

A Critique of The Environmental Green Concept in the view of representative issues for products.

-Usage, Aesthetics in product design, Manufacturing, and Products' price-

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Abstract: In product manufacturing industries, a recent issue is the green concept. The green concept is a complicated area. If the green concept is for products, its serious issues have to be criticized. Although the importance of the green concept has overflowed, its influences have not been disputed vigorously. So this study is to critic the serious issues of the green concept in aesthetics in product design, manufacturing, and products' prices. The green environment has four representative elements: systems, policies, minds, and technologies, but they are not in the field of design.

An element of the green concept, green design is also a sub concept for design, so it should be based on aesthetics. It is green aesthetics. But since green design first appeared, it has never approached by aesthetics because it has mostly had social meanings and expectations. So for green aesthetics, to think about what makes a product, and what can be aesthetic issues among them are important. Products consist of form, structure, material, and technology. Form means different shapes in a structure, but there cannot be any specific directions for a green concept. Structure has two kinds: interior and exterior structure. While interior structure has a technological character, exterior structure is deeply related with aesthetics, but it has also no chance for green concept. Material can be divided as two also: aesthetic and technological. Aesthetics materials mean the colors, opacity, and tactile sense of materials, but they are not aesthetic issues. Technological materials are recycled materials or non-recycled materials. Even if recycled materials are used today, they are close to systems or policies rather than aesthetics. With this result, green aesthetics is a very difficult concept.

Second, green products are usually 30% more expensive than general products. But every consumer has his or her own economical conditions, and nobody can coerce consumers into buying expensive green products for green environments. And green products without good quality cannot satisfy consumers. This means that green concept is not accomplished by just manufacturing green products.

Third, although a lot of proposals have appeared as green design in exhibitions, most of them are close to craft because they are so hard to be manufactured. Manufacturing is the first consideration for products.

These three issues are enough to explain why green concept is complicated in manufacturing products. If they are not solved, the green concept is just a fiction. So if this study proposes a turning point against blind green-oriented atmosphere, it will be meaningful enough.

Keywords: Green Concept, Aesthetics, Manufacturing, Products' price.

1. Introduction

As the concerns for environment are exploding, green concept in various fields has existed for a long time. Most studies are imbued with blinded importance and responsibility of the green concept. However, the aspect of the green concept has serious issues that have not been resolved yet. They have received only minimal attention, and researches on them are still in their early stages.

Therefore, it is the time for them to call more attentions toward advanced stages. So, at the outset, this study is imperative to analyze why the green concept is complicated with them, and to approach the green concept in the view of representative issues for products. It will be an important signal to propose turning points against today's blind green-oriented atmosphere.

For its aim, first, this study will analyze perspective green methods in macro and micro views. Second, this study will dispute the significant issues: usage, aesthetics in product design, manufacturing, and products' price. And third, the possibility of green aesthetics will be criticized, and effective solutions for green aesthetics will be proposed.

2. Aspect

Green concept is a general existence that can be divided with two elements: macro and micro methods. Their range includes most of the green concept from a product to societies.

2.1 Macro methods

Macro methods are the perspective activities of human beings, so they locate in a huge relationship between human beings and society. Macro methods are usually represented as system, policy, and mind.

2.1.1 System

It is general systems, rules, or human beings' activities. It has two kinds: spontaneous and obligatory systems. Spontaneous systems are kept by spontaneous participation, so there is no penalty even if human beings do not participate in them. That is why systems are usually called social campaigns. Obligatory systems are kept by obligatory participation. If human beings do not engage with them, there are penalties as a result. Systems usually take long time to be established.

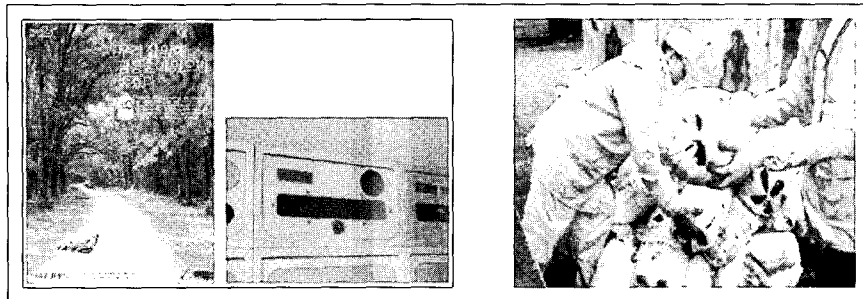


Fig.1 Spontaneous systems (left), and obligatory system (right)

2.1.2 Policy

It is obligatory laws. There are a number of policies worldwide, and some of them have strong guidelines according to specific regions.

2.1.3 Mind

It is human beings' spontaneous will to keep systems or policies. So, it is not compulsorily established. Specially, the concept of green consumer appears in this category. Green consumers are the people, who believe that they positively lead green society by keeping green products or systems.¹

2.2. Micro methods

Micro methods focus into products more than macro solutions. Representative one is technology that is an advanced existence that can protect environment unlike previous technologies. It is the most positive and fastest developing factor for products. Computer monitors without soldering, washing machines without detergent, and automobiles by electricity or hybrid are representative products by technology. The other is function, and it is directly come from technology.

3. Significant issues of the green concept

While most insists for the green concept are overflowing in the macro and micro views, the significant issues of green concept should get attentions in usage, aesthetics, manufacturing, and price. Functioning for societies, companies, consumers, and designers, they are efficient guidelines to dispute why green concept is so complicate to be achieved.

3.1 Usage

Today, green design has been exaggerated, degenerated, and abused because it is confused with the green concept. The meta-concept of green design, the green concept has various elements such as

¹ Mihae Kim, A Study on the Application of the Business Green Marketing, Thesis at Dept. of Business Administration, Graduate School at Sookmyung Women's University (1996). pp19-20.

technologies, social systems, or policies. And, green design is a sub-concept of design. Design, also, has a number of concepts or philosophies such as functionalism, modernism, ergonomics, post modernism, and etc, and the green design is just one of them. So the green design cannot have a parallel position with the green concept. It means that the green design should be supposed to include contents only related with design.

But, today, the green design has too wide meanings that reach to social systems or human beings' activities, and designers are strongly demanded to create even innovative social solutions for manufacturing circulation, and recycling systems towards totally new green lifestyles. This exaggeration has been the main cause for the green design's abuse and confusion, and that is why designers have hardly ever participated recent green processes. Of course, because the definition of design can include all activities of human beings for creation, some capacity to consider whole backgrounds might be recommended for designers. But the capacity cannot be more import than their aesthetic role. Designers have mainly focused on creating new forms rather than developing green systems, materials or technologies. Demanding new systems from designers is the same as demanding new interesting designs from engineers.

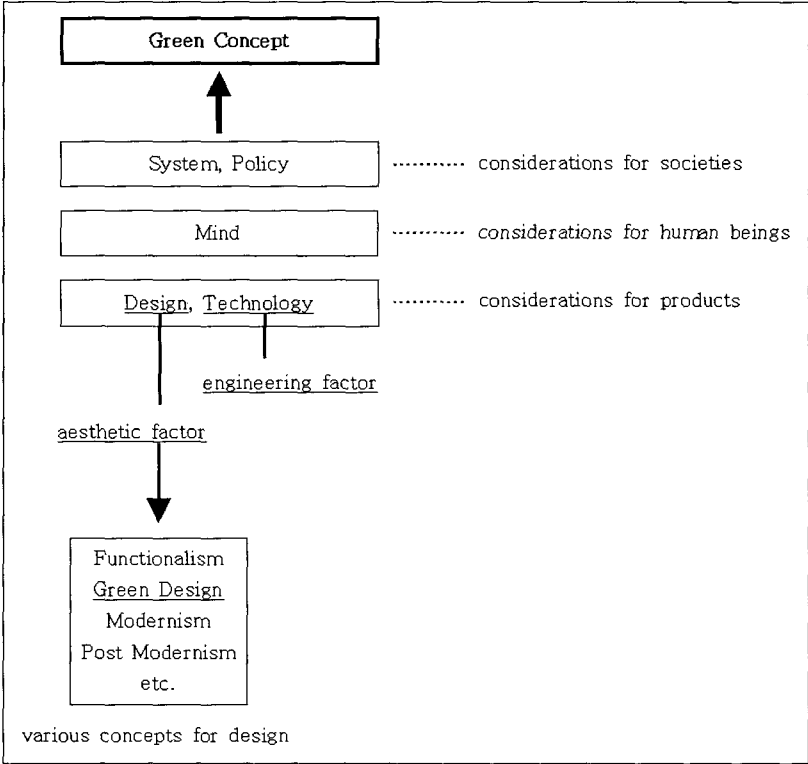


Table. 1 The perspective relationship for the green concept

3.2 Aesthetics

Green concept by aesthetics is green design, and it can be replaced with green aesthetics.² There have

² Nigel Whiteley, Sangkyu Kim, Design for Society, sizarak (2004). p.132.

not been enough studies and results about green aesthetics because it has rarely been approached. But especially in product design, green aesthetics should be the most important consideration for green concept. To discuss green aesthetics, thinking about what makes products is first, and then how efficiently the green concept influences them should be followed. Products consist of form, structure, material, and technology.³ Here, form, structure, and material are aesthetic issues while the other is not. Whatever products are green in orientation or not, their components are also same.

3.2.1 Form

Form⁴ is deeply related with designers' creation because it is the closest element for aesthetics. Form is developed in general design processes⁵ that have objective characters. The green concept, also, has usually been in objective conditions with technologies, policies, and systems. But how a form is shaped has definitely abstract characters because it is come from designers' abstract creations. Designers' creations cannot be explained in objective processes, and it has infinitive aesthetic possibilities. So, to specify how a form should be shaped for the green concept is almost impossible because the expected forms for the green concept cannot be objective too. Abstract and objective characters cannot be matched.

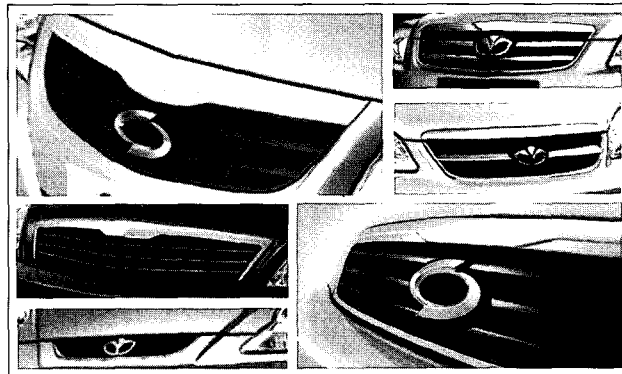


Fig.2 Examples for the infinite possibilities by designers' abstract creations

If the green aesthetics is insisted blindly, it might interrupt aesthetic creations. To limit the aesthetic ranges for the green concept could be the same as interrupt designers' creativity. That there are no aesthetic differences between green products and general products⁶ explains this issue vividly. It also tells that green design has rarely been developed by aesthetic differences, and it could mean that the green concept is hard to be achieved by aesthetics. A study⁷ already pointed this issue. The study said that green products do not

³ Technology has two meanings; one is products' own function including their parts such as PCB and LED, and the other one is the technology, which was used to manufacture the products.

⁴ Of course, form is not the only component for a product because there are so many elements such as design trends, positioning strategies, consumers' environments, function, and etc. A product exists the relationship among these, and they tell how a product is born.

⁵ They usually include market research, idea sketch, rendering, mock-up, and etc.

⁶ General products mean most products that have general technologies without the green concept.

⁷ Hyunsun Jung, Kwanbae Kim, A Study on the Design Direction for Green Product, Journal of Korean Society of Design Science, vol.11, no.3 (1998). p122.

have visual distinctions. Also, no aesthetic differences between fig.3 (left) and (right) can be representative examples to prove this issue. Fig.3 (left) is a computer monitor without soldering, and fig.3 (right) is a computer monitor with soldering. Even if fig.3 (left) has green technology, its form is the same as fig.3 (right). It means that green design is not the existence, which has been satisfied by the aesthetics. Here, this argument is not for the disability of aesthetics. It is a visual warning for the limits of green design in spite of its hidden appearance.

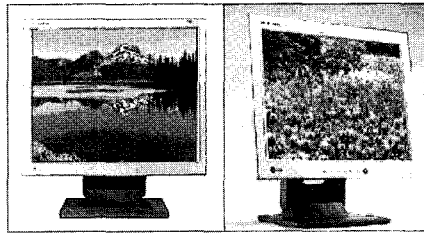


Fig.3 Computer monitors without soldering (left), with soldering (right)

Also, simple design can be an example that has been miss-understood as a solution for green concept. A number of studies have insisted that designers should propose simple designs for green concept. Of course, designers can propose simple designs without any design decorations. But they are usually the results of chasing specific product positioning strategies⁸ in most circumstances. They are not for conceptual reasons of the green doctrine. So a study⁹ that insisted that designers should reduce products' components and simplify products' structures for environmental effects is hard to be agreed.

3.2.2 Structure

There are two structures for products: exterior and interior structure. Here, only exterior structure is an aesthetic issue. Exterior structure is the outside of products, so it is similar to form. For example, bar, flip, folder, sliding, and swing type in cellular phone designs are all exterior structures. What is the relationship between form and exterior structure? While the exterior structure focuses on different types of outside structures of products, form emphasizes various details or shapes within one structure. The changes of exterior structures are usually executed according to specific design trends not for green conceptual reasons. For example, to suggest sliding type cellular phones for environment does not make sense. It is the same as the form.

Interior structure is close to an engineering or technological issue. It focuses how products are assembled and where their parts should be located for best manufacturing. So engineers usually decide it after finishing designs. If a product has a very complex interior structure, the structure can be a cause of low productivity because of its increased assembling time. So the more interior structure gets simple, the better for productivity.

⁸ They can be divided two: one is to manufacture low cost products. In this case, manufacturing cost is very important factor for companies. The other one is to chase design trends.

⁹ Lee, Kyung-A, *A Study on the Direction of Design for Environmental Preservation*, (1994). p.63.

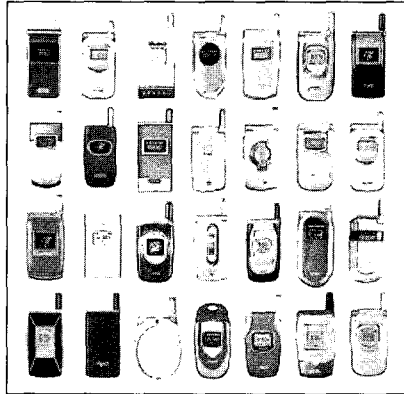


Fig.4 Different forms in same exterior structure - folder type

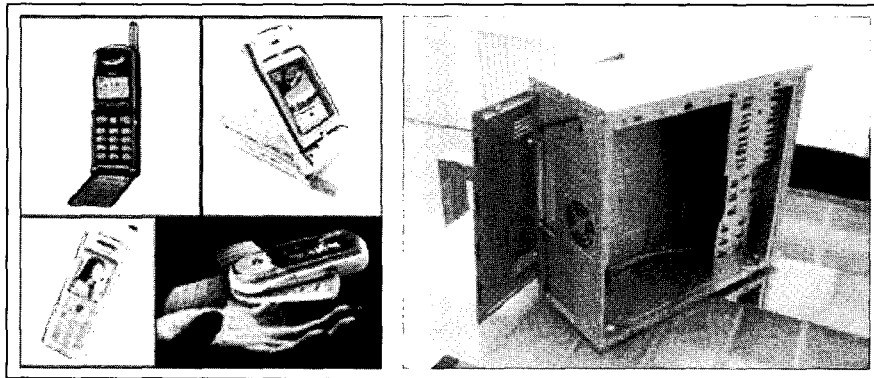


Fig.5 Exterior structures for cell phones (left) and an interior structure for a computer (right)

Here, is an example (Fig. 6) that shows a clue for green aesthetics by the exterior structure. This is a laptop computer whose LCD screen can be separated from its body. So its screen can be re-used for the same kind of computer or a monitor of a desktop computer. Today, a lot of laptop computers are thrown away because of their broken LCD screens although the bodies are still in fine conditions. So, being able to re-use the LCD screens of laptop computers can be an important evidence for green aesthetics by the exterior structure and product design.

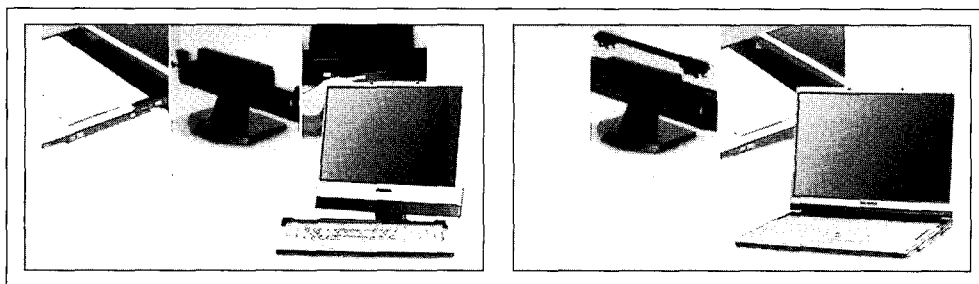


Fig.6 A laptop computer with a separable LCD screen

3.2.3 Material

Material is a physical element to build products' forms. It has both design and technological characters. Material with design characters can be specified by the difference of colors, opacity, and tactile sense, and they deeply influence products' aesthetics, so they are determined by designers in most times. But the design characters of material is not for the green concept because the specific colors with opacity and tactile for the green concept cannot exist. This means that material with design characters has also rarely given chances for the green concept to participate.

Here, surface processes¹⁰ can be interesting subjects. They are very technological, but their results are aesthetic. Some processes are very harmful for environment such as spray painting,¹¹ electroplating,¹² and hydro transfer printing.¹³ Here can an aesthetic solution also appear. For the green concept, these harmful processes have to be limited, but they have rarely been tried.¹⁴ Because they have good aesthetic effects in product design, and most harmful surface processes are still being used today. When they cannot have the surface process only for green concept, the results will have so different aesthetic looks.¹⁵

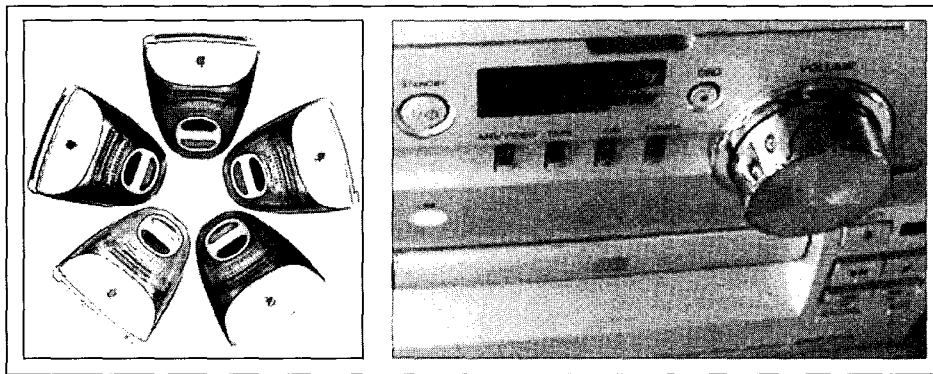


Fig.7 Material by design character (left) and surface processes (right) - spray painting and electroplating

¹⁰ Surface process enhances functional or aesthetic qualities of an existing products' surface. With the help of surface process product will have improved mechanical, chemical, and electro magnetic properties-for example, corrosion resistance, wear resistance and EMI (Electro Magnetic Interference) shield. The surface process will also improve aesthetic properties such as special color, texture, metallicizing, and graphic effect. Especially, for product designers, profound knowledge about the surface process can help broadening to fulfill their creativity.

-IDTC, How things are made, Ahn graphics, p.54.

¹¹ Painting is the most basic process out of all surface processes. In general, painting is conducted with a manual spray tool or an automated robot spray machine mainly for decorative and protective coating or EMI (Electro Magnetic Interference) protective skin on the products.

-IDTC, *ibid.* p.56.

¹² Electroplating is a process to cover objects with metal layers electrically. To electroplate non-conductive material such as plastic, objects should be plated with nickel and again plated with Chrome or Gold according to its specification. Electroplating is a relatively attractive solution for metallic visual effect, EMI (Electro Magnetic Interference) shielding and increase of hardness for non-metallic object.

-IDTC, *ibid.* p.72.

¹³ Hydraulic pressure transfers printing is used to print images or patterns on the relatively complex and large-sized surface of the products such as instrument panels or steering wheels in the automotive interior. Patterns or images printed on soluble PVA (Poly Vinyl Alcohol) films are directly transferred into the surface of the products by dipping them inside the PVA films, floating them on the water reservoir before the finishing process.

-IDTC, *ibid.* p.96

¹⁴ Few laptop computers with surface processes in green orientation have started being manufactured recently.

¹⁵ To specify how products look different with (and without) surface processes, and how the differences will function at markets may require a lot of aesthetic and marketing researches. It should be the subjects of the further studies.

Meanwhile, there are none-recycle and recycle materials by technology. Of course, recycle materials are used in most cases today. But an important note is that they are not aesthetic issues. Using them is related with systems or laws, and the inventions of the recyclable materials are definitely technological issues. Also, selecting either plastic or metal for products is also not usually the green concept because it is a matter mainly based on product development strategies or manufacturing cost because there is so much price gap between metals and plastics.

As mentioned with form, structure, and material, if the green concept is critiqued from the view of aesthetics, it looks very hard. That is why it could be said that the green design might not be an easy target, and it is just a trend for products. Two arguments can support this. Primarily, today, the green concept in design is just a marketing strategy¹⁶ called green marketing. The green marketing is the strategy, by which companies promote their green-oriented resource reservation and protection environment activities into societies.¹⁷ So the green marketing strategy is mainly used for upgrading their brand images or company images today. Secondly, because designers rarely participate in green environmental practice,¹⁸ the role of the green design should be re-arranged.¹⁹ But, here, the low participation is not the result of designers' negligence or lack of skill. Originally, design is a discipline in which the green concept cannot or hardly influences for products.

3.3 Manufacturing

Manufacturing is also an important consideration for the green concept because it is a basic factor for the production of products. At this point, the most serious issue appears in exhibitions. A lot of proposals have appeared as green design in irregular green concept exhibitions, but most of them are more close to craft, because they look far from manufacturing. Any proposals for the green design have to be possible for manufacturing. If not, they are artworks for craft. For example, a design group has proposed a lighting (Fig.8 left) that was made with a steaming plate. But it has a serious problem for manufacturing. How many steaming plates should be thrown away regularly? The lighting was possible because it was made few by hands only for an exhibition. Also, the lightings (Fig.8 right) that were made of pressed empty aluminum cans are, also, far from manufacturing. This issue tells how these artworks were made, and why these kinds of proposals are not for sale.

Meanwhile, these proposals as the green design have another paradox that is the artificial shortening of products' lifecycle for the green concept. If products in fine conditions are broken artificially to make green products for exhibitions, these activities must be another behavior of destroying environment.

¹⁶ Nigel Whiteley, Sangkyu Kim, *op. cit.* p.80.

¹⁷ Hyelan Yoo. A Study on Green Marketing, Thesis at Dept. of Commercial Education, Graduate School of Education, at Sookmyung Woman's University, (2001). p7

¹⁸ Hyunsun Jung, Kwanbae Kim, *op. cit.* p.121

¹⁹ Sustainable Design, monthly DESIGN, vol.298, (2003). Apr.

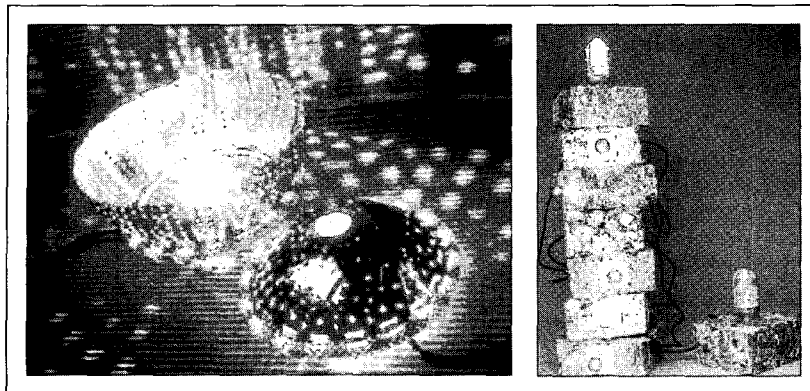


Fig.8 Lighting made with a steaming plate (left), and made with pressed empty aluminum cans (right)

3.4 Products' price

Products' price is also as complicated as the aesthetic issues. It is important for both consumers and companies, but their meanings are diametrically opposed. In general, green products are usually more than 30 percent more expensive than general non-green orientated products.²⁰ Of course, this study does not argue that products' prices get expensive because there should be inevitable causes. For example, the development of technologies, added functions, change of exchange, increased product manufacturing cost, etc. are the causes. Among them, the development of technology and added functions are the major elements to make the green products' prices more expensive than general products because they invest a lot of money to develop the green products. But the expensive price of the green products is an important and actual cause for customers to choose cheap general products rather than the green products.

But here are two issues that cannot be easily solved. Firstly, if customers buy non-green general products because of the green products' expensive prices, should they be accused of destroying environment? Or not? It is an issue that is related with the minded people, especially green consumers. As mentioned in a study,²¹ if customers should ignore the price gap, and try to choose the green products for environment, it seriously interferes with their own economical conditions because the 30% price gap can be persuaded for consumers to change what they should normally buy. Nobody can coerce consumers to pick up the green products for environmental reasons.

Also, it is of doubt if the green consumers buy green products purely for the environmental impacts despite their expensive prices. Today, the green products can mean well-being trend, so consumers are able to get actual benefit in most circumstances. This could be the reason that the green products are preferred. But only one reason that is good for environment without any benefits for consumers cannot be persuaded enough. Here, the green consumers could be understood little differently. Namely. They are not the people, who prefer the green products purely for environmental considerations. They are the people, who prefer

²⁰ Hyunsun Jung, Kwanbae Kim, *op. cit.* p.121.

²¹ Inho Song, Jongsuk Lee, A study on Practice for an Environment Friendly Design, *Journal of Korean Society of Design Science*, vol. 13, no.4. (2000).

green products for their actual benefits after which green environment is followed. A study²² pointed this issue. This study analyzed the green products in three perspectives: price, quality, and design. Its result said that consumers hardly ever accept the green products that have bad quality. This means that consumers do not blindly choose green products without any benefits. So an insist that consumers should try to buy the green products just for environmental reasons without any other considerations is an empty theory that interferes on consumers' various economical conditions and their own rights.

The second issue is based on the first issue. To erase the price gap between green products and general products, to make the green products' prices the same as the general products' prices for companies does not make sense. Because it is an opposite situation in economics for the more investigation, the more benefits. Here can a solution be imagined. It is that governments may have a duty to pay for the price gap for public. It is definitely a social complicated solution. So to push this toward more advanced stages, a lot of researches and studies for wide perspective arrangements in societies will be essential. For most companies, product' prices are deeply related with marketing and sales strategies, so it should not be considered with only for consumers. This issue means that the green concept for products is not accomplished by just manufacturing expensive green products when thinking about various backgrounds for companies and consumers such as technology developments, product developments, marketing, sales, and purchase. This is exactly the same as the insistence²³ that just manufacturing the green products cannot be a solution for environment.

4. Conclusions

Without considering the basic but important factors for products, to just insist about the necessity and importance of the green concept is not helpful for seriously thinking about its supposed directions. Although the importance and responsibility of green design has overflowed, its characters have not been argued or disputed vigorously.

Products do not exist by themselves. As one of the concepts for mass manufacturing products, the green concept is just an element that exists in various background environments among companies, consumers, and products. Furthermore, the green concept is only one of a product's components, which make products' trends such as retro and well being part of its overall makeup. So if product trends in the relationship to human beings, society, companies, designs etc, are in a process of evolution then, the green concept will disappear.

In product manufacturing, the green concept is not an easy subject. The green concept is not accomplished, as easily as most environmentalists' believes. Because to manufacture products, a number of processes including basic planning, design, technology, manufacturing, sales, marketing, accounting, and etc. have to be considered, and the green concept is just one of them. So the green concept alone without

²² Yonsang Jung (2001). Consumer's intention to buy environmental friendly products, Thesis at Dept. of Business Administration, Graduate School at Chungnam National University. p.41

²³ Yonsang Jung, *ibid.* p.43

considering its huge influences is just a closed and empty theory that does not exist because it is not useful. When criticizing the above three views, its serious issues become vivid, and some effective solutions get specified among them. If this study can propose a turning point against this blind green-oriented bandwagon, it will be meaningful enough.

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