

## Fashion Design of Denim Inspired by the Butterfly Motif -Based on the Concept of Naturalism-

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### 나비 모티브를 응용한 데님 소재 패션디자인 -자연주의 개념을 바탕으로-

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#### Abstract

This paper starts out with a review of the concepts of naturalism and natural clothes. Based on these concepts, the paper aims to create nature-friendly and high-value modern designs by grafting natural images from butterflies into human bodies. The images of butterflies are combined to show distinguished luxury and diversity with natural materials such as denim. As for the design technology, Adobe Illustrator 10, Photoshop 7.0, and Prima Vision Textile Design System are used since they are very popular in the CAD system. The followings are the main findings of our research. Naturalism displays its objectivity based on its inherent interest in human nature and its factual description in scientific approaches with an intention to find a true meaning of human life in nature. Natural clothes can be defined as the clothes of natural silhouette which are made of pure materials in natural colors and dyes from natural motifs such as animals, plants or natural phenomena. We have realized that the visually distinguished looks of butterflies are indeed far more luxurious than those of any other insects and this visual distinction can be utilized to attract the attention from designers. Lastly, it turns out that the digital printing technique can create more variety in colors and design forms than the manual printing, thereby providing designers with more options and practicality.

**Key words:** Naturalism, Natural Clothes, Butterflies, Denim, CAD System; 자연주의, 자연주의 복식, 나비, 데님, 캐드 시스템

#### I. Introduction

At the turn of the 21st century, the term 'well-being' has become a key-word that represents the modern society and culture. As this society has become modernized with the advancement of tech-

nology, people have been increasingly interested in the pursuit of happiness and the concept of 'quality of life', thereby creating a new trend of consumption culture. This trend has led to the emergence of what is called 'well-being industry' in accordance with the change of value of life and life pattern in this society, such as the spread of the 'five working day system' and the emphasis on family life and health. With a focus on human life, the term 'naturalism' has emerged as one of the most important themes in this era.

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Naturalism, as it has emphasized the importance of the awareness of nature, has been with us since the Ancient Greek period. In the modern era, with the emergence of environmental issues and civilizational corruption, there have been many efforts of restoring nature in modern societies. This trend has also been reflected in fashion design and expressed in various themes with the concurrent changes in natural environment, ideas, and thoughts. In the 1990s, the theme of ecology became the major trend of the decade. Since then, designers have been expressing the images of flowers, leaves and branches of trees, and other natural objects in their works. In particular, the 21st century fashion is characterized by a dominant flow of fashion trend that emphasizes such nature-friendly elements as 'natural', 'pure' or 'from nature'.

More recently, a unique fashion that reflects the consumers' high and noble sense of fashion is expected to become popular in the near future. It is also expected that a kind of coordinating style combining a sporty look with luxurious texture and accessories will emerge as a new fashion theme. A variety of 'cross coordination' with expensive jeans (denim), high fashion name brand products and gore-tex will become popular, too. The so-called 'matchless style' that matches and harmonizes the items that do not look matchable together is also becoming attractive to younger generations who tend to value individualism. Both domestic and foreign brands of expensive jeans will contribute to the spread of 'matchless style' ("2004 Fashion keyword 'Harmony in disharmony'", 2004)

This research aims to create nature-friendly and high-value modern designs by grafting natural images of butterflies into human bodies. The images of butterflies are combined to show distinguished luxury and diversity with natural materials such as denim. Denim used to be used mainly for working clothes, but has emerged as a very popular clothing material with the popularity of sports wear in the modern period.

As for the research method, relevant literature and photographs are discussed to review the concepts of naturalism and natural clothes and to study about the formal features and kinds of butterflies. The previous

literature on modern design works inspired by the butterfly motifs is also reviewed. As for the design technology, the CAD system is used. The CAD system enables us to apply various changes of colors and designs within a short period of time. Adobe Illustrator 10, Photoshop 7.0, and Prima Vision Textile Design System are used. With these applications, this research attempts to produce distinguished high-value fashion designs.

## II. Theoretical Review

### 1. Naturalism

#### 1) *The Concept of Naturalism and its Change*

The concept of 'nature' is found in the notion 'physis' meaning 'coming into being' in the West, while it is found in the notion 'idle nature' in the East. However, there is a commonality between these two concepts in that they both view nature as 'coming into being and developing for itself'. Since the early modern period, people have often viewed nature as something opposed to human intervention or as something contrasted with artificial creations. It is now viewed as something that exist by itself without any influence from human hands. Nature has a fundamental influence on all beings in the universe, and our life is defined as a process of harmony with the laws of nature (Kim, 2003).

The notion 'naturalism' has been used in many fields with a wide range of meanings, so it is difficult to come up with a clean-cut definition. We can find one of the definitions of 'naturalism' in the previous literature. Naturalism is defined as a form of expressing nature without embellishing or idealizing it while breathing in it with a truly deep love toward it; that is, artists themselves try to create a work of art as part of a natural phenomenon with an attitude of respecting and utilizing the forms, structures, and images from nature (Chun, 1986). Seo (1995) characterized naturalism not as a fixed artistic view based on the identical concept of nature but rather as an ever-changing artistic view that has a constant goal and looks for concrete assignments.

Naturalism has long been noted in many fields

ever since the period of ancient philosophical period. It used to be a stance of historical materialism or pantheism that attributed everything to nature and acknowledged nothing that evaded nature. This concept was first used in the field of art during the 17th century. In the 19th century, its use was extended both as a philosophical theory and as a literary theory with an emergence of 'naturalism aesthetics' and settled as a notion in philosophy and literature ("World dictionary of artistic terms", 1994) What is now viewed as naturalism in the modern period traces itself back into the 19th century when the social, scientific, philosophical, and ethical trends of naturalism sprang up as its background. Thus, the concept of naturalism has varied widely during different historical periods and in different fields. However, it can be uniformly defined as something that displays its objectivity based on its inherent interest in human nature and its factual description in scientific approaches with an intention to find a true meaning of human life in nature.

Kim(2003) divided the historical periods of naturalism into three; the origin period of naturalism (from Ancient Greece to the Middle Age and Renaissance), the establishing period of naturalism(from the early modern period of the 18th century to the 19th century and the period of 1900~1910) and the changing period of naturalism(the modern period since the 1960s). According to her study, during the period from Ancient Greece to the Middle Age and Renaissance, they emphasized the beauty of proportion based on the principle of order and harmony in nature from an idealistic viewpoint. In particular, during the Middle Age, there emerged a reasonable version of naturalism from Christian belief and ideas, and they pursued a kind of beauty that combined the concept of brightness originating from God's light with a proportional beauty. Renaissance was a time for discovering and restoring nature and human beings. During this period, they emphasized the awareness of who they are as human beings and the human-centered way of thinking.

The early modern period from the 18th century to the 1910s was the time when people were able to enjoy wealth due to the Industrial Revolution, but

began to long for going back to nature because of inhuman problems. There emerged a trend of 'Neo-classicism' with Rousseau's famous idea of 'Go back to nature'. In the 19th century, there appeared Zolaism that described nature and reality in a realistic way based on science. There also appeared impressionism that revived the changes of nature sensibly. Due to Art Nouveau in craft art, the organic forms of nature were expressed in styles of craft art. Early in the 1900s, Art Deco became popular as a resistance against Art Nouveau styles, emphasizing straightforward, geometrical, and reasonable functionalism.

The period since the 1960s was the time for the important changes of naturalism. There broke out the Cold War and the Vietnam War. Despite the remarkable advancement of science and technology, there occurred a movement to go back to nature by hippies as they resisted against the convenience of modern technologies and materialism. There occurred, in the 1980s, an environmental movement to protect natural environment by going back to nature. In the 1980s and 1990s, there appeared a trend of ecology about environmental issues and people began to emphasize life patterns focusing on nature, humans, and health. In the 1990s and in the new century, with the advancement of network technology and the emergence of multiculturalism in the global world, a wide range of fashion styles began to appear, such as a trend of fusion, exotic and ethnic look fashions, a restorative fashion and a natural style look fashion.

Naturalism has been expressed in various trends, such as primitivism, ethnic trend or ecology trend. (Seo, 1995) Primitivism reflects something primitive and plain. This trend refuses something scientific and mechanic and seeks for something primitive as an effort to restore what is originally human. This trend can be found in primitive materials, forms, and styles in fashion. Ethnic trend stemmed from a need to experience local and regional cultures by escaping from a dry city life. It came from people's interests in other cultures, specifically their longing for the Eastern cultures. In fashion, this trend can be found in the clothes that grafted local and regional clothes in Japan, China, South East Asian countries and Africa into modern fashion. As one of these trends, the

fusion trend appeared as a combined form of both Western and Eastern styles in fashion, food or interior designs. Ecology was first used by E. Haeckel in 1866 as an academic term to refer to an integrative field of science that studies environment, organic entities and the relation between these two. In the modern period, it refers to a way of thinking in which people admire nature and try to live in harmony with nature. Ecological forms and images emphasize the natural look itself without any artificial trace and express natural objects like branches and leaves of trees, flowers and other natural objects as they are. Recently, what is called 'organic culture', as a combined trend of primitivism and ecology, is catching on in the overall clothing, eating, and housing cultures of modern people to emphasize the harmony of body and spirit and the relaxed life style in harmony with nature.

## 2) The Concept of Natural Clothes and their Change

Clothes reflect the intrinsic structural relations between individuals and their society (Kim, 1997). In a flow of naturalism, clothes have expressed our minds and feelings in various forms and styles. They are furthermore a formal and stylistic reflection of new minds and spirits of individuals and their society as well. Kim (2003), focusing on the dictionary definitions of relevant concepts, defined 'natural clothes' as the comfortable clothes of natural silhouette which

are made of natural materials in natural colors and dyes from natural motifs such as animals, plants or natural phenomena.

Let us discuss the features of natural clothes during each historical period. The clothes in the Ancient Greek period are representative of natural clothes that expose the line of a human body naturally like a drapery look (Fig. 1). From the Middle Age with Gothic styles to Renaissance, the clothes during this period had formal characteristics that valued human beings themselves. The silhouette was not naturalistic but there were found naturalistic elements in formal decorations using the images of natural flowers and leaves (Fig. 2). The period from the 18th century to the 1910s was the time of establishment of natural clothes. There emerged Neo-classicism and natural ideas and styles from Ancient Greece were restored. There appeared an empire style fashion that revived the Ancient Greek style from the early modern period perspective (Fig. 3). This led to Paul Poiret's empire style fashion that revived the neo-classical clothes. In the 19th century, there appeared a class of dresses with beautiful craft art style lines due to the influence from Art Nouveau styles (Fig. 4). The advancement of textile industry with scientific and technological developments due to the Industrial Revolution contributed to making clothing materials refined.

Since the 1960s to the present, there has been a combined trend of ecology and ethnic fashion, such



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.

Fig. 1. Himation(drapery look). A History of Fashion, p.66

Fig. 2. Middle age period dress. A History of Fashion, p.155

Fig. 3. Empire dress. A History of Fashion, p.287

Fig. 4. Art nouveau period dress. A History of Fashion, p.343



Fig. 5.



Fig. 6.

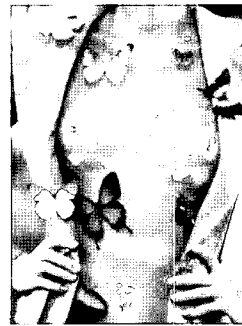


Fig. 7.



Fig. 8.

Fig. 5. Hippie look. Key moment in fashion  
 Fig. 6. Patchwork dress. Fashion the century of the designer, p.358

Fig. 7. Ecology dress. Fashion the century of the designer, p.478

Fig. 8. Fusion dress. Fashion the century of the designer, p.354

as a patchwork style and a country-look fashion due to a movement to go back to nature and the influence from the hippie culture <Fig. 5> and <Fig. 6>. Actually, the term 'ecology' emerged throughout the 1980s and the 1990s, and there occurred environmental movements in the society and the use of natural materials and colors was emphasized with the introduction of natural forms and styles(Fig. 7). With the network development and the emergence of globalism and multiculturalism, there appeared fusion styles and ethnic looks and styles. There appeared a mixture style of these styles such as the one in <Fig. 8>, where the Western style that dares to expose the shoulder line is combined with the Eastern style in a Chinese-fitted one piece style with embroidery.

## 2. An Analysis of Butterflies and Modern Fashion Designs

### 1) An Analysis of Kinds and Formal Features of Butterflies

The body of a butterfly consists of three main

parts; head, bosom, and stomach. There are usually a pair of double-eyes and two single eyes in the head. Wings are divided into many chambers by several feather veins and covered with powder in an orderly manner like a tiled roof (Ju et al., 1997). As for the kinds of butterflies, there are five main kinds of butterflies in the world; that is, Family Papilionidae in <Fig. 9>, Pieridae in <Fig. 10>, Lycaenidae in <Fig. 11>, Nymphalidae in <Fig. 12> and Hesperidae in <Fig. 13> (Kim, 2002).

Next, let us discuss the formal features of butterflies by focusing on how various unpredictable forms and shapes of butterflies can be utilized when we extend and reduce the images of butterflies. A form or a shape is something we see or perceive as a kind of structure in a formative object. According to Gyorgy Poczi, there are many creatures of nature such as butterflies, caterpillars, stringrays and marsh snails that look asymmetrical, irregular, and unbalanced with our naked eyes, but we can actually find the so-called 'the law of golden proportion' in all these creatures(Shin & Kim, 2000). We can also find



Fig. 9.  
Family Papilionidae

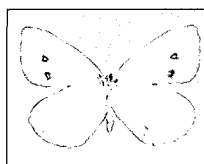


Fig. 10.  
Pieridae

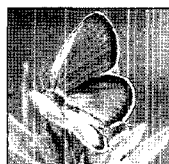


Fig. 11.  
Lycaenidae

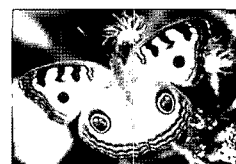


Fig. 12.  
Nymphalidae

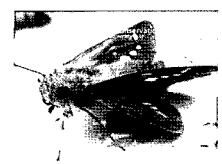


Fig. 13.  
Hesperidae

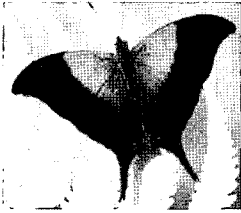


Fig. 14. Nymphalidae



Fig. 15. brimstone

this law in butterflies. A butterfly's wings are far bigger in size and proportion than its body, thereby creating a visual distinction. The wings display a great variety of looks by forming one line with many veins. In creating a work of art, we can take advantage of such a flexible array of shapes or looks that are found unpredictably when small things are extended or large things are reduced.

The shapes and forms of the wings of butterflies are far more luxurious than those of other insects. The orange color from *papilio machaon hippocrates* belonging to Papilionidea and the blue color of *Inachis geisha* belonging to Nymphalidae demonstrate a complementary harmony, making the adjacent colors brighter and clearer. This can be called 'simultaneous complementary harmony' in that two colors make each other brighter at the same time, when adjacent (Fig. 14). *Gonepteryx rhamni* belonging to Pieridae have similar colors with an analogous harmony, giving us a cute and comfortable feeling (Fig. 15). The colors of *Pieriscandia* belonging to Pieridae and *Parnassius stubbendorffii Meneeries* belonging to Papilionidae demonstrate an acromatic harmony. For this research, the colors that are clearly identifiable from butterflies are selected from the Internet sources and classified in a circle of colors. When we create a circle of colors with all the colors found naturally in butterflies, it is confirmed that they have almost all the colors possibly found in nature. In butterflies, we find a diversity of color matches and effects as men-

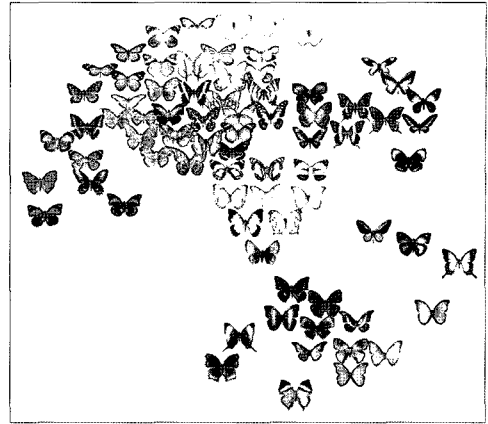


Fig. 16. Colors found in Butterflies.

tioned above. The most frequently observed colors in butterflies are the colors of yellow and brown. Butterflies of blue, red or green colors are also frequently observed, but those of violet colors are rarely observed (Fig. 16).

## 2) Modern Fashion Design Inspired by the Butterfly Motif

Nature is a root of art. Artists have long attempted to express the beauty of nature through their own creative interpretation. It was late in the 1980s when a trend of naturalism became stronger. They attempted to revive natural motifs directly into clothes, express natural silhouettes found from the creatures of nature, and decorate clothes with natural looks and shapes. There appeared many clothes with the flower motifs and butterflies began to gain attention from artists as a formative source. Butterfly motifs were expressed in various forms by designers. This research used the same method as in the previous works in terms of the decorating and printing techniques. There are two classes of designs that have utilized the butterfly motifs in this research. One is the designs that do not change the silhouette but have decorations inside, while the other is the designs that applied the butterfly shapes partly or as a whole to the silhouette line.

Let us first look at the former. Anna Sui expressed a bright and pleasant atmosphere with a print of a yellow butterfly on a simple sleeveless T-shirt (Fig.



Fig. 17.



Fig. 18.



Fig. 19.



Fig. 20.

Fig. 17. 2003 S/S, Annai Sui. [www.firstview.com](http://www.firstview.com)

Fig. 18. 2003 S/S, Emilio Cavallini. [www.firstview.com](http://www.firstview.com)

Fig. 19. Japan new designer contest, 2005

Fig. 20. Korean textile industry design contest, 1986

17). Emilio Cavallini expressed a strong image by printing a white butterfly look on a black top with a simple but sensual design (Fig. 18).

Let us now look at the latter. <Fig. 19> is a design work that got an award in a new designer fashion contest in Japan in 2005. This work could be viewed as a decorative type in that a pattern of a hairstreak was applied to a usual daily formal wear with a butterfly motif printing on it. However, we viewed it as a three-dimensional one, considering that its skirt hem line had a butterfly silhouette and more importantly because its overall look showed a complete look of a butterfly. <Fig. 20> is a poncho style clothing that attempted to express natural beautiful colors of butterflies as faithfully as possible.

### III. Design Development

#### 1. Design Intention

The essence of art and fashion design is to create a new world of order by transforming the beautiful forms and shapes from nature in an integrative way, highlighting the structural features of natural objects. (Ji, Eun Mi, 1986) In this research, the designs were developed by transforming the images of butterflies or reshaping them in an exaggerated way. We have chosen denim and cotton as the materials for our design works as they provide us with vitality, practicality, and diversity in our modern life.

Recently, denim has transcended its conventional function as a comfortable and strong cloth for workers and has been used extensively not only for clothing but also for all kinds of accessories. Denim skirts, with the associated images of vitality and toughness, contribute to creating a distinguished female look in combinations with a loose fringe that goes down to the knee (Fig. 21).

The highlight of the simple denim fashion is the original female line that reflects a uniquely beautiful body line of a woman (Fig. 22). For these reasons, we



Fig. 21



Fig. 22

Fig. 21. 2002 F/W, Alexander McQueen. [www.firstview.com](http://www.firstview.com)

Fig. 22. 2002 F/W, Lagerfeld. [www.firstview.com](http://www.firstview.com)



Fig. 23. Concept map

have set the concept of our design to the following direction. We have used a variety of shapes and colors of the images of butterflies to create a luxurious and diverse array of denim fashion. However, to seek for an expression of 'simplicity' in denim fashion, we created a design silhouette in a simple denim fashion. After all, what we eventually intend to express in our designs is to highlight the original body lines of women by focusing on the lines but not on any decoration. The concept map in <Fig. 23> well reflects our intentions.

## 2. Design Process Utilizing the CAD System

Since the 1980s, the CAD(Computer Aided Design) system has been widely used in architecture, machin-

ery, automobile industry and aeronautical engineering. It has been used particularly to specialize in automatizing the designing and production processes in these fields. Its use has now been greatly extended and popularized in many areas with its applications becoming easy to operate. When we look at how CAD has been utilized in the field of fashion design and industry, we find that it has been used quite extensively in special approaches to specialized designing processes such as knit and textile designing, the automatization of drafting and engraving of cloth designing as well as simple designing processes (Lee & Lee, 2005). It might take more time for beginning users of CAD to finish their work in the beginning. However, as they get used to operating it, they can maximize the efficiency of time and effort.

For the actual designing work in this research, we used Adobe Illustrator 10, Photoshop 7.0, and Prima Vision Textile Design System as they are very popular in CAD. <Fig. 24> shows a collection of butterfly motifs that are distinguished in shapes and colors, which we have encountered randomly while reviewing the literature or searching on the Internet. These butterfly images were created by highlighting only the butterfly motifs by using the polygonal lasso tool in the 'Photoshop' program. We attempted to maintain the original forms, shapes and colors of these butterfly images as best as we could. We developed these images into new prints with a new digital printing technique of the CAD system. <Fig. 25> shows a sample print developed from the butterfly motif and we used the full drop format to repeat prints. We

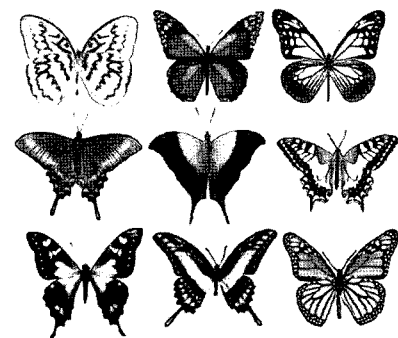


Fig. 24. 9 kinds of butterflies



Fig. 25. The Developed prints

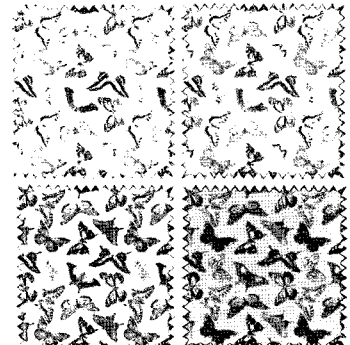


Fig. 26. Utilized print colors




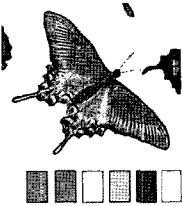
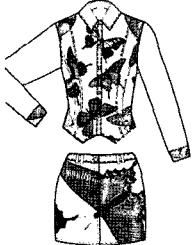

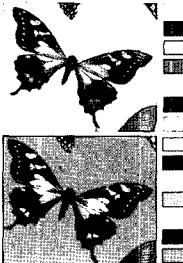
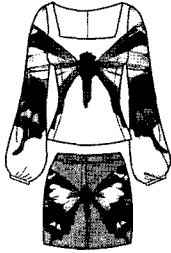

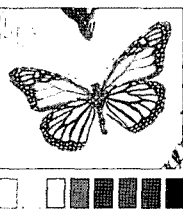
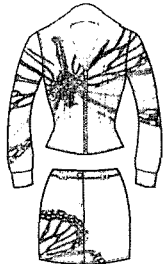
worked on the white background to arrange the basic printing shapes, while, in changing the repeated prints, we changed the color of the background into various colors to make beautiful color combinations by using the hue/saturation function in the 'Photoshop' program. <Fig. 26> is a sample of our attempt to change the colors of the background of a print. We then sought to make a creative design by applying the 'Illustrator' program on these prints to find the best looking angle for each print after trying all the possible angles.

### 3. Design Process

Designing is a creative work to come up with new forms and shapes by transforming or reshaping beautiful lines or shapes found in nature. With this mindset, we have chosen nine selections of shapes and

colors of butterflies to apply them in designing silhouettes. We chose the images of butterflies belonging to Family Papilionidae and Nymphalidae as two of the most appropriate kinds of butterflies for design application. The clothes designed by using the illustrator program targeted the women in their 20s and 30s with the silhouette designs displaying female beauty and an atmosphere of vitality. They consisted of such items as a shirt blouse, a mini-skirt, a jacket, a pant, a one-piece dress, a skirt and a top. They comprised a set of nine silhouette designs that can be used for the mix-and-match style fashion. We are planning to use thin cotton as material for blouses and shirts rather than denim. As for the other items, we intend to use denim the thickness of which will be identical across the items. Overall, we are planning to use a natural material such as cotton.

Table 1. Design composition

	Original	After	Example	Description
Design 1	 Family Papilionidae			Top: Denim Shirt Bottom: Denim Skirt We applied the all-over print on top shirts and the extended size of a butterfly image on skirts.
Design 2	 Family Papilionidae			Top: Cotton Blouse Bottom: Denim Skirt We arranged the clothes in two-color ways, putting the motif in the center and creating a scarf look.
Design 3	 Family Papilionidae			Top: Front open Denim Jacket Bottom: Denim Skirt We created a sense of abstractness by exaggerating the motif.

As far as colors are concerned, we have used basic natural colors that butterflies have in themselves. However, for the purpose of changing these colors

into the type that is more appropriate for clothes, particularly for denim clothes, we have changed their print colors by using the 'hue/saturation' function in

Table 1. Continued





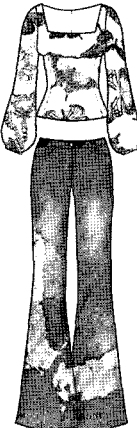









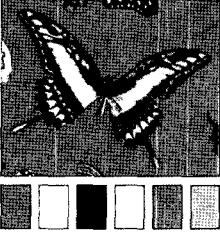


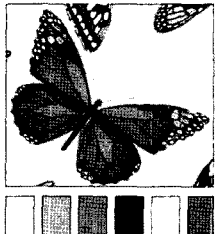
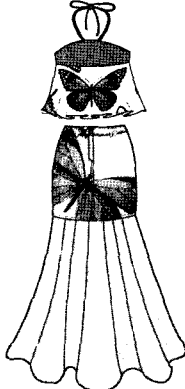
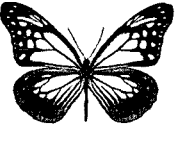
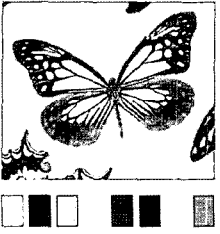
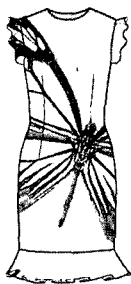
	Original	After	Example	Description
Design 4	 <p>Nymphalidae</p>	  		<p>Top: Cotton Blouse</p> <p>Bottom: Denim Pants</p> <p>We arranged the clothes in two-color ways, applying the all-over prints on top and the abstract images of butterflies on pants.</p>
Design 5	 <p>Nymphalidae</p>	 		<p>Top: Denim Shirt</p> <p>Bottom: Denim Pants</p> <p>We made a solid blue denim shirt and applied the image of the butterfly in design 5 by changing its color into blue on a white pant.</p>
Design 6	 <p>Nymphalidae</p>	 		<p>Top: Denim Jacket</p> <p>Bottom: Denim Pants</p> <p>We applied the motif in design 6 in a cross way over the top and the bottom.</p>

Table 1. Continued

	Original	After	Example	Description
Design 7	 <p>Family Papilionidae</p>			<p>Top: Denim corset style top Bottom: Denim Pants</p> <p>We created clothes in one-color way, applying the turkey color taken from the color way on the whole top and the exaggerated motif on pants. We applied the main motif on the knee part.</p>
Design 8	 <p>Nymphalidae</p>			<p>Top: Cotton Halter style top Bottom: Denim Skirt</p> <p>We applied red taken from the color way in design 8 on top and changed the size of the motif from top to bottom.</p>
Design 9	 <p>Nymphalidae</p>			<p>Denim Dress</p> <p>We put the motif of design 9 on the waist. We arranged it as if it looked like gathering.</p>

the 'photoshop' program. We have composed a circle of colors to display all the colors that were applied to making our clothes. These colors do not have an overall theme of uniformity, but we have mostly used the colors belonging to white, yellow, orange, blue and green. The composition of each design is represented as in <Table 1-3>.

#### IV. Conclusion and Implication

Recently, there has been an increasing demand for casual clothes as people have had more leisure time and opportunities. Concurrently, the so-called 'well-being culture' has become a major trend and there have appeared a variety of natural and organic clothing materials. Naturalism has now become a trend

maker, not simply a trend setter. In this situation, this research aims to create nature-friendly and high-value modern designs by grafting natural images of butterflies into human bodies, using a natural material like denim.

Modern designers have long been looking for natural motifs through which they can express their inspiration. Based on the concepts of naturalism and natural clothes, this research produced the designs of women clothes, inspired by the images of butterflies that show such a luxurious diversity of forms, shapes and colors by using the computer design technology. As for the clothing material, natural materials such as denim and cotton were used to represent practicality as well as naturalism.

The followings are the major findings in this research.

First, the concept of naturalism has changed from the Ancient Greek period to the modern period. Naturalism has its interest in the inherent human nature and seeks objectivity by making a realistic description based on science. Thus, it eventually aims to find a true meaning of life from nature. The concept of natural clothes is in the same vein as the concept of naturalism. These clothes are the ones that are made from natural and unprocessed materials with natural colors and dyes based on natural motifs such as animals and plants, creating comfortable and natural silhouette. In the modern period, there appeared a variety of trends such as primitivism, ethnic, and ecology trend. This research shows that these concepts stand out individually and in a combined way as well.

Second, this research clearly demonstrates that the shapes and colors of butterflies are so diverse and luxurious that they are a wonderful source of natural images for designers. By carefully analyzing their shapes and colors, we could identify the kinds of butterflies that can be most effectively applied to the development of fashion designs.

Third, through a review of the previous studies, it was found that most of the design works inspired by the butterfly motifs were applied to the smooth and feminine themes. However, this research, in line with a recent trend of change in the modern society, aimed

to create practical and functional designs for women as casual wear by applying the butterfly images to natural clothing material such as denim. In developing the designs, it was confirmed that it was possible to create high-valued practical designs by applying the print images of butterflies to such practical materials as denim and cotton and thereby extend the range of modern fashion. Furthermore, it is hoped that this research can contribute to arousing the awareness of living in harmony and with comfort in this hectic modern life by showing an example of grafting the images of animals or plants in nature into the actual process of clothing design.

Fourth, the design work done by using a computing technology turned out to be very effective in reflecting a wide range of natural butterfly images and colors on design patterns. The computer-assisted designing made it possible to change and revise the designs in a short time, providing designers with more opportunities and economic advantage in print design.

The design process using the CAD system will be essential with the ever-growing development of IT industry in the future. Recently, the CAD system has become more sophisticated with a development of technology that enables designers to create designs in a three dimensional space rather than on a two dimensional place. The technology is expected to get even more sophisticated in the future. Therefore, taking advantage of the CAD system in developing fashion designs has now become vitally important and designers must know how to utilize this technology. It is hoped that this research contributed to reminding fashion designers and students of the importance of design work using the computer technology.

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## 요 약

본 연구는 먼저 자연주의와 자연주의 복식이 무엇인가에 대하여 고찰하고 그 개념을 바탕으로 자연의 요소 중 그 화려함과 다양함을 보여 주는 나비를 선택하여 자연 소재인 데님과 접목시킴으로써 인간 체형에 자연의 형태를 입혀 자연과 친화될 수 있는 고부가가치의 현대 복식디자인을 창출하는 것을 목적으로 하였다. 그리고 디자인 도출방법으로는 요즘 디자인 작업에서 많이 활용되고 있는 CAD 시스템 중 가장 대중화되어 있는 Adobe Illustrator 10, Photoshop 7.0, Prima Vision Textile Design System을 이용하여 디자인을 하였다. 본 논문의 연구결과는 다음과 같다. 자연주의의 개념은 인간의 본질에 관심을 가지고 과학에 근거를 둔 사실적인 묘사로 객관성을 가지며 이로 인해 자연 속에서 삶의 본질을 찾고자 하는 것이다. 자연주의 복식의 개념은 천연의 가공하지 않은 소재와 자연의 색이나 천연염료의 색을 사용하고 자연의 모티브인 식물·동물 등 자연 형상을 모티브로 하며 편안하고 자연스러운 실루엣을 의미하는 복식인 것을 알 수 있었다. 그리고 나비의 뚜렷한 시각적 강조를 드러내는 구조는 어느 곤충들보다 화려하여 우리의 관심을 끌어 들이는 데에 사용될 수 있고 작가가 의도하는 방향으로 발전시킬 수 있는 가능성을 확인할 수 있었다. 마지막으로 캐드를 이용한 프린팅 디자인은 수작업으로 이루어지는 일반 프린팅 기법에 비해 더욱 풍부한 색의 프린트 디자인과 다양한 시도를 할 수 있어 프린트 디자인에 더욱 많은 기회와 경제성을 제공하는 것을 확인할 수 있었다.