in that the money spent on them, could equally well be spent on some other item. This complete interchangeability of things also implies a reduction of human relations to this exchange of style (1995, 189). However, according to Miller, neither could consumption be considered solely as reduced to the nature of commodity, nor the consumer to an agent at the process of purchasing. This is because, while the subject has to immerse herself in the vast alienated world of products completely distanced from the world of production at the moment of purchase where the object is merely the property of capital, consumption of a good includes much more than this. Consumption, according to the writer, should be considered as a work which translates the object from an alienable to an inalienable condition, that is, from being a symbol of estrangement and price value to being an artifact invested with particular inseparable connotations especially as a social experience of an individual. This ability to recontextualize goods relates to broader conditions which provide access to the resources and degree of control over the cultural environment (Miller 1995, 189-191). Miller argues that the process of altering the social nature of the object is immanent to consumption. Once goods are not perceived as mere commodities, but are understood as a major constituent of modern culture, such a positive consumption would emerge.

To sum up, Miller considers the contemporary state of common alienation in production and consumption an immanent and necessary phase in the dialectic of progress, which will inevitably lead to an inalienable experience in the end.

3.10. CONCLUSION

As the discussion above attempts to reveal, there are deeper social, psychological and philosophical impacts of the current system of relations between people and objects. The challenge to modify these relations bending towards an ecologically sound, sustainable way of production and consumption necessitate more than the practical solutions such as the ones performed in current streams of sustainability. Thus the principles for novel ethical design have something to derive from these discussions.

CHAPTER IV

CONCLUSION

Thus far, the conditions in which the world is, contemplations and reactions on the basic reasons and possible results of the present modes of actions, and proposals from various interconnected circles for a better future, have been discussed. The role and the potential of industrial design have been made obvious, and a basis for developing an ethics for designers has been constructed.

A summary of the above mentioned conditions surrounding design practice is given by Findeli (2001). He remarks that design has strongly been bounded to "the determinism of instrumental reason, and central role of the economic factor as the almost exclusive evaluation criterion; an extremely narrow philosophical anthropology which leads one to consider the user as a mere customer or, at best, as a human being framed by ergonomics and cognitive psychology; an outdated implicit epistemology of design practice and intelligence, inherited from the nineteenth century; an overemphasis upon the material product; an aesthetics based almost exclusively on material shapes and qualities; a code of ethics originating in a culture of business contracts and agreements; a cosmology restricted to the marketplace; a sense of history conditioned by the concept of material progress; and a sense of time limited to the cycles of fashion and technological innovations or obsolescence" (Findeli 2001, 6). The writer defines the responsibility of design as not only contribution to a sustainable natural world, but also the purpose in something such as "a balanced humankind in a balanced world". Thus the ethical evaluation of

design process would be performed not according to making of the artifact, but according to acting in complex systems:

> In philosophical terms, one would say that design pertains to practical, not to instrumental, reason; or else that the frame of the design project is ethics, not technology.
>
> (Findeli 2001, 14)

It is clear that, besides academic, political, business and cultural circles, industrial design community should determine a valid set of principles in order to implement the activity in the world legitimately, in accordance with the basic necessities of survival in general. The principles can be categorized corresponding to the realms of necessities.

Whatever the discussions are, it seems to be necessary to examine design in its material conditions as these determine the relationship between designer, producer, user, object and the market. Teymur (1996) argues that the materiality of design can be considered in a multiplicity. Design, as it is the activity to mass-produce products to be distributed, has a materiality in political-economical sense. Technical and institutional materiality of design includes the forms of production, its technical education and the relation with the structures necessary to fulfill these necessities. The epistemological materiality of design means that design is a discipline which has to be academically constructed in relation with cultural aspects (humanities, sociology, psychology, history), scientific ones (ecology, anthropometry, ergonomics, economics, statistics etc.) and professional aspects and the market (Teymur 1996, 148-166).

In order to understand rhetorical, ethical and cultural responsibilities and to construct the activity appropriately on these, it is necessary to carry out a severe analysis of the above mentioned aspects. The creation of the artificial, along with the endless freedom of diversity, brings the basic questions on the very essence of design and technology and reveals

the lacking spiritual touch of being human. To come over this, it is necessary to derive the spirituality and ethicality from the very material conditions of the activity itself.

Requirements of ecological concerns, most of which are already being performed, can be embodied in the principles frugality and ecoliteracy. Industrial design profession, as discussed in the first chapter has to achieve an utmost awareness about the impacts of materials which should potentially be used in products. Use of materials extracted from non-renewable resources should be minimized, if not completely quitted. The materials which can be recycled should be preferred; and the design of the product should incline the product (and the user) to recycle and reuse.

Another aspect that should be noted is the political one. Every practice, especially ones such as industrial design should be performed with a certain political concern. The contradictory conditions concerning social and economic inequality, poverty and real needs on one side, along with affluence and conspicuous hyper consumption on the other, should be referred in design decisions, from the intentions to the end product. Here, frugality and reference to reality again joins the formula. Empathy seems to be necessary to be performed during the design process, however, not only as playing the role of a shallowly defined user which belongs to upper or middle class, but with a political consciousness which gives a clue about the other sections of life on earth. While Papanek remarked the necessity that design should become a "cross-disciplinary tool responsive to the true needs of men", and proposed the idea of design for the Third World from the materiality of design, and Bonsiepe transformed this idea into broader issues such as the "promotion of self-centered or autonomous economy as against an outer-directed, dependent economy", and the "contribut[ion] to the satisfaction of local needs", they both pointed out the political-economic side of design practice (Amir 2004, 68-69)

As for the epistemological problem of alienation, designers are supposed to have necessary tools to reduce the alienating affects from the product. Postmodern market has objects designed, redesigned and innovated in such a way that neither worker nor consumer has any access to get information on production and evaluation. Ambiguity, styling, ornamentation, individuality, complexity are the designerly ways to contribute to the opacity of the process. Minimalism, honesty to the material, functionalism, simplicity, economy of signs and standardization are but a few examples of these de-alienating tools. These presume a minimum common in signs; eliminate the luxury of signs and that of material, and in a way oppose unnecessary multiplicity of so called choice. When the world in its recent conditions is considered (cultural degeneration resulted from cultural imperialism, ecological danger, mass of people in need of objects of use) these principles seem to fit with the needs of contemporary world.

Arriving back to the presumption from which the basic idea of this thesis has arisen and been nourished, it is not irrelevant to remind Buchanan's words: Design is the study of how products come to be as vehicles of argument and persuasion about the desirable qualities of private and public life as there are endless numbers of alternatives among which some of them would be chosen. This proves design to be rhetorical i.e. designers, owing to their ability extend their rhetorical powers of persuasion about choices on living, have the opportunity to create alternative visions, implement them to their realm of responsibility in various fashions, and also have the power and the responsibility to publicize those to reach commonly shared values and inevitable practical principles in daily actions in such a way that paves the way to a betterment in the conditions of the world.

It can obviously be seen that industrial design is not a realm of freedom in making these kinds of decisions, considering the historical facts and the analysis of today's conditions in the interconnectedness of various

spheres by which design activity is bounded. Although the present writer is not so optimistic to attribute an independent revolutionary power to design, with which it can change the world; it seems obvious that it has an important role in what has happened up to now, and with the consistent division of labor in the activities headed to the betterment of social and environmental conditions applied by various agents constituting the general administration of global life, it can be considered as one of the main agents which has a promising power to widen the above mentioned principles.

It is necessary to note that the above mentioned conscience and consciousness should be discussed and implemented from the beginning of design education, if not from the beginning of social interaction after birth, with all their aspects, from the usage of objects to the comprehension of nature in general. Thus, as Findeli remarks, "there can be no responsible design without a responsible designer, i.e. education should be directed to the development of an individualistic ethics" (2001, 13).

This project, on which this thesis gives theoretical background knowledge, despite its high probability in being so utopian, is as much necessary and important. Design practice has the potentiality to find or invent ways to transform such a kind of utopian approach into something contagious, which is shared and experienced by many, as Dunne states:

> We are surrounded by products that give us an illusion of choice and encourage passivity, yet we could have so much more. … Industrial design's position at the heart of consumer culture, (after all, it is fuelled by the capitalist system), could be subverted for more socially beneficial ends by enriching our experiences. It could provide a unique aesthetic language that engages the viewer in ways a film might, without being utopian or prescribing how things ought to be.
>
> (Dunne 1999, 85)

REFERENCES

1. Adam, B. 1998. *Timescapes of Modernity*. New York: Routledge

2. Amir, S. 2004. "Rethinking Design Policy in the Third World". *Design Issues*, v.20, n.4. MIT Press

3. Baudrillard, J. 1996. *The System of Objects*. tr. James Benedict. Great Britain: Verso

4. Baudrillard, J. 2001. Excerpts from *The Consumer Society*, in *Jean Baudrillard: Selected Writings*. M. Poster ed. Cambridge: Polity Press

5. Berchicci, L., W. Bodewes. 2005. "Bridging Environmental Issues with New Product Development". *Business Strategy and the Environment*, 14. John Wiley & Sons and ERP Environment

6. Belk, R.W., G. Ger, S. Askegaard. 2002. "The Missing Streetcar Named Desire". In *The Why of Consumption: Contemporary Perspectives on Consumption Motives, Goals and Desires*, S. Ratneshwar, D.G. Mick, C. Haufmann eds. London: Routledge

7. Birkin, F. 2001. "Steps to Natural Capitalism". *Sustainable Development*, 9. John Wiley & Sons and ERP Environment

8. Bocock, R. 1997. *Tüketim*. tr. İrem Kutluk. Ankara: Dost

9. Boradkar, P. 2002. "Commodity Discourse: The Object in Cultural Theory and Design". In *Proceedings of the Conference Common Ground: Design Research Society International Conference 2002*, D. Durling and J. Shackelton eds. Great Britain: Staffordshire University Press

10. Buchanan, R. 1995. “Rhetoric, Humanism and Design”. In *Discovering Design - Explorations in Design Studies,* R. Buchanan and V. Margolin eds. The University of Chicago Press

11. Buchanan, R. 2001. “Human Dignity and Human Rights: Thoughts on the Principles of Human-Centered Design”. *Design Issues*, v.17, n.3. MIT Press

12. Carvalho, G.O. 2001. “Sustainable Development: Is It Achievable within the Existing International Political Economy Context?”. *Sustainable Development*, 9. John Wiley & Sons and ERP Environment

13. Clark, J. 2001. “Introduction”. In *Environmental Philosophy: From Animal Rights to Radical Ecology*, M. Zimmerman, J.B. Callicot, G. Sessions, K.J. Warren, J. Clark, eds. New Jersey: Prentice Hall

14. Coward, R. and J. Ellis. 1985. *Dil ve Maddecilik: Semiyolojideki Gelişmeler ve Özne Teorisi*. tr. Esen Tarım. İstanbul: İletişim Yay

15. Cupchik, G.C. 1999. “Emotion and Industrial Design”. In *Proceedings of the First International Conference on Design and Emotions*. C.J. Overbeeke and P. Hekkert, eds. Delft: Delft University of Technology

16. De-Shalit, A. 2001. “Is Liberalism Environment Friendly?” In *Environmental Philosophy: From Animal Rights to Radical Ecology*, M. Zimmerman, J.B. Callicot, G. Sessions, K.J. Warren, J. Clark, eds. New Jersey: Prentice Hall

17. Dober, P., L. Strannegard. 2005. “Design, Lifestyles and Sustainability. Aesthetic Consumption in a World of Abundance”. *Business Strategy and the Environment*, 14. John Wiley & Sons and ERP Environment

18. Douglas, M., B. Isherwood. 1999. *Tüketimin Antropolojisi*. tr. E.A. Aytekin, Ankara: Dost

19. Dunne, A. 1999. “Design Noir” In *Proceedings of the First International Conference on Design and Emotions*, C.J. Overbeeke and P. Hekkert, eds. Delft: Delft University of Technology

20. Eder, K. 1996. *The Social Construction of Nature*. Sage: London

21. Evans, D. 1998. "From Kantian Ethics to Mystical Experience: An Exploration of Jouissance". In *Key Concepts of Lacanian Psychoanalysis*, D. Nobus, ed. London: Robus Press

22. Findeli, A. 2001. "Rethinking Design Education for the 21st Century: Theoretical, Methodological, and Ethical Discussion". *Design Issues*, v.17, n.1. MIT Press

23. Fuad-Luke, A. 2002. *Ecodesign: The Sourcebook*. London: Thames & Hudson

24. Gabriel, Y., T. Lang. 1995. *The Unmanageable Consumer*. London: Sage

25. Haug, W. F. 1986. *Critique of Commodity Aesthetics: Appearance, Sexuality and Advertising in Capitalist Society*. tr. R. Bock, Great Britain: University of Minnesota Press

26. Hawken, P. 2001. "A Declaration of Sustainability". In *Environmental Philosophy: From Animal Rights to Radical Ecology*, M. Zimmerman, J.B. Callicot, G. Sessions, K.J. Warren, J. Clark, eds. New Jersey: Prentice Hall

27. Hay, R. 2005a. "Becoming Ecosynchronous, Part 1: The Root Causes of Our Unsustainable Way of Life", *Sustainable Development* (in press). John Wiley & Sons, Ltd and ERP Environment. www. interscience.wiley.com

28. Hay, R. 2005b. "Becoming Ecosynchronous, Part 2: Achieving Sustainable Development via Personal Development" *Sustainable Development* (in press). John Wiley & Sons, Ltd and ERP Environment. www. interscience.wiley.com

29. Heskett, J. 1993. *Industrial Design*. London: Thames and Hudson

30. Key, W.B. 1974. *Subliminal Seduction: Ad Media's Manipulation of a Not So Innocent America*. New York: Signet Books

31. Kothari, R. 1990. "Environment, Technology, and Ethics". In *Ethics of Environment and Development: Global Challenge, International Response*, J.R. Engel and J.G. Engel, eds. London: Belhaven Press

32. Lefebvre, H. 1991. *The Critique of Everyday Life. Volume 1*. tr. John Moore. London: Verso

33. Marcuse, H. 1966. *One-Dimensional Man*. USA: Beacon Press

34. Martell, L. 1995. *Ecology and Society: An Introduction*. Great Britain: Polity Press & Blackwell Publishers

35. Marx, K. 1961. *Capital*: *A Critical Analysis of Capitalist Production, Volume I*. Moscow: Foreign Languages Publishing House

36. Merchant, C. 1992. *Radical Ecology*. London: Routledge

37. Miller, D. 1995. *Material Culture and Mass Consumption*. Oxford: Blackwell

38. Packard, V. 1968. *The Hidden Persuaders*. London: Pelican Books

39. Minteer, B. A., R.E. Manning. 2003. "Pragmatism in Environmental Ethics: Democracy, Pluralism, and the Management of the Nature". In *Environmental Ethics: An Anthology*. Andrew Light, Holmes Rolston III, eds. USA: Blackwell Publishers

40. Palmer, C. 2003. "An Overview of Environmental Ethics" In *Environmental Ethics: An Anthology*, Andrew Light, Holmes Rolston III, eds. USA: Blackwell Publishers

41. Pred, A. 1998. "The Nature of Denaturalized Consumption and Everyday Life" In *Remaking Reality: Nature at the Millennium*. B. Braun, Noel Castree, eds. New York: Routledge

42. Quigley, T. R. 1998. “A Brief Outline of Psycho-analytic Theory: Freudian, Lacanian and Object Relations Theory”

43. Richardson, A. 1993. “The Death of the Designer”. *Design Issues*, v.9, no.2 Spring . MIT Press

44. Rolston III, H. 2001. “Challenges in Environmental Ethics” In *Environmental Philosophy: From Animal Rights to Radical Ecology*. M. Zimmerman, J.B. Callicot, G. Sessions, K.J. Warren, J. Clark, eds. New Jersey: Prentice Hall

45. Shu-Yang, F., B. Freedman, R. Cote. 2004. “Principles and Practice of Ecological Design” *Environmental Review*, vol.12. Canada: NRC

46. Smart, B. 2003. *Economy, Culture and Society*. Buckingham: Open University Press

47. Smith, M.J. 1998. *Ecologism: Towards an Ecological Citizenship*. Buckingham: Open University Press

48. Sparke, P. 1989. *An Introduction to Design and Culture in the Twentieth Century*. London: Routledge

49. Teymur, N. 1996. “The Materiality of Design” In *The Block Reader in Visual Culture*. John Bird, ed. London: Routledge.

50. Van Nes, N., J. Cramer. 2005. “Influencing Product Lifetime through Product Design”. *Business Strategy and the Environment*, 14, John Wiley & Sons, Ltd and ERP Environment

51. Verbeek, P.P., P. Kockelkoren. 1998. “The Things That Matter”. *Design Issues* v.14, n.3.

52. Whiteley, N. 1993. *Design for Society*. London: Reaktion Books