Cultural Reinvention:
Design management for
Korean cultural textile products

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The candidate confirms that the work submitted is her own, except where work which has formed part of jointly-authored publications has been included. The contribution of the candidate and the other authors to this work has been explicitly indicated below. The candidate confirms that appropriate credit has been given within the thesis where reference has been made to the work of others.

The candidate has published 4 papers from her thesis and these have been submitted with the thesis. She is the first named author and definitely the main author with all others named being in normal supervisor or adviser roles. All the data collection was carried out by the candidate and the other authors helped with tool design, methodology advice and advice on analysis and interpretation.

Abstract

The subject dealt with in this thesis is to develop design management models for a translation from a traditional cultural product into a modern product to meet a relevant target market. This thesis provides a review of the basic disciplines of culture, cultural product and design management. Attention is focused on the concept of cultural reinvention as an effective design management tool for producing a successful cultural product, which can fit into a contemporary market. The focus of this research describes how to translate Korean traditional *bojagi* textile products into modern fashion products for young generation consumers. A cultural reinvention model is proposed for Korean traditional *bojagi* textiles, which includes the design and target marketing strategies and internet marketing for effective communication with target consumers. To understand the target consumer preferences, a colour experiment was conducted among the target consumers for the Korean traditional five colours ("*obangsaek*"), which are mainly used for *bojagi*. For using internet marketing, a Korean *bojagi* website was developed including an interactive *bojagi* design tool, which is designed through six categories; history, style, patterns, colours, fabrics of the traditional Korean *bojagi* and the '*design your own bojagi*' component. It can be utilised for consumer preference, product development and the early promotion of Korean fashion *bojagi* fabrics. It also opens up an opportunity to be a research tool as an educational web based interface. Five focus group interviews were conducted among the young generation consumers to evaluate the usability and entertainment (enjoyable) values of the Korean *bojagi* website. Furthermore, to evaluate the commercial value of the fashion *bojagi* applications, a Korean *bojagi* sample book was produced and used for interviewing four fashion companies in the UK. The findings and results of the experiment and the interviews are described and the development of each part of the website and applications is explained and illustrated.

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- Shin M.J., Cassidy T. and Moore E.M. (2011), Cultural reinvention for traditional Korean bojagi*, International Journal of Fashion Design, Technology and Education*, Vol. 4, Issue 3, p.213-223

- Shin M.J., Westland S, Moore E.M. and Cheung V. (2011), Colour preferences for traditional Korean colours, *Colour: Design & Creativity* (submitted)

- Shin M.J., Westland S., Cheung V. and Cassidy T. (2010), Colour preferences of the Korean young generation, *Proceedings of the CREATE: colour in art, science, design, conservation, research, printmaking, digital technologies, textiles conference*, p.74-78, Gjøvik, Norway

- Shin M.J., Cassidy T. and Moore E.M. (2009), Cultural reinvention: design marketing for cultural textile products, *International Association of Societies of Design Research Conference*, p.88, Seoul, Korea

Chapter 1: Introduction

1.1 Background of the study

> *"Cultural products reflect a living culture and evolve despite being based on traditional forms and knowledge"*

[African Union, 2006, p.3]

The concept of cultural products was discovered and developed within the field of culture studies. Culture has been defined in many ways. As Kluckhohn [1951] pointed out,

> *"Culture consists in patterned ways of thinking, feeling and reacting, acquired and transmitted mainly by symbols, constituting the distinctive achievements of human groups, including their embodiments in artefacts; the essential core of culture consists of traditional (i.e. historically derived and selected) ideas and especially their attached values."*

[cited by Hofstede, 2001, p.86]

Culture includes values which are invisible until they become evident in behaviour, but culture manifests itself in visible elements too. From the many terms used to describe visible manifestations of culture, symbols, together with values, cover the total concept [Hofstede, 2001, p.10].

> *"Symbols are words, gestures, pictures and objects that carry often complex meanings recognised as such only by those who share the culture. The words in a language or jargon belong to this category, as do dress, hairstyle, flags and status symbols. New symbols are easily developed and old ones disappear; symbols from one cultural group are regularly copied by others."*

[Hofstede, 2001, p.10]

Over decades, there has been a growing realisation of the importance of culture and cultural industries in the world. Today, these industries produce an immense and

continuously growing range of outputs such as jewellery, music, video games, fashion design and visual arts [Gay, 1997, p.12; Power and Scott, 2004, p.1].

Cultural creation is motivated and the motives lie within the contemporary existences of creating subjects. Thus, invention is grounded in historical conditions and necessarily in a social and existential continuity. This is an argument for a significant experiential continuity, a substrate of shared motivational and interpretative fields that is essential to understanding that may appear superficially as complete novelties [Friedman, 1994, p.13].

As Friedman [1994] stated,

> "*Culture as product, thing, substance is culture neutralised and turned into objects of consumption*."
>
> [Friedman, 1994, p.1]

In the modern consumer society, culturally shared meanings and practices are produced, reproduced and transformed in the market, through the symbolic processes and practices of production and consumption [Moisander and Valtonen, 2006, p.9]. Culture influences how people relate to each other in the buying process, whether decisions are made by individuals or groups, and what motivates someone to buy specific products [cited by Hofstede, 2001, p.448; De Mooij, 1998, p.56].

An accelerating convergence between the economic and the cultural is currently occurring in modern life, resulting in different urban and regional outcomes and opening up new opportunities to raise a country's levels of income, employment and social well-being [Power and Scott, 2004].

In this light, designing commercial values into cultural products and making them popular has seen gradual growth. Design can be viewed from a cultural perspective as a visual barometer of changing times, and products express the evolving values and aspirations of the society which consumes them [Cooper and Press, 1995, p.15].

Consumerism is turned into imposing our presence on the goods, on the present. For

example, the mod subculture proceeded to demonstrate how the objects and contexts of commercial popular culture - records, clothes, dance and transport - could be transformed and moulded by the particular realities of this time and this place [Frow, 1995, p.67].

As a term of popular defined by Hall, a quantitative or ‘market’ definition corresponding to ‘common sense’, simply says that they are said to be “popular” because masses of people listen to them, buy them, read them, consume them, and seem to enjoy them [Hall, 1997, p.2]. Popular culture in this sense is in conflict with a qualitatively defined ‘culture of the people’, a culture understood as emanating from the people, and it is associated with the manipulation and debasement of this culture [Frow, 1995, p.71].

Additionally, current global trends related to creativity in design businesses identify the creative industries as one of the growing sectors in the world and one of the good ways to increase competitive advantage between commercial companies and even countries. The creative industries (also known as the creative economy) include the areas of design, arts and crafts, advertising, architecture, fashion, film, music, TV, radio, performing arts, publishing and interactive software. In design businesses, taking a holistic approach to the cultural, environmental, political and societal impact of how commercial businesses operate is growing demand [Best, 2010, p.8].

Designers have also started to reassess the values that their professions uphold. Cooper and Press [1995] stated that by analysing the value of design in commercial, economic, symbolic and social terms we can gain a better understanding of its current and likely future role in economy and culture [Cooper and Press, 1995, p.45].

Although the importance of design research into cultural industries and cultural products has increased, many studies consider these concepts as isolated phenomena and focus on topics such as the cultural approach to marketing [Lindridge and Dibb, 2002; Jamel, 2003; Banerjee, 2008], product design and development [Kotro and Pantzar, 2002; Gotzsch, Monti and Podehl, 2006], and developing new products using own tradition [Yair, Tomes and Press, 1999; Lin, Sun, Chang, Chan, Hsieh and Huang, 2007]. Employing such an approach is insufficient. Cultural reinvention which is the way of contemporising a pre-existing cultural product is still in its development stage as an area of academic study and research.

This thesis claims a process for producing a successful cultural product through cultural reinvention will be an effective design management tool for a culturally motivated product to fit into a current market. Cultural reinvention means to present something in a new form or a new image while maintaining a culturally symbolic meaning and therefore create an entirely new product but based on an existing cultural product. In particular, this research proposes how to translate traditional Korean *bojagi*'s cultural meanings and methods into design elements and modern culturally based fashion products keeping both the cultural meanings and commercial values relevant to the needs of contemporary target markets.

1.2 Introducing Korean traditional cultural textile products

The author would now like to introduce the reader to Korean traditional *bojagi* textiles. There are three typical categories in Korean cultural textile products market. The first one is Korean traditional costume (*Hanbok*) divided into traditional style and modern one (*Gaeryang hanbok*). The others (including *bojagi* and *norigae*) mostly occupy portions in that market which are fashion accessories and materials for everyday life. Indeed, in categories other than Korean traditional costume, there are various kinds of items that have been produced as modern products such as mobile phone cases, table runners, handbags, mufflers, tie pins, ties and so on. Nevertheless the variety of items and prices are limited and the products express neither Korean traditional culture nor modern style adequately. Also, *Insa-dong*, the typical place to sell cultural products, has many variations of the same product items so exclusivity will be compromised as will attractiveness to the consumer. Consequently, it is essential to make a representative category for Korean cultural textile products and also to develop a brand which represents Korean culture accurately.

In the case of *bojagi* (Korean traditional wrapping cloths) is the category which incorporates strong textile characteristics to convey cultural meaning and aesthetic value to design contemporary fashion products. The traditional Korean *bojagi* textile products are manufactured in different styles, patterns and colours. Some examples of traditional Korean *bojagi* textiles are given in Figure 1.1. It occupied a prominent place in the daily lives of Koreans of all classes (the gentry and ordinary) during the Joseon dynasty (1393-1910) [Roberts and Hur, 1998, p.13]. *Bojagi* were used for wrapping as

well as for covering a food table, storing, and carrying objects. It can be divided first into two large groups according to their users: gung-bo (wrapping cloths for the palace) and min-bo (wrapping cloths for ordinary people). They can be divided further according to their construction, design and the purpose they serve. If they are lined, they are called gyeop-bo (gyeop means ‘double’), while unlined ones are called hot-bo (hot means ‘single’). They are often padded with cotton and therefore called som-bo (som means ‘cotton’), while quilted wrapping cloths are called nubi-bo (nubi means ‘to quilt’). If they are made with a patchwork design, they are called jogak-bo (jogak means ‘small segments’), while embroidered wrapping cloths are called su-bo (su means ‘embroidery’). If they are made to wrap bedding, they are called yibul-bo (yibul means ‘bedding’). Those for wrapping fabrics are chon-bo (chon means ‘fabrics’) and those for enclosing clothing are called op-bo (ot means ‘clothes’. When it is followed by the word bo, it changes to op in sound becoming op-bo). Especially, jogak-bo is the most popular wrapping cloths, which were made with patchwork designs by small pieces of leftover cloth, used exclusively by the ordinary people [Roberts and Hur, 1998, p.14]. It was decided to form a taxonomy of the various traditional textile products and Figure 1.2 shows an example of this approach for one type of product known as min-bo.

	**Sang-bo** (19th century, 52x52cm)	It was used by commoners for covering a food table or tray. It was unlined and made by silk with pattern-woven design [Roberts and Hur, 1998, p.57].
	**Kirogi-bo** (19th century, 32x32cm)	It was used by commoners for enclosing a wood goose for the traditional Korean wedding ceremony. It was lined and embroidered design [Hur, 2004, p.87].
	**Norigae-bo** (19th century)	It was used by the gentry for wrapping personal ornaments (which called norigae). It was lined and made by silk with pattern-woven design [Suh, 2007, p.61].

Figure 1.1 Examples of traditional Korean *bojagi* textiles

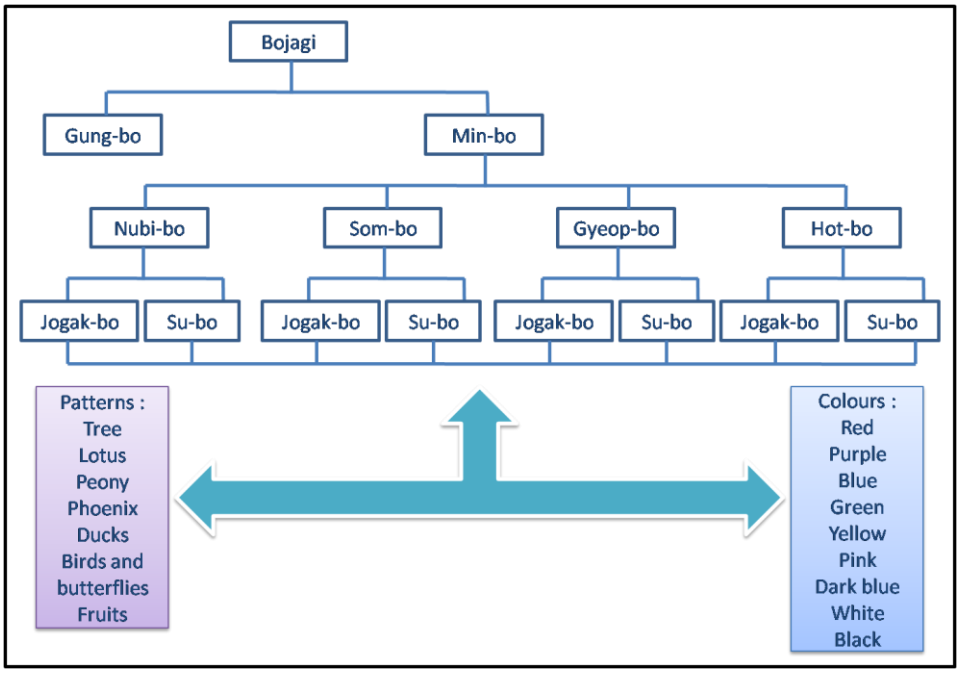


Figure 1.2 An example of a taxonomy approach for min-bo [Kim, 2003, p.12]

Traditional *bojagi* are classified according to their use, the status of their user, their design and their composition. Perhaps the two most basic categories are gung-bo, which refers to the *bojagi* used in the royal court, and the min-bo, which refers to the *bojagi* used by ordinary people

The min-bo were much simpler than gung-bo, tended to be more abstract in decoration and were stronger, as they needed to be used over and over again. While many min-bo were multipurpose, others were reserved for use on special occasions.

Several types of min-bo were used when performing Buddhist rites in temples or at the homes of believers. A kyongjon-bo (kyongjon means 'Buddhist scripture') was used to wrap and protect the Buddhist scriptures. Other cloths were designated for use in marriage rites. The kirogi-bo (kirogi means 'a goose') was used to wrap the wooden goose which was handed to the bride as a token of everlasting love during the marriage ceremony, while the pyebaeck-bo was used to wrap and cover the food presented by the bride to the elders in the groom's family [Roberts and Hur, 1998, p.19]. As a part of the betrothal ritual on a specially picked day which is most auspicious for the new couple, the bridegroom's family sends the bride's family a letter and a gift of

fabrics usually of silk for the bride as a formal acknowledgment of the forthcoming marriage. They are enclosed in a special wrapping cloth called yemul-bo (yemul means ‘ceremonial or special object’). The wrapping cloths made to enclose the gifts the bride’s family sent to the groom’s family are called yedan po. Norigae-bo are made to protect personal ornaments, norigae, and hence the name norigae-bo. These are usually padded with cotton [Roberts and Hur, 1998, p.17].

Wrapping cloths decorated with design in pressed gold are called geumbak-bo (geumbak means ‘pressed gold’). Embroidered wrapping cloths are called su-bo (su means ‘embroidery’) which were used to decorate one or more stylised patterns. The patchwork wrapping cloths perhaps reveal most accurately the world of Korean women of the Joseon dynasty. The initial process of laying out forms and colours provided an opportunity for Joseon dynasty women to test their own aesthetic sensibilities and discover their innate creative talents. Since no gung-bo made with a patchwork design has survived or been recorded [Roberts and Hur, 1998, p.15]. The following figures, where provided by the author in order to help the reader to navigate their way through the complex varieties of traditional *bojagi* textiles.

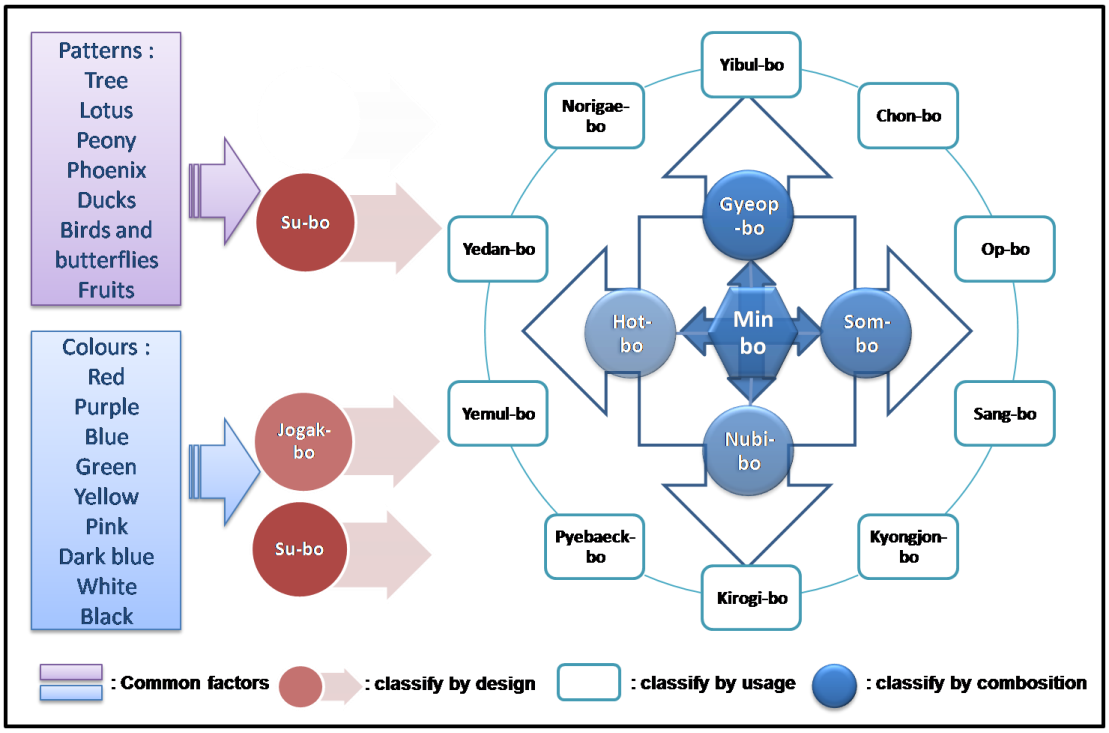


Figure 1.3 A taxonomy approach for min-bo
[Kim, 2003, p.12; Roberts and Hur, 1998, p.17]

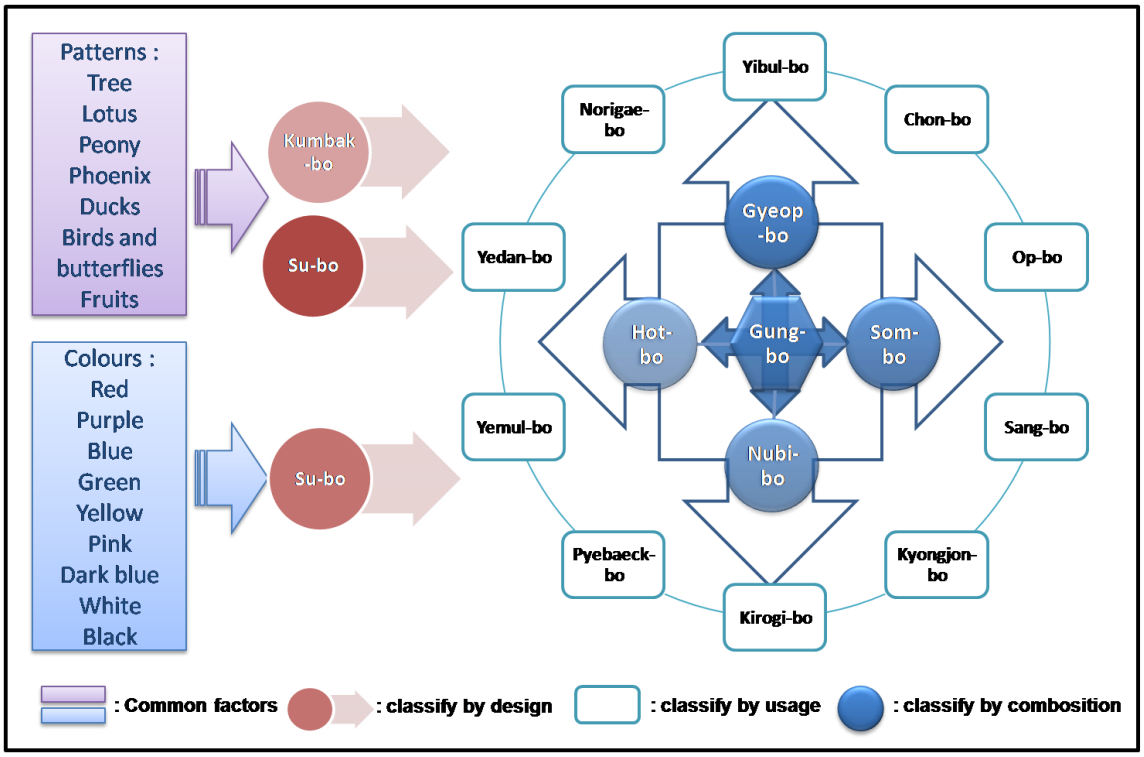


Figure 1.4 A taxonomy approach for gung-bo
[Kim, 2003, p.12; Roberts and Hur, 1998, p.17]

1.3 Aims and objectives

The aim of this research is to identify and examine a process to produce a successful cultural product and to develop, evaluate and discuss a design marketing tool for an effective and commercial reinvention of cultural textile products. The study is how to transfer the traditional Korean cultural meanings to design elements and to design fashion *bojagi* prototypes that meet the needs of the contemporary target markets. Additionally, the overall purpose is therefore to provide information that will aid designers and marketing managers make better informed decisions.

The main objectives of this study were as follows:

- To explore the literature on culture, cultural products and design management
- To define the term cultural reinvention through a case study of Scottish tartan

- To explore the current market situation of Korean cultural textile products
- To propose a process for producing successful cultural products through cultural reinvention
- To suggest possible design marketing strategies for effective cultural reinvention of traditional Korean *bojagi* textile
- To examine and analyse the target consumers' colour preferences
- To develop a Korean *bojagi* website including a new *bojagi* textile design tool for a design marketing tool
- To apply the design concept tool for producing prototypes to a range of fashion *bojagi*
- To evaluate this web interface and the fashion *bojagi* design prototypes

1.4 Thesis structure

In the context of this thesis, attention is focused on design management concepts for applying to cultural reinvention of culturally motivated textile products. To generate background knowledge, chapter two provides an extensive explanation of the culture, cultural products and design management.

Chapter three presents an overview of the case of Scottish tartan. This case study focuses on the evolution process of tartan from a clan tartan system to a fashion tartan has shown some possibilities of design marketing for cultural reinvention, such as a successful modernisation of traditional cultural products or a successful transformation into popular items. It summarises the results of semi-structured interview from Marton Mills and discusses a number of tartan websites employed as an internet marketing tool. It also exemplifies the concept of cultural reinvention of a traditional textile.

Chapter four is built up on the development of the concept of cultural reinvention for the traditional Korean textile products; the process for producing successful cultural products through cultural reinvention and the process of cultural reinvention for Korean

traditional *bojagi*. It demonstrates current circumstance of Korean traditional cultural textile market through four marketing components and then, proposes design marketing strategies for cultural reinvention. It also outlines the results of semi-structured interview from the Museum of Korean embroidery. This chapter is important to set the construction for the research objectives.

Chapter five presents an area of primary research, examining target consumers' colour choices and preferences among the young Korean and young UK consumers. This section focuses on their colour preferences and what they considered to be successful fashion colours. It identifies and discusses the connections between culture, colour and consumption, as these connections may be useful for designing fashion *bojagi*. This chapter clarifies colour preferences of the targeted consumers and these can be adopted to develop Korean fashion *bojagi* design samples.

Chapter six of this thesis is focused on developing a Korean *bojagi* website including a new design tool for fashion *bojagi* fabrics as a new design marketing tool. On the website, six categories are considered: history, styles, patterns, colours, fabrics of the traditional Korean *bojagi* and the '*design your own bojagi*' component and these elements are used to produce a new design concept tool for Korean fashion *bojagi* textiles.

Chapter seven evaluates the web interface used by focus groups which are classified by different cultural backgrounds and uses task analysis to elicit information and the design tool is useful and enjoyable to focus groups. It also analyses the design outcomes by four different cultural groups and one cross-cultural group. This chapter presents applications of Korean fashion *bojagi* designs used by the design tool with illustrations and fabric samples. It verifies commercial values and potentialities of the Korean fashion *bojagi* designs to current fashion industry.

Chapter eight is the conclusion of this research which outlines the key findings and limitations of this study and discusses how the research may be expanded in the future.

Chapter 2: Defining the Concepts

2.1 Introduction

The Oxford Advanced Learner's Dictionary [2009] defines culture as "the customs and beliefs, art, way of life and social organisation of a particular country or group". To understand the meaning of culture, it is important to understand the various fields of cultural thought that discuss it [Singh, 2004, p.95].

Cultural products can be defined as the artefacts produced by and for a certain cultural group. The term cultural product is synonymous with material culture which is restricted to evidenced material and artefacts; this research will apply these same parameters.

Design is a central component for the development of a successful cultural product. From a cultural perspective design and design outcomes can be viewed as visual barometers of changing times. They provide important and unique insights into social change through understanding the world and social relations in the form of physical objects [Cooper and Press, 1995, p.15].

Design and cultural based design are, from a strategic marketing perspective, commonly employed as the bases for competitive advantage or product differentiation. Design creates a unique position in relation to other competing products in the market and so design and skilful management are imperative for success [Farr, 1966, p.6]. Design management refers to the process of how designers' skills are employed in progressing a problem to its solution in undertaking a design task and to the way of the strategic planning of product development by using the design process [Cooper and Press, 1995, p.36].

This chapter reviews the fundamental concepts of culture, cultural products and design management in order to understand the more advanced concepts and processes that are dealt with in subsequent chapters.

2.2 Culture

In order to get a better understanding of the concept of culture, this chapter looks at the development of the term within various fields of cultural thought. The disciplines of

anthropology and to an extent, psychology and sociology have contributed enormously towards cultural understanding [Singh, 2004, p.95].

One well-known anthropological consensus definition runs as follows:

> *"Culture consists in patterned, explicit and implicit, of and for, behaviour acquired and transmitted by symbols, constituting the distinctive achievement of human groups, including their embodiments in artefacts; the essential core of culture consists of traditional ideas and especially their attached values; culture system may, on the one hand, be considered as products of action, and on the other as conditioning elements of further action."*
>
> [Kluckhohn, 1951, p.86]

In anthropology, prior to the 1950s, the concept of culture was viewed as being outdated and ambiguous and often treated in quantitative social science [Shweder and LeVine, 1984, p.67]. After the 1950s, the dominant age of behaviourism, with its assumption that most things about people – personality, culture, and language – could be understood as complexes of stimulus and response connections, the concept of culture changed to knowledge and symbol rather than habit and behaviour. This was rapidly assimilated into anthropology and the human sciences [Shweder and LeVine, 1984, p.88].

2.2.1 Culture as a shared value by society

An early definition of culture is:

> *"that complex whole which includes knowledge, beliefs, arts, morals and law, customs and any other capabilities and habits acquired by man as a member of that society."*
>
> [cited by Dibb, 2002, p.271]

Culture is the fundamental base of a society. It has a long-lasting influence on the behaviour of its people [Banerjee, 2008, p.368]. Culture's effect on behaviour is a highly contentious issue among academics. Segall [1983] argued that due to culture's complexity it is impossible to identify any relationship with specific behaviour [Irvine and

Berry, 1983]. Kim *et al*. [1994] differ, arguing that culture and individuals are interrelated, resulting in the beliefs, norms, organisations and social structures that can be identified with culture. Leung and Bond [1989] add that this interrelationship allows individuals, society and their culture to function, therefore confirming the relationship between culture and its social affect on behaviour [cited by Lindridge and Dibb, 2002, p.272].

Culture is often produced by the growth within a community of characteristic symbolism, and modes of interpretation. These, arrived at by the individual, may yet express common tendencies and become current throughout a group. Thus elements of culture having different sources may be attracted, gather and form complex patterns [Bartlett, 1923, p.244]. Kroeber and Parsons [1958] arrived at a cross-disciplinary definition of culture as transmitted and created contents and patterns of values, ideas and other symbolic-meaningful systems as factors in the shaping of human behaviour and the artefacts produced through behaviour [cited by Hofstede, 2001, p.9].

In sociology, as Hall [1997] argued,

> *"culture is involved in all those practices…which carry meaning and value for us, which need to be meaningfully interpreted by others, or which depend on meaning for their effective operation. Culture, in this sense, permeates all of society"*
>
> [Hall, 1997, p.3]

Hofstede [2001] refers to culture as "the collective programming of the mind which distinguishes the members of one group or category of people from another". The "mind" stands for head, heart and hands - that is, for thinking and acting, with consequences for belief, attitudes and skills [Hofstede, 2001, p.10]. Culture refers to a set of values, ideas, artefacts and other meaningful symbols that help individuals to communicate, interpret and evaluate as members of society. It is normally a homogeneous system of collectively shared meaning, way of life and a common set of values shared by a member of society and that are learned from one generation, imposed by the current generation, and passed on to succeeding generations [cited by Banerjee, 2008, p.368].

Values are held by individuals as well as by collectives; culture presupposes a collectivity. A value is “a broad tendency to prefer certain states of affairs over others” [Hofstede, 2001, p.5]. As Kluckhohn has affirmed, culture in this sense includes values; systems of values are a core element of culture. Values are invisible until they become evident in behaviour, but culture manifests itself in visible elements too. Many terms are used to describe visible manifestations of culture, but as described by Hofstede [2001] “symbols cover the total concept rather neatly”.

Symbols are words, gestures, pictures and objects that carry often complex meanings recognised as such only by those who share the culture. The words in a language belong to this category, as do dress, hairstyle, flags and status symbols. New symbols are continually emerging and old ones disappear; symbols from one cultural group are regularly copied by others [Hofstede, 2001, p.10].

2.2.2 Culture as a symbol of society

Geertz [1973] analysed the meaning of culture as a symbol of society in his research. The concept of culture is expressed in an influential formulation by Geertz [1973] as

> *“a historically transmitted pattern of meanings embodied in symbols, a system of inherited concepts expressed in symbolic form by means of which men communicate, perpetuate and develop their knowledge about and attitudes towards life.”*
>
> [cited by Shweder and LeVine, 1984, p.1]

According to McCracken [1986], culture constitutes the phenomenal world in two ways. First, culture is the ‘lens’ through which the individual views phenomena; as such, it determines how the phenomena will be comprehended and assimilated. Second, culture is the ‘blueprint’ of human activity, determining the co-ordinates of social action and productive activity, and specifying the behaviours and objects that issue from both. As a lens, culture determines how the world is seen. As a blueprint, it determines how the world will be fashioned by human effort. In short, culture constitutes the world by supplying it with meaning [McCracken, 1986, p.72].

Additionally, Bartlett [1923] defined culture as a part of two components: firstly, cultural elements which denote material behaviour and objects and secondly, cultural materials

that cover forms of cultural practices, artefacts, social and religious rituals, and customs. According to Engel *et al.* [1995], culture has two fundamental components: abstract and material. Abstract components may be considered as values, attitudes, ideas, types of personalities, symbols, rituals and summary constructs like politics and religion. Material components represent visible cultural objects that represent the society as a whole [Banerjee, 2008, p.369].

Consequently, as shown in both opinions of culture, the significance is not only seen in less tangible elements of life, such as meanings, representations and values, but also culture carries particular meanings and constructs in tangible forms [Gay, 1997, p.2]. Culture reflects a certain society and it is represented at a particular time through a particular group of peoples' lives as a form of symbols.

2.3 Cultural products

As discussed previously, culture is represented as a symbol of a particular time and society. Cultural products can be divided into two distinct terms which are culture and products. Thus, the objectives of this section is to examine the term "cultural products", with a particular emphasis on material culture, and to outline the fashion product as a typical kind of material culture.

2.3.1 Terminology

> *"Our ideas, our values, our acts, even our emotions, are, like our nervous system itself, cultural products-products manufactured, indeed, out of tendencies, capacities, and dispositions with which we were born, but manufactured nonetheless."*
>
> [Geertz, 1973, p.50-51]

Cultural products reflect a living culture and evolve despite being based on traditional forms and knowledge. Also referred to as traditional cultural expression or expressions of folklore, cultural products derive from culture - the distinctive material, intellectual, spiritual and emotional features that characterise a society or social group [African union, 2006, p.3].

To think of the meaning of cultural products as representing their own society and social group illustrates that they are included amongst cultural icons. Holt [2004] stated a cultural icon as a person or thing regarded as a representative symbol, especially of a culture or a movement; a person or an institution considered worthy of admiration or respect. More generally, cultural icons are exemplary symbols that people accept as a shorthand to represent important ideas [Holt, 2004, p.1].

Cultural icons are as old as civilisation, but their mode of production has changed dramatically since the mid-nineteenth century. In premodern times, icons (mostly religious) gradually diffused through oral storytelling traditions and scarce written documents. With the emergence of modern mass communications through books, magazines, and newspapers in the nineteenth century, then films in the 1930s, and television in the 1950s, people increasingly inhabit a world in which the circulation of cultural icons has become a central economic activity. Cultural icons consistently represent a particular kind of story - an identity myth - that their consumers use to address identity desires and anxieties, especially, needs at a given historical moment, and they perform it charismatically [Holt, 2004, p.2].

Similar to cultural icons, consumption symbols or commercial brands have a significance that goes beyond their physical properties, utilitarian character, and commercial value. Culture-specific meaning typically resides in the more abstract qualities of the commercial brand that provide primarily symbolic or value-expressive functions [Aaker *et al.*, 2001, p.492].

The study of consumption symbols, such as a commercial brand, is a useful approach for understanding how cultural beliefs and values are represented and institutionalised within the marketplace. As Aaker [2001] has stated, the meaning embedded in commercial brands has both culturally specific and culturally common elements [Aaker *et al.*, 2001, p.507].

Culture as a form of symbols of a particular time and society is the meaning of culture as discussed above. Consequently, cultural products can be thought of as artefacts produced by and for a specific cultural group. However, commercial needs and desires may and often do mean that although the form and style of the artefact may remain they might be produced by other cultural groupings.

Overall, cultural products indicate artefacts made by a culture which have a symbolic meaning of a certain time and distinct members of a society.

2.3.2 Fashion product as a material culture

One of the most important ways in which cultural categories are substantiated is through a culture's material objects. Objects contribute to the construction of the culturally constituted world because they are a vital, tangible record of cultural meaning that is otherwise intangible. The cultural meaning that has organised a world is made a visible, demonstrable part of the world through goods [McCracken, 1986, p.73].

> *"Material culture is the study through artefacts of the beliefs - values, ideas, attitudes, and assumptions - of a particular community or society at a given time. The term material culture is also frequently used to refer to artefacts themselves, to the body of material available for such study*."
>
> [Prown, 2001, p.70]

Material culture means that artefacts are formed by culture and reflect an understanding of a certain members of society. As Hume [2010] viewed, material culture is a process by which is made through the objects to establish the culturally pertinent meaning [Hume, 2010, p.83].

The process by which a culture makes its cultural categories manifest, has been studied in some detail by anthropologists. Structural anthropology has supplied a theoretical scheme for this study, with several subspecialties, such as the anthropologies of art, clothing, housing, and material culture, have supplied areas of particular investigation [McCracken, 1986, p.73].

Adornment which is a category of material culture, especially clothing, has, like the applied arts, the advantage of touching on a wide range of quotidian functions and embodying a relatively uncomplicated partnership of function and style that permits the isolation and study of style. As described by Prown [2001], the potency of this material as cultural evidence can be tested by the simple act of criticising someone's clothes; the reaction is much more intense than that aroused by comparable criticism of a house, a car, or a television set [Prown, 2001, p.88-89]. In fashion, what is termed as

the “phantasmagoria of commodities has always pressed close to the skin; clothing is quite literally at the borderline between subject and object, the cultural and the natural” [Franklin *et al.,* 2000, p.149].

To summarise, a fashion product can actually invent new cultural meaning in a modest way also it serves as one of the conduits to capture a highly innovative cultural meaning [McCracken, 1986, p.76].

2.3.3 Cultural value in textile and fashion products

The meaning of clothing is cultural, in the same sense that everything about which common understandings can be presumed to exist (the food we eat, the music we listen to, our furniture, health beliefs, to summarise, the totality of our symbolic universe) is cultural [Davis, 1992, p.13].

As Davis [1992] has stated, culture and social structure provides a source for fashion. They provide the process by which it diffuses within and among societies, the purposes it serves in social differentiation and social integration, the psychological needs it is said to satisfy and not least of all, its implications for economic life [Davis, 1992, p.4].

Traditional textile and fashion products reflecting their cultural identity and national image contain historical and cultural values. As Hyun and Bae stated,

> *“Traditional textile patterns have great historical and cultural value as a conventional structure for reflecting native culture through the collective value system and natural and emotional background of our nation.”*
>
> [Hyun and Bae, 2005, p.140]

These days’ incorporating creative and unique values in fashion is an important strategy for companies or countries. Cultural affiliation and/or reflection is successful methods employed by designers to differentiate their work. In the fashion industries, the focus is also the development of fashion cultural products which are clear in inherent cultural identity and have high stylishness [Hyun and Bae, 2005, p.139]. For example, Vivian Westwood using Scottish tartan patterns, Issey Miyake attempting a complex of traditional Japanese costume and new technology, and Vivien Tam

modernising, popularising and globalising traditional Chinese patterns and fashion colours. In this way, fashion products which clearly reflect cultural identity show a national image as well as creating added value in respect to public relations and industry development [Hyun and Bae, 2005, p.140].

Generally, culturally motivated textile designs and ideas are focused on incorporating the strengths of textile history into the fashion business and production as a new way of design and innovation, by stimulating design morphology that preserves cultural identity, and, at the same time, by making it adaptable to modern technology and applicable to all forms of production [Perivoliotis, 2005, p.1]. Looking for new ideas and designs, using the new perspectives of technical developments, with the idea of combining cultural textile designs with advanced technology proposes a possible commercial method of management by the industry [Perivoliotis, 2005, p.2].

2.4 Design management

> *"Design, defined in its broadest sense, is an activity we all undertake many times every day. In getting on with daily life, we all design and redesign processes and activities to fulfil our own needs, from children crossing roads to business people evaluating complex strategic business processes."*
>
> [Boyle, 2003, p.2]

The initial focus of design management was based on product development, with a strong sequential process orientation [Vazquez and Bruce, 2002, p.202]. Today that has moved onto a more iterative process with a strong marketing involvement. Thus, in this section a definition of design management linked with cultural product design will be discussed.

2.4.1 Terminology

Marketing is the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organisational goals. Kotler and Keller [2006] affirmed that marketing management is the art and science of choosing target markets and getting, keeping, and growing customers through creating, delivering, and communicating superior customer value [Kotler and Keller, 2006, p.31]. The management of new product

development must be considered in a strategic fashion, in order that the right type and product design may be developed in terms of the target market, the company resources, and the company product portfolio [Bruce and Cooper, 2000, p.7].

According to Francis and Winstanley [1987], firms are facing a high degree of competition and as the nature of the design process is changing then the opportunities for changing organisational forms are increasing and the pressures for switching to forms perceived as more effective are intensifying [cited by Bruce and Cooper, 1997, p.36] .

> *"Design is the process of seeking to optimise consumer satisfaction and company profitability through the creative use of major design elements (performance, quality, durability, appearance, and cost) in connection with products, environments, information, and corporate identity"*
>
> [Cooper and Press, 1995, p.2]

Design is a significant, potentially powerful management resource, susceptible like every other management resource to intelligent direction and control [Olins, 1985, p.106]. When setting the overall vision, senior managers must consider future trends in customer needs, design standards and design opportunities. Thus, a design strategy should work to express that vision through the design of products, the identity, brochures, advertising, graphic symbols and the physical environment itself [Cooper and Press, 1995, p.228].

As design is a unique factor in competition, skilful management and designing becomes imperative. If better returns are to be earned on the capital invested in the new materials, processes, plant and marketing systems, then what is required is a more precise application of the right designing skill to their products [Farr, 1966, p.6].

Current global trends also, relate to creativity in design businesses and identify the creative industries as one of the fastest-growing sectors and one of the best ways to increase competitive advantage between commercial companies and even entire countries. The creative industries (also known as the creative economy) include the areas of design, arts and crafts, advertising, architecture, fashion, film, music, TV, radio,

performing arts, publishing and interactive software [Best, 2010, p.8].

The very concept of “design management”, that has been evolving since 1965 and has been gathering momentum in the last two decades or so, reflects the idea that design must be more effectively defined and controlled by the processes of management [Cooper and Press, 1995, p.44]. Design management is about the successful management of the people, projects, processes and procedures behind the design of products, services, environments and experiences.

Design does not operate in isolation from other disciplines and professions, but in relation to a wide range of different conditions. The external context around design is evident in business, society, technology, politics and the environment. It is also evident in designers’ relationships to the worlds of marketing, management, engineering, finance, law and economics. The internal context around design includes how branding and innovation, user and market research, client briefs and design audits, budgets and teams, and project aims and objectives, can be leveraged to harness the power of design activity for the benefit of business, society and the economy [Best, 2010, p.8].

Overall, design management is the function of defining a design problem and making it possible to solve it on time and within an agreed budget [Farr, 1966, p.3]. Because design is the activity of turning a ‘need’ into a solution and a ‘concept’ into a reality. The solution may have or may not have a physical form, but it will certainly have a purpose, and the emphasis is on design purpose [Boyle, 2003, p.2].

2.4.2 Design as a planning process

Design is more than shape, colour and dimensions of products. Design is the decision-making process that deals with the manifestation of objects with consideration to business and technical purpose and in answer to various consumer demands [Cooper and Press, 1995, p.36].

The literature on design management refers to the concept of process in undertaking a design task that is a process from a problem to its solution with the strategic planning of product development [Cooper and Press, 1995, p.36].

Design certainly is a creative process, but in increasingly competitive global markets,

design must also be seen as a planning process. The challenge for management is to appreciate that in the new substance of industry, design is both a particle and a wave [Cooper and Press, 1995, p.42].

According to Cooper and Press [1995], design is expressed from being an individual activity through to a corporate planning process that regulates innovation to meet market demands. Its disciplinary boundaries, seemingly ever-shifting, range from engineering on one side to fine art on the other. Some claim that it has a duty to function, while others commit design to express emotion. Design can be a model of entrepreneurialism and willing servant of industry, or a means of expressing the values of culture [Cooper and Press, 1995, p.43].

These perspectives have been presented to demonstrate design's diverse and changing role as an activity or process that links the realms of technology, production and business with that of consumption, culture and ideology: the base and superstructure of society [Cooper and Press, 1995, p.43]. A fuller understanding of design, culture and economy will be beneficial as a planning process for designers.

2.4.3 Designing a cultural concept into new product

This is a very important part of developing new products encapsulating cultural meaning.

> *"By converting ideas, products of the mind, into material objects 'out-there', we give them relative permanence, and in that permanent material form we can subject them to technical operations which are beyond the capacity of the mind acting by itself."*
>
> [Leach, 1976, p.37]

Theoretically, the product development process is that new product ideas are initiated, screened, commercially assessed and progressed further, rejected or set aside for later reworking. Whatever the product field, ideas for new products, and product improvements can come from anywhere within the value chain, inside or outside of the company [Adcock *et al.*, 2001, p.389-390].

Design can therefore be viewed from a cultural perspective as a visual barometer of changing times. Products express the evolving values and aspirations of the society which consumes them. The history of design can therefore provide an important and unique insight into social change through understanding the dynamics by which “design turns ideas about the world and social relations into the form of physical objects”. The nature of design is changing as the boundary between art and everyday life erodes, as consumers look to goods increasingly to symbolise meaning and values, and as new markets open up for exclusive items [Cooper and Press, 1995, p.15].

Design and business have their own distinct cultures: their own beliefs, values and assumptions about how they measure success and what matters to them. To be more influential in the creative industries, a better understanding of the challenges and opportunities inherent in different organisational cultures is a powerful advantage [Best, 2010, p.12].

Concepts are written descriptions of materials, dimensions, production procedures, and finishing for style of a product. They communicate methods of production on a specific cultural concept and outcomes required in order to meet product standards. The concepts for each style contain complete product descriptions and expectations. This provides a basis for communication with everyone involved in the product development chain, including creative design, technical design, production, promotion, and selling the products, and suppliers and vendors that provide materials and distribution [Keiser and Garner, 2003, p.270].

In any age there are certain widely shared beliefs - assumptions, attitudes, values - that are so obvious that they remain unstated. As such, they are most clearly perceivable, not in what a society says it is doing in its histories, literature, or public and private documents, but rather in the way in which it does things. The way in which something is done, produced, or expressed is its style. Certain aspects of human activity or creation are more purely expressive of style than others, in inverse proportion to the extent to which they are consciously purposeful. The configuration of an object or activity purposefully concerned with a message, such as a story or play, is strongly conditioned by that message [Prown, 2001, p.53].

Designing cultural concepts, embodied with symbolic cultural meanings into product

offerings can aid revitalisation. By representing a cultural style, a product within a cultural context can enhance existing product lines and lead to the development of new market opportunities.

2.4.4 Design reinvention for cultural textile products

According to the Cambridge Dictionary [2011], the definition of “reinvent” is to produce something new that is based on something that already exists and similarly, the term “innovate” is defined as to introduce changes and new ideas.

Roberts [1987] argues an innovation process covers all efforts aimed at creating new ideas and getting them to work. An exploitation process includes all stages of commercial development, application and transfer, including the focusing of ideas or inventions toward specific objectives, evaluating those objectives, downstream transfer of research and/or development results, and eventual broad-based utilisation, dissemination, and diffusion of the technology-based outcomes [Roberts, 1987, p.3].

Design innovation can be broken into three distinct categories. Incremental innovation generally describes the process whereby change is made through small improvements or reconfigurations which exploit existing forms or technologies, established knowledge and current organisational capabilities. Modular innovation is innovation specific to one or more component of a system and although, it may significantly change results, is not in itself radically transformative to the entire process. Conversely, radical or disruptive innovation is characterised as departing from existing knowledge, capabilities or technologies to create something new in the world. Major design innovation employs new skills, processing abilities and levels of market understanding. Output from radical innovation may be so distinctive that newly developed products or processes may not resemble any existing outputs from the firm [Best, 2010, p.168; McDermott and O'Connor, 2002, p.424].

Design reinvention is to present something in a new form or a new image with a story or a message, therefore the creation of something entirely new, which has involved the development of an existing product [Hands, 2009, p.105]. Especially, in the textile and fashion industry, creative and unique values in fashion appear as the major strategy in companies or countries. The focus is to develop cultural fashion products which contain intrinsic cultural identity.

Textile designers need to reconsider the processes of designing and re-evaluate the ways in which they communicate the old as well as the new values of cultural textile design. Textile design will operate as a leading discipline of design reinvention if it incorporates valuable knowledge of history and traditional heritage in a fluent process towards the success of a design enterprise [Perivoliotis, 2005, p.2].

Reinvention essentially refers to transformation and this can be applied to the cultural textile products offered, by the ways in which these are created. A new reinvented design of a traditional Korean cultural textile will be an example of product design reinvention.

2.5 Summary

This chapter has provided a brief review of the fundamental concepts of cultural products and design management to outline relevance for further research. The previous examinations are a basic understanding of the disciplines of culture and cultural products as artefacts made by a culture which reflects a symbolic meaning of a specific time or distinct members of a certain society. Culture is defined as a shared value by society that represents a particular people's life as a form of symbol through various fields of cultural studies. Material culture is presented as being synonymous in meaning with cultural products when the range of evidence is restricted to material and artefacts. Clothing, a category of material culture, has a cultural meaning and reflects cultural identity and cultural values. Designing culturally influenced textile and fashion products is worth consideration in the fashion industry.

For developing a successful cultural textile product, an investigation of design management has been provided in four sub-chapters: definition of the term, design as a planning process, designing a cultural concept into new product and design reinvention for cultural textile products. An understanding of the interconnection of design, culture and business management is increasingly becoming more important. Design's nature evolves in relation to changes in the context of cultural and social development [Cooper and Press, 1995, p.38]. The distinguishing feature of design management is its role in identifying and communicating the ways in which design can contribute to business value [Brigitte, 2003, p.71]. Designing cultural concepts into new product has creative and unique values in the competitive marketplace, and the

management of cultural product design is a task that requires the active, serious attention of those involved [Gorb, 1988, p.18]. Especially, in the textile and fashion industry, the development of cultural fashion products which clearly represent their cultural values is required for the global market. The perspectives of relevant principles in this chapter provide a theoretical basis for the following chapters.

Chapter 3: A case study of Scottish tartan to define cultural reinvention

3.1 Introduction

This chapter reviews Scottish tartan as a case study of cultural reinvention. The process of the evolution from a traditional clan tartan to a fashion pattern is illustrated as an example of a cultural reinvented textile product. The term cultural reinvention combines the meanings of cultural and reinvention. It is to present something in a new form or a new image while maintain a cultural meaning, therefore creating an entirely new entity which has developed from an existing cultural product. This creation is based on historical states and inevitably on a social and existential continuity. This cultural reinvention process for Tartan and the positive and negative implications associated with cultural reinvention are outlined in the following chapter.

3.2 Tartans in Scotland

Scottish tartans are 2-and-2 twill woollen or worsted cloths woven in more or less elaborately coloured check designs, and worn as shawls or plaids over the shoulder, and as kilts [Grosicki, 1975, p.340].

Tartan is woven from threads which cross at right angles and the pattern – called the SETT – therefore has, of necessity, to be of a rectangular format. It comprises a series of stripes which, although exceptions are not uncommon, generally are (a) the same in both the warp and weft of the cloth and (b) are expressed as a half-sett which repeats, reversing as it goes, along and across the cloth, so that each half-sett is the mirror-image of its neighbour; these introduce further inviolable rules [Scottish Tartans Authority, 2009, Online].

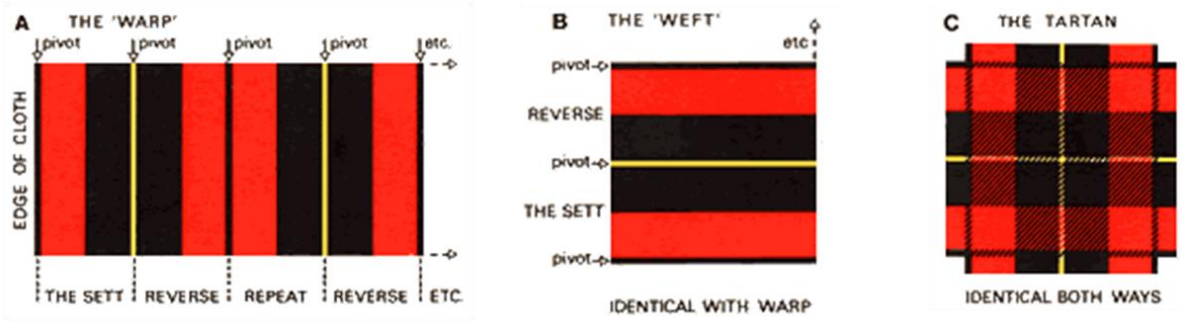


Figure 3.1 Example of Scottish tartan construction [Source: www.tartangenerator.com]

"*As a design, tartan is unique in that it is the only fabric in existence that can signify the interests or allegiance of the wearer by the inclusion of specifically chosen design elements. Those interests and allegiances can be family, clan, town, city, country, military, employment, hobbies, religious… the whole gamut of human activities and interactions in society*."

[Scottish Tartans Authority, 2009, Online]

Tartan is an ordered way of introducing a riot of colour in a very restrained manner because the design in the warp is the same as the design in the weft. The true colour that is created by the crossing of the warp with the weft is strong, but easier to look at because of the grid design. The very design of tartan embodies constant dynamic tension between the clarity, even rigidity, of its grid and the literally endless potential for colour and variety contained within, and visually threatening to break, the lock of that grid [Brown, 2010, p.1].

The traditional tartans take the form of colours, extracted from connected historical tartans or numerical elements such as the number of lines or bands. However, nowadays fashion tartans are produced for visual appeal and invariably have no significance attached to any of the design elements included - apart perhaps from mirroring current colour trends.

The Scottish Register of Tartans (now part of the Scottish National Archives) has well over 4,500 different tartan designs. Tartans have been registered for a remarkably varied number of registrants; these include a Rabbinical tartan (for use by rabbis), a defence tartan (formal servicemen), a tartan for an Ayrshire primary school, and tartans for an Irish pub proprietor sponsoring a pipe bad, an American commercial company (for advertising its products), the University of Missouri, a Texan football team, a tartan for druids and three private family tartans. Clearly some of these tartans are perhaps less likely to be worn with Highland dress, thus marking the way tartan is continuing to move into an altogether different sphere from the more usual Scottish one, generally associated with formal dress. They are, nonetheless, now fully authorised on the Register [Hume, 2010, p.87].

3.2.1 Evolution of Tartan: from the clan tartan

There has long been controversy, often heated, as to when, sometimes exactly when, "clan" tartans began to be used. According to an article by BBC History Magazine [2011], plaids are certainly an ancient Scottish tradition, but the idea of clans having their own tartans is surprisingly modern".

> *"Some have held that the 'Scots' emerged from the primeval mists wearing their identifying tartans, others that Sir Walter Scott started it, and there have even been a few who would lay it at the door of Queen Victoria's Prince Consort, Albert".*
>
> [Scottish Tartans Authority, 2011, Online]

The *'clan tartan myth'*, so called because of its tenuous foundation but tenacious appeal, had its roots in the late 1600s. At that time the Highlands of Scotland were less known to the English and other Europeans than were the Americas [Johnston and Smith, 1999, p.4].

The term 'clan' is applied to groups of people claiming descent from a common ancestor and calling themselves his 'children'; the senior member, that is the one most nearly related to the common ancestor is, in theory at least, the Chief. An important effect of this arrangement was to establish social divisions between clans, rather than between classes. Large and prosperous clans, such as the MacDonalds who set themselves up as Lords of the Isles, formed branches at clan levels and thus there are MacDonalds of Clanranald, MacDonells of Glengarry and so on [Scarlett, 1972, p.6].

The Jacobite Army in *The '45 rebellion* was organised in Clan regiments and in such a long and mobile campaign, some re-equipment must have been necessary so, however the men may have been dressed at the outset, it is probable that a considerable degree of uniformity must have ensued which results in Clan regiments eventually wearing uniform tartans that became Clan tartans by a natural process [Scottish Tartans Authority, 2009, Online].

Tartan has been a critical convention and often an element in direct challenge to established and even establishment values. It could be seen as embodying alternative traditions to those of the dominant dominion. That was a central reason for its

prohibition in the 1746 Disarming Act. Tartan had, and retains within its diverse meanings, a capacity to bear meaning beyond many other sartorial designs. The nexus of tartan and plaid might evolve, that evolution maintains and foregrounds the potential for tartan to represent an alteration that supports the emotionally spirited [Brown, 2010, p.6].

Following the 1746 proscription, domestic weaving effectively came to an end, thereby putting the price of the cloth beyond the reach of the man in the street for the next two hundred years [Hume, 2010, p.86]. From the earliest studies of tartan at the beginning of the nineteenth century, it has been generating heated debate from those who see tartan as the visual symbol of an ancient Scottish clan system, and those who regard its role in that same system as primarily a nineteenth-century socio-political invention [Faiers, 2008, p.1].

The exploitation of tartan and its iconography in Scottish related contexts has seen, since at least the nineteenth century, dramatic extension of tartan design into many uses other than just for making kilts (and dresses). Much is made of George IV's visit to Edinburgh in 1822 and its endorsement of the tartan kilt as Scotland's national dress (as opposed to its previous predominantly Highland association) [Hume, 2010, p.86].

There are two things that underlie the visit of George IV to Edinburgh in 1822. One is the process by which tartanisation of public events represents an attempt at reconciliation after conflict. The second is the appropriation of tartan iconography, within the context of the dominance of Scottish cultural tropes throughout the Western world after the impact of Ossian and Walter Scott [Brown, 2010, p.6]. Out with the military and certain employments, the kilt remained substantially the dress of the Highland gentleman, both formally and informally, children and certain school and Boy Scout uniform codes until the emergence of the kilt-hire trade in the early 1970s [Hume, 2010, p.86].

It would now seem that tartan may be leaving Scottish-focused tartan behind, as it reaches out into an extraordinarily varied number of users, although these new users might well have strong Scottish connections or affiliations [Hume, 2010, p.88].

3.2.2 Evolution of Tartan: Tartan as a fashion pattern

Tartans are the recognisable symbol of an independent nation as a ubiquitous pattern that has been transformed into a super brand signifying all things traditionally Scottish [Faiers, 2008, p.1].

Where tartan is used as a symbol, particularly in Highland dress, whether by wearers in the United Stated or other parts of the Scottish Diaspora, or those who wear the kilt in Scotland for varied reasons and occasions, what emerges is evidence of a potent symbol. Tartan provides instant linkage to a past and a forgotten and imagined heritage for some, to a clear expression of Highland identity for others, to Scottish identity for many, both in Scotland and overseas, or even simply as a means to identify visibly with a collective of people with whom they share common feelings [Hume, 2010, p.90].

In the twentieth century, the kilt's role as a garment for ceremonial and ritual use came to dominate attitudes to it. It was not fashionable for everyday wear except for a few die-hard patriots, the Royal Family or Anglo-Scots gentry, who thought it was worn by boys, particularly for semi-formal occasions like church-going or within school uniform codes, and of course by Scottish Boy Scouts. There is even a post modern trend in kilt - wear associated with 1970s and 1980s punk styles; the kilt worn with chunky socks, boots, white T-shirt and black jacket - the look is masculine with a hint of threat [Brown, 2010, p.14].

Back in the 1970s, tartan had also been co-opted by the punks to become 'part of the uniform for the pierced and disaffected. This strong sub-cultural appeal with tartan and its subsequent popularity among punks and their counterculture is unsolvably involved with a truly national discourse. First, the popularity leading to its adoption arises out of its historical positioning as a material symbol of Scottish oppression at the hands of the Anglo-British. Secondly, the tartan kilt stimulates a counter-notion concerned with Scottish dissent and a rebel instinct, particularly with regard to the anti-government uprisings in the mid-eighteenth century [Trevor-Roper, 1983, p.17; Goodrum, 2005, p.9-10].

Thus, the tartan pattern has come to be a potent historical symbol of both repression and resistance within the British national story, worn by Scots and Punks to mark them out as marginal and subordinate but also as part of a powerful tribal identity, struggling

against the authority of the throne [Goodrum, 2005, p.10]. The majority of work undertaken prior to the mid-twentieth century was concerned with establishing and defining tartan as a traditional textile, and identifying specific patterns or setts with the Scottish clan system [Faiers, 2008, p.2].

As kilts or plaids, tartan is assumed to be ‘traditional’, originating in a distant past and invented by remote ancestors [Brown, 2010, p.16]. Brown [2010] has argued that the ‘invention of tradition’ is now recognised as the dynamic which lead to the creation and dissemination of the ‘setts’ of the tartans and the concept of tartan as clan badge or uniform [Brown, 2010, p.22].

People wear a tartan kilt today, the myth is revealed as involving a complex series of different individual interpretations of identity, using the convenient symbol of a material culture artefact. The artefact itself is not only extremely expressive visibly, but also perceived as a summation of history and heritage, both real and imagined [Hume, 2010, p.90].

The global messenger carried by Highland regiments and football’s Tartan Army, inspiring architects, artists, film-makers and contemporary fashion. Tartan has developed from a Highland craft to a mass-produced, globally consumed textile. Thus, it is used in both traditional Scottish dress and high fashion, and its socio-cultural significance as a pattern is at once complex and in a process of continual development [Faiers, 2008, p.1].

Tartan may be, on the one hand, a dress fabric highly distinctive in style, design and colour - what is generally termed ‘plaid’ in North America - or in the other, a design with patterns in multicoloured checks used today in many forms. Patterns and colours may not always conform to the conventions that have emerged over the last two centuries. The worldwide demand for tartans, however, usually overrules constraints imposed by supposed rules and regulations governing what is and is not tartan and what is perceived as permissible in Highland dress. The perpetuation of such views, relatively recently formed, is a self-assumed role of guardians of Scottish ethnicity [Brown, 2010, p.16].

Beyond such international fashion-focused examples, however, the issues, discourses

on tartan and praise for Scottish culture, the interaction of history, myth, and any concept of what is 'Scottish' thrive will remain lively for many years to come [Brown, 2010, p.11]. Tartan's manifestations will also be considered in arenas as diverse as popular entertainment, art, design and cinema, and it is hoped that this more interdisciplinary and inclusive approach will develop this lively, irresolvable and flourishing debate [Faiers, 2008, p.3].

3.2.3 Modern fashion tartans through cultural reinvention

Tartan's unique position as an instantly recognisable pattern that can be applied to any number of objects, and be simultaneously indivisible from specific items of historical dress, such as the kilt, marks it out from any other traditional textile appropriated by the fashion industry.

Tartans have emerged in the twenty-first century with a new emphasis. Tartan's prominence increases in the fields of fashion, fine and applied arts, the media and popular culture. There has been a simultaneous decline in importance in the areas associated with its more traditional functions [Faiers, 2008, p.289]. Many contemporary notions of 'national' dress originate from nineteenth-century literary and political constructions of nationhood, rather than the survival of ancient original garment forms. This is most clearly demonstrated by the development and reinvention of the kilt, these versions and reinterpretations of national dress swiftly become firmly embedded in popular consciousness [Faiers, 2008, p.75].

Vivienne Westwood, for example, uses traditional Scottish design, imbued with their own histories and senses of regional identity, as catalysts for her own political campaign. In particular, Westwood's valuing of tartan fabric gives a fascinating insight into the mechanisms through which codes of dress might be employed to deconstruct national identity [Goodrum, 2005, p.8]. Furthermore, tartan is considered as a fashion pattern by many fashion designers and brands; Jean Paul Gaultier, Alexander McQueen, Ralph Lauren, Dolce & Gabbana, Junya Watanabe, Karen Walker, Dries Van Noten, Nicolas Ghesquière at Balenciaga and Jaeger.

Figure 3.2 Examples of fashion tartans
[Source: Dolce & Gabbana (F/W 2008/09),
Vivienne Westwood (left - F/W 2011, right - F/W 2008/2009)]

Tartan has influenced fashionable dress as a patterned textile and as a component of traditional costume, and has fluctuated between these two functions since its emergence on to the world's fashion stage. As a patterned textile its primary significance is as a visual reference for Scotland, but beyond its initially national implications it can perform as a textile messenger of a variety of meanings [Faiers, 2008, p.75].

A cultural textile product can be a wealth of material concerning the way society constructs meaning through its artefacts. Tartan is a good indication of the significant position that textiles occupy as visual representations of historical, political and economic shifts within society. The way of producing textiles, how they are utilised and how they signify meaning is never fixed. Thus, the interrogation of their established

histories and the process of continual repositioning within different cultural contexts are necessary in order to reveal their full potential. As tartan fully demonstrates, textiles, from the smallest details of their construction to their global dissemination, provide maps with which we can understand historical transformations within society and developments in these times [Faiers, 2008, p.289].

3.3 The current market situation of tartans

As stated previously, tartans have been culturally reinvented from traditional Scottish tartans to fashion tartans. For a deeper understanding of the current tartan market, it was necessary to conduct an interview with the sales director and other senior members of staff of Marton Mill in pool, West Yorkshire. Surprisingly this mill is the largest manufacturer of tartan left in the UK. A great deal of the tartan fabric sold in Scotland and elsewhere is actually produced in South-East Asia. It was therefore the most suitable mill for the author to carry out interviews for this case study. This company specialised in manufacturing a vast range of tartan fabrics for use in corporatewear, schoolwear, fashion and tailoring. Insights gained from the commercially successful textile production plant, which is involved in the design, manufacture and marketing of a traditional tartan product provided valuable insights for the cultural reinvention of Korean traditional textile products. After outlining the semi-structured interview from Marton Mills, the following section then also discusses a number of tartan websites employed as communication tools for effective marketing.

3.3.1 The semi-structured interview from Marton Mills

A semi-structured interview was selected as the means of data collection because it is well suited for the exploration of the perceptions and opinions of respondents regarding complex and sometimes sensitive issues and to enable probing for more information and clarification of answers [Barriball and While, 1994, p.330]. Generally, the interview process is flexible, that is, the interviewees are allowed to talk about things significant to them and the interview can move easily from one topic to another.

The interview began with an explanation of how it was to be conducted. The interviewee answered questions composed around four distinct issues; target markets (market segments/ types of market/ customers), production (fabrics/ yarns/ looms), design process (patterns/ colours), modern technology for reinvention (digital printing patterned tartans). The final part of the interview was a discussion of Korean traditional

bojagi how it could be a fashion pattern and how to develop these patterns to suit the modern fashion industry. The interview allowed a deeper understanding of the current situation of tartans to be explored, as well as identification of suggestions for real market applications. In Table 3.1 a summary of the findings is presented.

Target markets	Market segments	We have five market segments. Scottish traditional kilt, school wear, academic wear, golf wear and some public fashion wear. The segment of school wear occupies about 55% of our market.
	Types of market	We supply wool tartans for Scottish traditional Kilt and poly-viscose tartans for school wear. Recently, we have collaborated with a golf-wear company so that we've produced a kind of golf wear.
	Customers	John Lewis- school wear, Bromley schoolwear
Production	Fabrics	Basically our products are rolls of fabric. 60 inches wide per metre length.
	Yarns	Yarn types are polyester 2/24, poly-viscose yarn, woollen yarn and cotton. A lot of melange yarn and a small number of

		solid yarns. Some yarns are imported from India and Indonesia.
	Looms	Sulzer (bullet) looms
Design	Design process	The design process in a way is basically customer lead. All designs are done on CAD so that the customer can pick a basic tartan check, colours and change appearance and textures using the software.
	Influence of trend forecasting	Customers can change to trendy colours and the wedding season can be influenced by trends.
Modern technology for reinvention	Digital printing	Printing tartan to fabrics is possible but it looks like a picture. However, it is good for a certain commodity like a pet's bag. To reinvent traditional tartan, we developed new fabrics like poly-cotton, poly-viscose for reducing the weight of traditional tartan with the same design.
Reinventing Korean *bojagi*	How about a kind of uniform because of repeating design and what about using natural fibres like bamboo fibre for reinventing traditional Korean *bojagi*. Digital printing on fabrics and transfer	

	paper could be useful for modernising traditional Korean *bojagi*.

Table 3.1 Summary of the semi-structured interview

Recently, they have opened an on-line shop for selling special offers and over runs, but in the future, they intend to add more regular lines. The website as a new distribution channel is fully functional and can offer a variety of quality fabrics at various prices.

3.3.2 Using web-interface for design, retailing and promotion

Popular media often spread the belief that new communication technologies - e-mail, the Internet, and mobile telephones - will bring people around the world together in a global village where cultural differences will cease to matter [Hofstede, 2001, p.453]. Today the products of scientific discovery (including the mass media) represent a major force of culture change for most countries in the world [Hofstede, 2001, p.34].

Internet marketing can be simply defined as achieving marketing objectives through applying digital technologies. The term 'Internet marketing' tends to refer to an external perspective of how the Internet can be used in conjunction with traditional media to acquire and deliver services to customers. Chaffey *et al.* [2006] stated that an alternative term for internet marketing is e-marketing or electronic marketing which can be considered to have a broader scope since it refers to digital media such as web, e-mail and wireless media, but also includes management of digital customer data and electronic customer relationship management systems [Chaffey *et al.*, 2006, p.9]. Customers also, can interact with the medium, firms can provide content to the medium in the most radical departure from traditional marketing environments and consumers can provide commercially-oriented content to the media [Chaffey *et al.*, 2006, p.22]. Nowadays, customers seek to exercise their influence in every part of the business system. With new tools and dissatisfied with available choices, consumers want to interact with firms and thereby "co-create" value. Implicit in this view is an assumption that firms can act autonomously in designing products, developing production processes, crafting marketing messages, and controlling sales channels with little or no interference from or interaction with consumers [Prahalad and Ramaswamy, 2004, p.6].

Tartan websites - www.tartangenerator.com, www.scotweb.co.uk,

www.tartan.scotland.net, www.tartanmaker.com – can be a simple and pleasurable shopping experience for buying cultural textile products to global consumers. They supply tartan fabrics from all the top Scottish weaving mills, or hand woven-to-order on their own traditional shuttle tartan weaving looms [Scotweb, 2008, Online]. For a tartan kilt or kilt outfits, the websites provide thousands of tartans with a proper kilting selvedge and supply cut tartan fabrics, custom-made traditional clothing, and all tartan products. All the websites allow customers to research sources and co-design their own particular tartan. These custom-designed tartans bring greater customer satisfaction, as the designs they wear reflect their own individual tastes in garments choice, style, pattern and so on.

Tartan fabrics include pure new wool (featherweight to Regimental weight), silks (dupion or raw silk), high quality hypoalergenic polyviscose, and more. Most of them also have ready-made goods in tartan lambswool, tartan mohair, tartan cotton and many other materials. Woven in thousands of patterns, tartan is claimed to be the world's most versatile fabric. From high fashion to expressing ancient tradition, tartan has countless uses, whether decorative, ceremonial or practical.

The websites supply everything from tartan kilts for men, a full range of tartan skirts and ladies kilts in all lengths and styles, tartan scarves and other accessories such as tartan hats, or tartan handbags, and tartan sashes in dozens of styles for ladies and full highland dress for children, to tartan tablecloths and napkins.

In summary, it is an effective tool for retailing and promoting tartans which allows the visitors to design and customise colour within a traditional pattern. In recent times, e-business through website as a marketing tool has continually increased which is accelerating sales in the fashion and textile field.

3.4 The concept of cultural reinvention for traditional textile products

As culture is so dependent on the country it refers to, any attempt to market or reinvent a culturally based product has to begin with a deep understanding of country-specific culture and core values. For cultural reinvention, the cultural values play a vital role when formulating the design reinvention within cultural contexts. That is to present something in a new form or a new image while maintaining a culturally symbolic meaning and therefore create an entirely new product but based on an existing cultural

product. Indeed, as Geertz [2000] points out, the increasing number of economic, political, and cultural interconnections has helped expand the ‘catalogue of available identifications’, drawing new identities such as the global consumer [Cayla and Eckhardt, 2008, p.216]. In this light, the starting point for the cultural reinvention of any Korean traditional textile products will be conducted through a detailed review of the Korean marketplace and current marketing strategies employed there. From this, potential target markets will be proposed that will both match cultural and economic requirements. These target markets will encompass Maffesoli’s [1996] belief that what unites an individual with the community is the aesthetic experience, that is, the ability to feel emotion together with others in the community and to share the same ambience. Membership of such a community transcends traditional cultural, national and race barriers. Any one sharing the same space and a common sentiment can join a community, which has a less articulated but differentiated form [Jamal, 2003, p.1602; Maffesoli, 1996, p.10].

Any discussion surrounding the reinvention of cultural based products has to incorporate the positive and negative implications. There are a variety of positive effects for the traditional cultural textile product market in participating in the proposed cultural reinvention. The process can ensure that products are embodied with greater levels of cultural-specific meanings and that these meanings can be made more visible to a variety of new consumers, increasing sales potential and economic revenue. However, it has to be recognised that the process of cultural reinvention from traditional cultural textiles to modern product could also entail compromises that may have negative impacts, such as a weakening of the true link between the spirituality of the home country and it’s products. As a result any proposed strategy will have to be sensitive to traditional religions and notions, if it is to successfully balance the needs of the reinvention of Korean traditional products to attract a wider range of potential consumers and making modernised cultural products with strong and true symbolic meaning.

3.5 Summary

Before defining the concept of cultural reinvention this chapter has illustrated the exact meaning of Scottish tartans its construction and design which is quite different to a *check*. Tartan can symbolise family, clan, town, country, military, employment, hobbies, religious and special political relationships etc. by the selection of colours and

numerical lines or bands. It has been shown that tartan is a Scottish cultural product, an artefact made by Scottish culture with a symbolic meaning.

The evolution process of tartan from clan tartans to fashion tartans has shown some possibilities of design marketing through cultural reinvention, such as a successful translation of traditional cultural products into a modern popular item. Modern fashion tartans in the twenty-first century have illustrated with recognisable patterned textiles that fashion tartans are utilised by many high end fashion designers and brands. In this light, tartan is probably the earliest and most successful form of culturally reinvented textiles toward fashion products. Nowadays, one of the most popular communication tools for effective marketing of tartan has been a website which allows the visitor to choose colours, patterns, and styles. It is decided that this may be an approach that the author could take for the early marketing of Korean *bojagi* as a fashion textile. The specific explanation of possible design marketing strategies will be discussed in chapter four.

Chapter 4: Cultural reinvention for traditional Korean textile products

4.1 Introduction

The term cultural reinvention means to the attempt to market or reinvent a culturally based product. For the process to be successful, it has to begin with a deep understanding of country-specific culture and core values. As such, it is essential to investigate the current Korean market situation and from this identification of a possible cultural textile product for reinvention. Chapter four outlines Korean cultural textile market in order to suggest possible design marketing strategies for cultural reinvention. By suggesting a strategic design model and a strategic marketing model, it provides a process of how to produce a successful cultural product through cultural reinvention.

4.2 Current market situation of Korean cultural products

The investigation of the Korean traditional cultural textiles market is based on four basic marketing components: product, price, place (distribution), and promotion. These are known as the 4 P's and will be discussed further in the sections below.

4.2.1 Products

In terms of textile products in the Korean cultural market can be broken down into Korean costumes which can be divided into traditional (*hanbok*) and modern (*gaeryang hanbok*) styles. Other products including *bojagi* and *norigae* are mostly used for fashion accessories and materials in daily life (see Figure 4.1). Generally, traditional textile products are made from natural fibres such as silk, gossamer, cotton and ramie; and often red, blue, yellow, white, black and pastel tints are used. *Bojagi*, one of the most typical Korean traditional textile products, is used for wrapping as well as for covering, storing, and carrying objects. They are used for wrapping objects small and large, ordinary and precious [Hur, 2003, p.11]. Covering a table or an altar signified the importance of the occasion, as wrapping an object represents not only an individual concern for that which is being wrapped, but also respect for its receiver. Nowadays, Korean traditional textile *bojagi* have been used to produce modern products such as mobile-phone cases, table runners, handbags, mufflers, tie pins, ties etc.

Nevertheless, the variety of items and prices are limited and the range of products available today express neither Korean traditional nor modern style adequately. Consequently, it is becoming essential to introduce a representative category for

Korean cultural textile products and also to develop an identity which represents Korean historical and contemporary culture accurately.

Costumes	Traditional (*hanbok*)	 [Source: http://media.daum.net/entertain/enews/view?cateid=1032&newsid=20070217144108907&p=SpoSeoul]
	Modern (*gaeryang hanbok*)	 [Source: http://blog.naver.com/PostView.nhn?blogId=wonogi&logNo=30097054631, http://www.hankyung.com/news/app/newsview.php?aid=201009201974k&ltype=1&nid=910&sid=0001&page=35]

Others	*Bojagi*	  [Hur, 2001, p.85] 
	Norigae	  [Source: http://daum.net/link/7024080]

Figure 4.1 Examples of Korean traditional textile products

4.2.2 Prices

High quality traditional *hanbok* and other products like designers' limited works are sold from £90 to £1200 in art galleries and museums. In the case of *gaeryang hanbok,* these are sold at £20 - £300 and the other materials are marketed from £10 to £

90. Further, differentiation of the price is not greatly influenced by whether the goods are sold on-line or off-line, but the price is highly dependent on the nature and reputation of the retail environments they are sold in and the complexity and cost of the manufacturing methods of individual items. For instance, if a shop sells cultural textile products made by hand by a designer or connected with a specific designer's studio, the products will be marketed at much higher prices.

Because the largest percentage of the price range of products is middle to low, the quality of products tends to be low also and this results in inferior product image and associations. Conversely, at the other end of the pricing scale there are several high quality products which are sold through galleries and museums, at comparatively, very high prices. This polarisation of pricing levels suggest that there is potential for a different pricing strategy, one which enables constantly high quality and image to be achieved while also targeting the widest variety of consumers possible.

4.2.3 Place (distribution)

There are various distribution channels through which Korean traditional textile products are sold. Firstly, there are off-line shops, such as galleries, museums, department stores, duty-free shops, designers' studios, small retail shops (*Insa-dong, Myung-dong*) and wholesale markets (*Dongdaemun, Namdaemun*). In recent times, the use of indirect marketing channels is gradually growing such as TV, mail-order selling by catalogue and e-business.

Art shops in galleries and museums produce limited design products for special seasonal exhibitions by copying original relics which they have exhibited. In this case, the design and manufacture of products are contracted to craftsmen or designers directly. Within Korean department stores, the retail space allocated to the display of cultural products is usually not separated from the jewellery or presents section, so it just looks like a present corner in many of them. Moreover, professional art shops or craftsman's studios are managed independently not for commercial purposes but for their own art works. Although many business enterprises have websites and an on-line presence, the majority of sales are conducted through off-line shops.

Consequently, it is necessary to make distinct plans for diverse distribution channels. In recent times, e-businesses including the use of websites as a communication and retail

medium have gradually increased which is encouraging to progressive sales.

4.2.4 Promotions

As almost all Korean cultural textile products are made by small and medium-sized enterprises using both off-line and on-line markets, it is hard to find any form of aggressive promotion. Nowadays, only free-packaging, delivery and emailing services which are used for explanations about products are offered to customers by several on-line companies.

However, salespersons' insufficient foreign language skills are also a barrier for effective promotion, except in the most high quality shops. Additionally, nearly all off-line retailers do not have particular characteristics or differentiations within their own concepts.

Thus, a lack of promotion causes limited customer targeting. Full market targeting is also hindered by the fact that, most web-sites do not support multi-languages, making it difficult for foreigners to access information or products. For a constructive promotion in off-line shops to be achieved, firstly, the salespersons have to be educated about Korean traditional cultural products and also should be supported in improving their foreign language skills.

4.3 Semi-structured interview at the Museum of Korean Embroidery

Through the investigation of the current market situation of traditional Korean cultural textile products, the author identified *bojagi* as the strongest category of traditional Korean textile products for cultural reinvention. As can be seen in Figure 4.1, *Hanbok* has been reinvented to a modern style - *gaeryang hanbok* - however, the author feels that these products do not represent either Korean cultural features or modern fashion styles which fit into contemporary fashion markets. *Norigae* as an accessory is a kind of jewelry and also, these two product categories already have very defined product outcomes. Thus, *Hanbok* and *Norigae* are relatively limited for the application of cultural reinvention. *Bojagi* is the only category which incorporates strong textile characteristics – the use of colour, pattern, fabric and style to convey meaning and aesthetic value. The manipulation of these intrinsic characteristics became the basis of the author's reinvention of *bojagi* textiles into contemporary fashion items. Therefore, the category of *bojagi* textiles has potential possibilities for modifying and applying to

modern fashion textile designs by a formative characteristic. Even, though *bojagi* has been previously modified into market products, these have not been popular in the contemporary markets. These previous steps towards modernisation have produced limited types of goods, which are insufficient in representing Korean cultural meaning adequately.

For a deeper understanding of *bojagi*, it was essential to conduct a semi-structured interview with a senior manager at the Museum of Korean Embroidery: one of the most popular museums for Korean traditional *bojagi*. The interview began with an explanation of how the interview was to be conducted. The interviewee answered questions related to five distinct issues; *bojagi* collections (data base system/ types of *bojagi*), classifications (by users/ make-up/ design/ usage/ material), exhibitions (types/ process), development of *bojagi*, possibility for fashion products (Y/N, types of *bojagi*). The final part of the interview was a discussion of Korean traditional *bojagi* and how it could be reinvented from traditional patterns to modern fashion patterns with worldwide appeal. The interview not only allowed a more in-depth knowledge of Korean *bojagi* to be ascertained but it also confirmed the feasibility of Korean *bojagi* becoming culturally reinvented to fit into a contemporary global fashion market. In Table 4.1 a summary of the findings is presented.

Collections of *bojagi*	Data base system	We don't have a particular data base system. However, our museum has tried to put the data in order from 2006. From 2006 we've planned special exhibitions with particular themes each year. After these exhibitions we published books of the arrangement of the data which we used for the exhibitions.
	Types of *bojagi*	It's very hard to say exactly how many types there are. Because this depends on the opinion of researchers. They could tell different numbers.
Classifications of	Users	**Gung-bo** (used in the royal palace)

bojagi		**Min-bo** (used by commoners)
	Make-up	**Hot-bo** (single layer *bojagi*) made with a single sheet of cloth without inner lining; **Gyeop-bo** (double layer *bojagi*) made with inner and outer sheets; **Som-bo** (padding *bojagi*) stuffed with cotton wad between inner and outer sheets; **Nubi-bo** (quilted *bojagi*) made by quilting fabrics; **Jogak-bo** (patchwork *bojagi*) made by patching together many pieces of cloths; **Babsang-bo** (table cover) or **sikji-bo** (oil paper *bojagi*) made by attaching oil paper lining beneath the outer sheet or made entirely of oil paper.
	Design	**Mumun-bo** (*bojagi* with no patterns on it) **Yumun-bo** (patterned *bojagi*) a. **Su-bo** (embroidered *bojagi*) b. **Jikmun-bo** (pattern-woven *bojagi*) made of a cloth woven in patterns; c. **Geumbak-bo** (gold foil *bojagi*) made of a cloth, on which patterns were printed with gold foil; d. **Chaesaek-bo** (coloured *bojagi*) made of a cloth, on which figures were drawn with dangchae (Chinese dye)
	Usage	**Sangyong-bo** (everyday use *bojagi*) **Hollyeyong-bo** (wedding *bojagi*) **Bulgyoyong-bo** (*bojagi* used for Buddist rites) **Teuksuyong-bo** (Special use *bojagi*)

	Material	**Bidan-bo** (silk *bojagi*) **Mumyeong-bo** (cotton *bojagi*) **Sambae-bo** (hemp cloth *bojagi*) **Mosi-bo** (ramie cloth *bojagi*)
Exhibitions of *bojagi*	Kind of exhibitions	We have a permanent exhibition in our museum for *bojagi* and we often have special exhibitions abroad. In 2011, the big exhibition for *bojagi* will be held in our museum.
	Process of exhibitions	Our director (superintendent) plans the concepts for special exhibitions and controls the whole process by himself.
Development of *bojagi*	From the past to the recent	Korean art has the following expressional characteristics that can also be applied to *bojagi*: 1. Natural harmony that avoids excessive decorations; 2. Asymmetry and no standardisation; 3. Discretionary expressions beyond the norms; 4. Unrestrained imagination and composition. In the Joseon Dynasty, women were suppressed by the ethics of Confucianism, and the patriarchal social system extremely restricted their social activities. In this respect, it seems that making *bojagi* and expressing their feelings and ideas in due course was a way of controlling their sadness, and cherishing their hope for the afterlife as a free human being. Recently, the process for manufacturing *bojagi* is by both hand-made and machine-made

		methods.
Possibility for fashion products	Becoming a fashion *bojagi*	Definitely, it will be possible to apply the characteristics of *bojagi* to design fashion products.
	Type of *bojagi*	Probably it depends on the consumers' preferences but as far as I thought, jogakbo with the free style pattern could be most successful. Because it looks like Mondrian art works so that would be familiar to western people.
Reinventing *bojagi*	Unfortunately, nowhere is there a systematic theorem for Korean traditional *bojagi*. There are only several studies about *bojagi* patterns by different researchers. So researching the *bojagi* in-depth is a valuable thing to construct the theorem in this field. Furthermore, if you can make *bojagi* popular by successful reinvention, this could be applied for the other cultural products.	

Table 4.1 Summary of Museum of Korean Embroidery the findings

4.4 A process for producing successful cultural products through cultural reinvention

Culture refers to a set of values, ideas and other meaningful symbols that contributes to, communicate and interpret individuals as members of a society. Indeed, cultural products employ cultural values as a symbol of a certain time and members of a society. Cultural reinvention lies on a continuum of proceedings that begins with a cultural value, which is developed into a contemporary cultural product within a popular cultural industry, which then yields some type of cultural reinvention, and which is finally implemented and commercialised.

Successful cultural products are referred to as modernised cultural product which has both cultural meanings and commercial values, therefore allowing these products to fit

into the contemporary markets. The process of cultural reinvention is considered to be an important part of the entire process for producing a commercially successful cultural product. There are two main ways for the reinvention of traditional cultural products: modernisation/ contemporisation and popularisation/ globalisation.

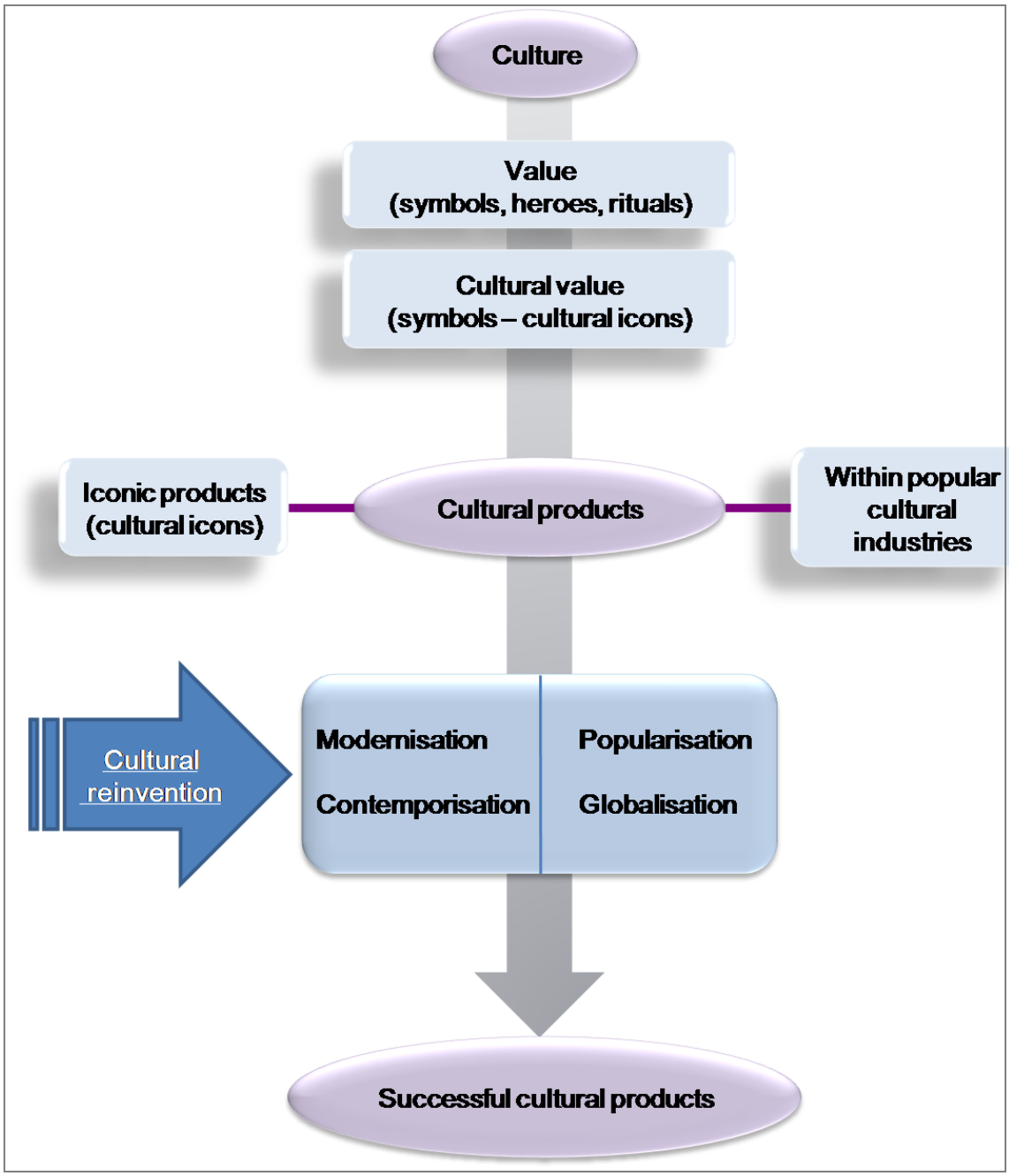


Figure 4.2 The process for producing successful cultural products through cultural reinvention

4.4.1 Modernisation and contemporisation of cultural products

According to Naylor [1990] modernisation and contemporisation is vitally important in the design process of cultural products, in order not only for traditional cultural products sectors to flourish but also for the survival and proliferation of cultural traditions themselves [Naylor, 1990, p.180]. These processes of modernisation and contemporisation are connected with design strategies when translating traditional cultural products into adapted offerings for contemporary markets.

The concept of modernisation and its desire to exploit the latest materials and technology is expressed with new forms and designs of traditional cultural products. Modernised cultural product designs also have many associations with the new; from materials to technology and often the use of new methods of construction [Bhaskaran, 2005, p.122; Holder, 1990, p.123]. Technological innovation drives modernisation of cultural product design, the proof of technological innovation resides in the marketplace [Gaynor, 2002, p.17]. All countries are gradually exposed to the products of the same scientific discoveries in the form of modern technology, and this plays an important role in cultural changes [Hofstede, 2001, p.34].

> *"In general, product design is not about the creation or use of new technology in a narrow sense, although design activities can lead to the creation of new technologies. The point is that technological innovation is partially about the development of new technologies, in the narrow sense of building technical novelty into products, but it is also about the creation and incorporation of new or significantly altered concepts and ideas".*
>
> [Utterback *et al.*, 2006, p. 71]

New materials also provide a stimulus for designers, who are keen to rise to the challenge of creating a new aesthetic for contemporary cultural products. The potential of materials is transformed into another means of creating objects. This is achieved through a combination of strategies, which include using designers to create fashionable and modern forms; the use of high technology; and the presentation of cultural objects [Sparke, 1990, p.192].

The underlying intention of the modernisation and contemporisation of traditional cultural products is that design is present and that the product outcome will fit into consumers' present day life [Julier, 1990, p.221].

4.4.2 Popularisation and globalisation for cultural products

One route to cultural reinvention is the popularising and globalising of traditional cultural products worldwide. These processes are more related to marketing strategies; how business can meet the needs and wants of potential global consumers. Mass media brings people from varying geographic areas around the world together in a global village. By the Internet, e-commerce, and all electronic gadgetry are supposed to make life easier and more productive [Gaynor, 2002, p.3; Hofstede, 2001, p.453].

A sense of 'the popular' is different from any particular content and from any singular expression of power or resistance. Hall [1997] has stated a quantitative definition agreeing with 'common sense', which certain things are said to be "popular". That means masses of people listen, buy, read, consume and enjoy them [Hall, 1997, p.2]. Popular culture in this sense is understood as deriving from the people, and it is associated with the manipulation of this culture [Frow, 1995, p.71].

> *"Culture, a modern tool, applied to the global context in which it emerged, generates an essentialisation of the world, the formation of a configuration of different cultures, ethnic groups or races, depending upon the historical period, and the professional identities of the identifiers."*
>
> [Friedman, 1994, p.207]

Globalisation includes the establishment of global institutional forms and global processes of identification and their cultural products. Globalisation refers in this context to the formation of global institutional structures that organise the already existing global field, and global cultural forms that are either produced by or transformed into globally accessible objects and representations [Friedman, 1994, p.201].

4.5 Cultural reinvention of traditional Korean textile *bojagi*

Cultural reinvention of a traditional textile product means to present something in a new form or a new image of textile designs maintaining cultural meanings but based on an existing cultural textile product. When applying this concept to the traditional Korean textile *bojagi*, effective design marketing strategies for modernisation/contemporisation are proposed and an internet marketing tool for popularisation/globalisation of Korean *bojagi* is developed. The author will outline a process of cultural reinvention for Korean traditional *bojagi* and then the strategic design model and the strategic target marketing model for cultural reinvention are dealt with in subsequent chapters.

4.5.1 The process of cultural reinvention for Korean traditional *bojagi*

As stated previous, cultural reinvention is based on design reinvention, which presents something entirely new with a story or a message which involved the development of an existing product. The first step of the cultural reinvention of a traditional textile product is the identification of the cultural values in its traditional textile design. Generally, design elements of traditional textiles - pattern, colour, form, material, construction, and function - reflect cultural identity and national image, containing historical and cultural values [Hyun and Bae, 2007, p.140]. The second step is the designing of contemporised cultural textile products through a constructive translation process of the past into the recent. The translation process includes two design marketing strategies: a textile design strategy and a potential target marketing strategy. By suggesting the potential consumer groups, the target marketing strategy and consequent design tool would be related to popularisation and globalisation for cultural reinvention. The last step is to communicate with the selected target consumers. This communication can include internet marketing communication through a web based interface like Scottish tartan, which is a successful reinvented textile globally. The development of a new interactive textile design tool for an effective communication with target consumers can support the concepts of popularisation and globalisation for cultural reinvention. These are progressive and iterative phases that describe the reinvention process.

Today, technological modernisation is an important stimulus toward cultural changes that leads to similar developments in different societies with a variety. It may even increase differences, as on the basis of pre-existing value systems societies cope with technological modernisation in different ways [Hofstede, 2001, p.34].

Popular media spreads the belief that new communication technologies, such as e-mail, the Internet, and mobile telephones, will bring people around the world together [Hofstede, 2001, p.453]. In these times, e-commerce provides a global marketplace, and usages of the internet at many different geographic levels; worldwide and between and within countries [Chaffey *et al.*, 2006, p.64]. E-commerce and Internet retail have brought into being a new way of shopping in fashion industry [Bruce and Cooper, 2000, p.1].

Therefore, proposing efficient design marketing strategies and applying internet marketing with the new design tool are necessary for the cultural reinvention of Korean traditional textile products.

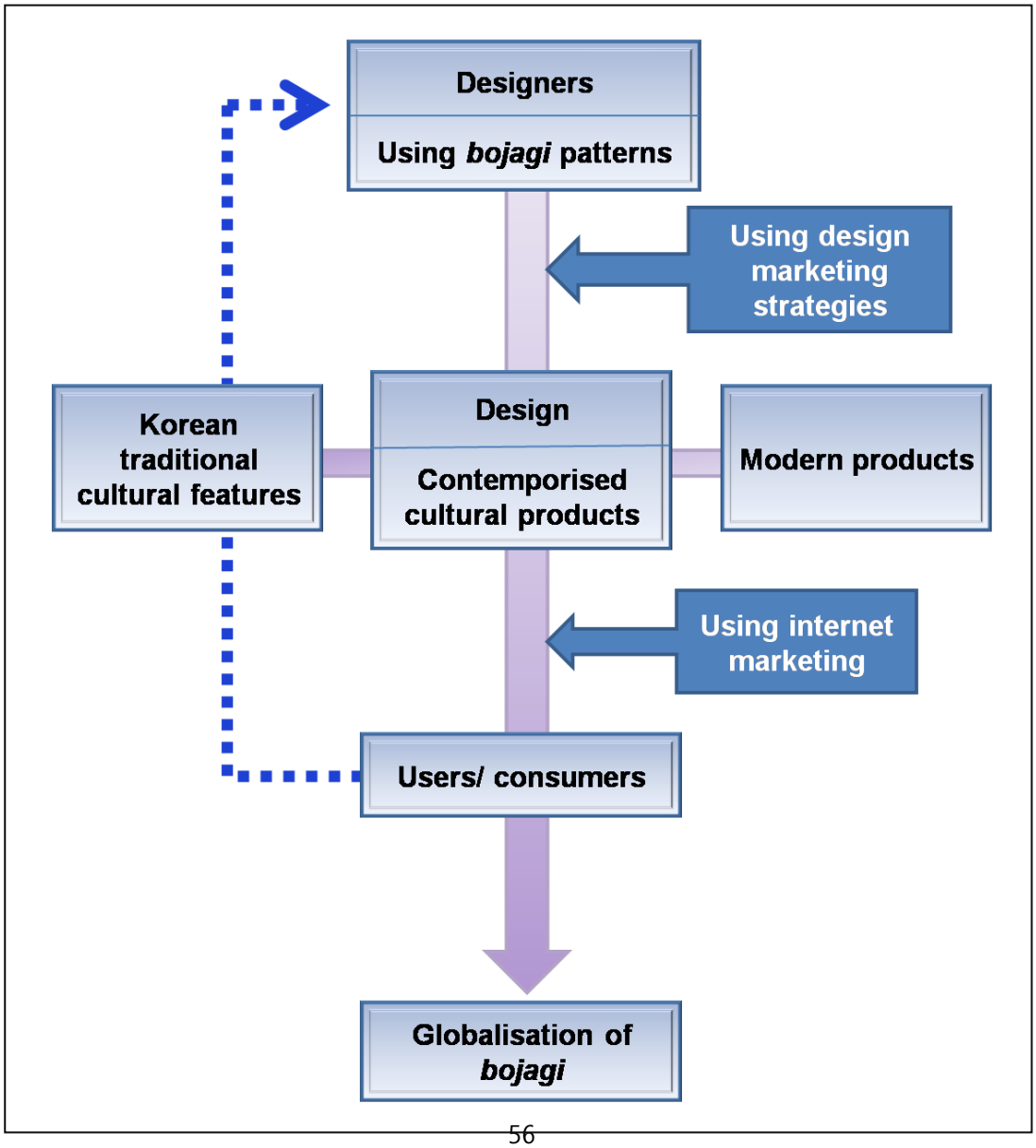


Figure 4.3 The process of cultural reinvention for Korean traditional *bojagi*

4.5.2 Design strategy: three options for textile product design

This can be a new way of understanding how business could develop a design strategy for modernising/ contemporising traditional textile products for cultural reinvention.

First of all, there has to be a successful modernisation of traditional cultural products which make a compromise between the past and recent times effectively. That is transforming of the design elements of cultural products. For example, colours of modern tartans, although in the same traditional corner of the spectrum, may also be different by individual preferences and current colour trends. In this case showed by (1) on Figure 4.4, the original meaning and function of tartans are constantly preserved.

Secondly, the way to form a prosperous cultural product should be done through a successful transformation into popular items like garments or fashion accessories ((2) of Figure 4.4). This is a kind of transformation of functional usage of the cultural textile products. Traditional cultural products can be used to design favoured fashion items. Design based innovations expand the targets for a given product or service by attracting buyers who respond to new styles and different positioning [Kotler and Trias, 2003, p.46]. For instance, today fashion tartans are not only famous for the traditional Scottish clan tartans but also as pure fashion patterns. Although changing the original meaning or function of a traditional cultural product, it can be an opportunity to make a universal cultural product.

Last but not least, as can be seen in (3) of Figure 4.4, this is an integration of the transformation of the design element, the modification of the original product's function and translation of the traditional factors into contemporary relevant cultural textile products. In doing so, it will be easier to attract modern and trendy customers at the present time.

Overall, the first step in cultural reinvention into a modern product is to define a distinctive cultural product as a symbolic meaning of a specific society. The next step is to classify their characteristic design elements. Finally, creating a successful cultural product as cultural reinvention will depend on flexibility for modifying traditional features to modern products.

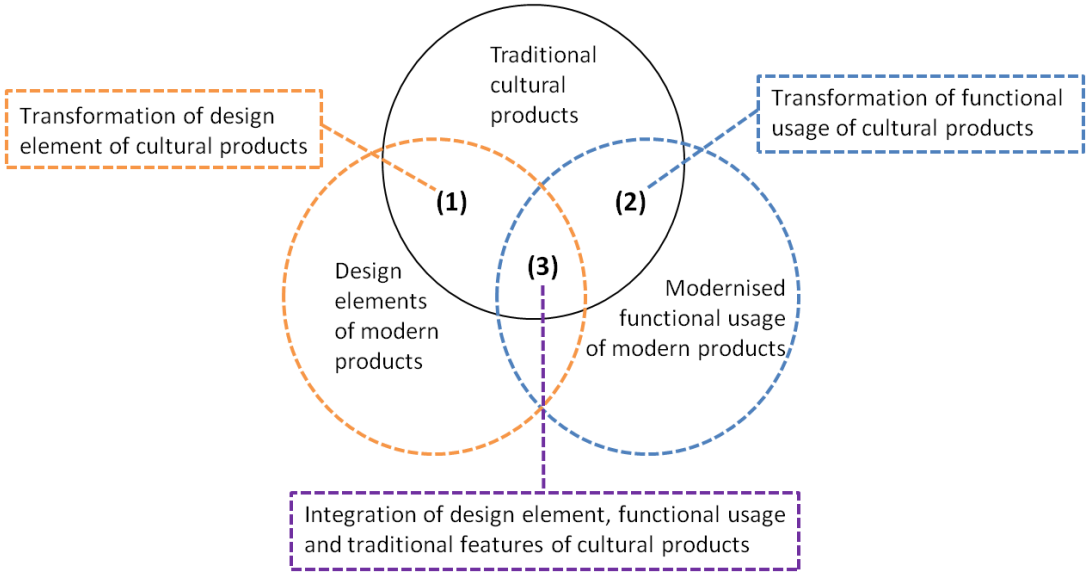


Figure 4.4 Three options for cultural reinvention within product design: (1) transformation of design elements of cultural products; (2) transformation of functional usage of cultural products; and (3) integration of design elements, functional usage and traditional features

4.5.3 Marketing strategy: three groups for targeted potential consumers

Towards this aim, however, it is crucial to try to identify potential consumers of Korean culturally reinvented textile products to establish accurate target consumers for efficient design marketing. During the current market research of Korean cultural textile products, informal interviews were conducted by visiting off-line shops, galleries and museums. More than three potential consumer groups can be classified but, from these interviews, this author suggests three prospective possibilities of target consumers for the future Korean cultural textile market with Figure 4.5.

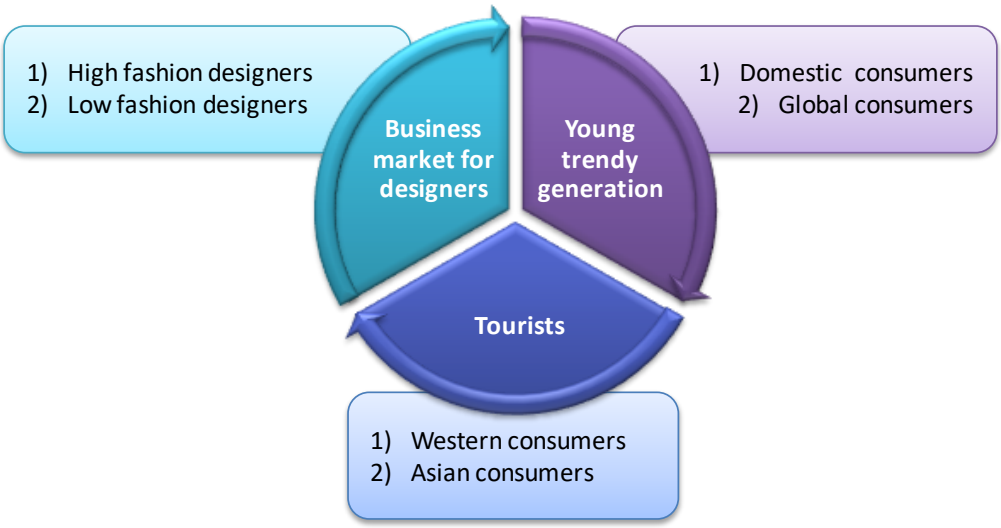


Figure 4.5 Three options for cultural reinvention for targeted potential consumers

As can be represented in Figure 4.5, the first target is the young trendy generation divided into domestic and global consumers. Tourists are the second target group subdivided into Western and Asian consumers. The final feasible target is high and low fashion designers who buy designed fabrics. Most Korean traditional cultural product markets, so far, have limited customers who are tourists or who are preparing for ceremonies like marriage. Thus, to extend the range of consumers is essential to enlarge the Korean traditional cultural textile product market.

4.6 Summary

This chapter has explored the current circumstances within the Korean traditional cultural textile market through four basic marketing components: product, price, distribution, and promotion. This consideration of the traditional Korean textile market has highlighted the limited variation of items and range of product prices, which has result in low product image and inadequate association of Korean cultural meanings. A lack of promotion has also resulted in limited consumer targeting and the ineffective communication. Therefore, the crucial requirement for the development of a successful Korean cultural textile product, which represents Korean cultural meanings in a contemporary product with effective marketing strategies, has been illustrated.

By exploring traditional Korean cultural textile products, the author has identified *bojagi* as the strongest category of Korean cultural textile products for cultural reinvention.

The formative characteristic of *bojagi* - the use of colour, pattern, fabric and style to convey meaning and aesthetic value - provides foundations similar to textiles which gives flexibility for modification for designing fashion products. This is supported by feedback obtained through an interview at the Museum of Korean Embroidery which highlighted the potential of Korean *bojagi* as a type of fashion product.

This chapter has suggested a process of how to produce a successful cultural product through cultural reinvention. Figure 4.2 shows the progression from the cultural product as a cultural icon within a popular cultural industry to a successful cultural product through reinvention. The aim of cultural reinvention is to produce commercially successful cultural products while preserving cultural meaning. Hence, the author suggests two approaches for cultural reinvention; these are modernisation/contemporisation and popularisation/globalisation.

The process of cultural reinvention for *bojagi* is offered in Figure 4.3. In particular, the possible design marketing strategies are proposed. E-business through the development of an interactive website has been selected as the most effective promotion and design tool to communicate with the target consumers. The development of this interactive website for Korean traditional *bojagi* will be dealt with in chapter six. Three optional textile product design strategies for cultural reinvention are presented in Figure 4.4 and three potential targeted consumer groups are illustrated in Figure 4.5. The “Young Trendy Generation” section identified in Figure 4.5 provides the basis for the colour research discussed in chapter five.

Chapter 5: Colour choices and preferences for Korean traditional colours among the young generation

5.1 Introduction

As outlined in the previous chapter, three textile design strategies for cultural reinvention have been identified (see Figure 4.4). The last design option - the integration of design elements, functional usage and traditional features of cultural products - has been selected as the optimal strategy for the development of modernised fashion *bojagi* products for a contemporary target market. This sector will define fashion in its broadest term and include garments, accessories, home textile and other associated products [Nitse *et al.*, 2004, p.2]. Furthermore, for the successful transformation of the design elements of Korean cultural *bojagi*, colour is considered to modify the traditional *bojagi* for designing contemporary fashion *bojagi* to fit into global target markets. Colour of fashion products is a choice criterion when making a purchase decision, and a satisfaction driver since they will influence post-purchase behaviour [Nitse *et al.*, 2004, p.5]. Colour is an integral part of all design processes and can be an effective means of creating and sustaining brand and corporate images in customers' minds [Madden *et al.*, 2000, p.90].

This chapter reviews the general meaning of colour in culture, culture and colour preferences, and colour, consumer behaviour and the cultural based market offering. Specifically, the colour choices and preferences among a young generation (Western/ Korean) in relation to *Obangsaek* (group of five traditional Korean colours), which are mainly used for *bojagi* will be examined. The young trendy generation group (Korean/ Western) has been selected as the primary target consumer group (see Figure 4.5). As this market overlaps with the other potential groups identified - tourists and the designer based business market - it has a great possibility to gain insights to allow future expansion into these areas also.

The chapter also discusses youth culture and global young consumer's behaviour, as an understanding of these concepts is necessary for the successful designing fashion *bojagi* for young people. This chapter aims to determine and compare the preferred, traditional and fashion colour choices of targeted young Korean consumers and preferred and fashion colour choices of targeted young UK consumers.

5.2 Colour in culture

Colour is related to culture and religion [Singh, 2006, p.784]. Particularly, colour perception and preference have often been considered to be culturally linked. Culture is represented at a particular time, and reflects society through a particular group of people's lives as a form of symbol. Colour symbolism has been examined as a possible objective criterion for forming colour semiotic relations. Semiotic associations could be reasoned and justified by the object that the colour represents, e.g. red is `danger' as a symbol of blood. The use of symbolism highlighted the use of any media as being `something that stands for something else'. This provided a useful insight for translating between aesthetic descriptions and colour concepts [Eves, 1997, p.12].

> *"The Hindu Upanishads allocate red to fire, white to water and black to earth and the Jewish historian Josephus allocated white to earth, red to fire, purple to water and yellow to air. To Aristotle and the ancient Greeks white was of air and water, yellow of fire and the sun. White was also of the earth and became black for elements in transmutation as a symbol of smoke. Empedocles described colour as the soul of life and the root of all existence, yellow symbolised earth, black was of air, red of fire and white of water".*
>
> [Eves, 1997, p.13]

According to Singh [2006], Muslims view green as a sacred colour. For Celts, green was also sacred enough to be included in wedding ceremonies until the Christian church introduced the white colour. In Inuit communities, white is so important that is has seventeen words to describe it, each with different meaning. Red and white is a combination used for ritual decorations in Melanesia and for representing the Sacred Heart of the Catholic Church in Mexico [Singh, 2006, p.784].

Korean traditional colour symbolism is based upon the five elements and the five basic colours are red, blue, yellow, white and black. Five basic colours ("*Obangsaek*") - red, blue, yellow, white and black - were used in embroidered *bojagi* together with some gold and intermediary colours. Red symbolised the sun, fire, production, creation, passion and love; blue symbolised creativity, immortality and hope; yellow symbolised light and essence of vitality; white symbolised chastity, truth, innocence and death; black symbolised existence [Roberts and Hur, 1998, p.21]. These five colours reflect

the traditional principle of yin and yang, male and female, positive and negative and light and dark, symbolic of a harmonious world in the East Asian cosmology. These five colours also correspond to the four points of the compass and the centre (blue-the east, white-the west, red-the south, black-the north, yellow-the centre); the five elements of the weather (cold, warmth, wind, dryness and humidity); and the five blessings (longevity, wealth, success, health and luck) [Hur, 2001, p.7].

These five main colours used for *bojagi*, except for some *jogak-bo* where various colours of leftover fabrics were used in patchwork form, are the Principle of yin (negative in English) and yang (positive in English) colours, and the Five Primary Elements. White was used as a supplementary colour; black as the demarcation line between different colours. In order to dispel evil and welcome good fortune, positive yang colours were extensively used, while negative yin colours were spared. The ancient Chinese belief that the birth and transformation of everything under the sun is affected by either the conflict or harmony between yin and yang had an enormous influence on the mode of living in ancient times, and the effects have also remained in modern Korea [Hur, 2003, p.23].

5.3 Culture and colour preferences

Preference, pleasantness and attractiveness all suggest subjective properties. Although preference is to some extent specific to individuals, there are many questions surrounding the complexity of the issue [Camgöz *et al*., 2002, p.199]. Individual differences are inevitable. Similarities and differences between people are often found in the area of ‘taste’; the preference for particular shapes, textures, patterns and colours that may differ from one person to another [Marrion, 2009]. The extent to which colour preferences are a reflection of personal taste, a reflection of culture, universal outcomes, a biological aspect or an influence by fashion trends at the time are unanswered issues [Camgöz *et al*., 2002, p.199].

> *“Favourite and least liked colours, which are non-materially and aesthetically intended, are perceived inwardly, independent of real objects. These colours could possibly throw some light on specific personality traits or phylogeny experiences. Colours chosen in the context of their material use, on the other hand, are a public statement to society and are subject to social and cultural influences. These colours are not chosen primarily for their intrinsic beauty, but*

because they have a certain, socially recognised significance."

[Marrion, 2009]

Despite the uncertainties, colour preference is an important factor in marketing and product design [Tangkijviwat and Shinoda, 2008, p.64]. Generally, the convergence of consumer preference is for the image of the product, which separates the product from substitute products [Mitry and Smith, 2009, p.317]. Further, response to colour can be highly affective, for colour is essentially an experience [Grieve, 1991, p.1319].

Studies on colour preference have been investigated by many researchers. There are thought to be universal colour preferences among adults [Grieve, 1991, p.1319]. In studies considering uniform colour patches, blue was the most preferred colour and yellow the least preferred, in general across cultures [Silver *et al.*, 1988, p.295; Wiegersma and Van der Elst, 1988, p.308; Buckalew *et al.*, 1989, p.1041; Tangkijviwat and Shinoda, 2008, p.64]. Colours having maximum saturation and brightness were more preferred than unsaturated colours since saturation is important for pleasantness of colour [Eysenck, 1941, p.386; Camgöz *et al*., 2002, p.204].

Apart from the arousal properties of colour, however, colour associations are not always universal and appeared to be age-, cognition- or cultural-related [Grieve, 1991, p.1323; Tangkijviwat and Shinoda, 2008, p.64; Szabo *et al.*, 2009]. Oberascher (2008) showed that the regionally different preferences for certain colours were influenced by cultural factors such as religion, politics, economy, technology and traditionalism vs. modernism [Oberascher, 2008, p.28].

5.4 Colour, consumer behaviour and the cultural based market offering

The psychological and physiological impact of colour on the individual is extensively documented within scientific and psychology literature, however, colour research is still considered to be in its infancy within the marketing domain [Grimes and Doole, 1998, p.802]. Marketing investigations indicated that issues relating to colour usage in store design are predominately mood enhancers, confirmation of the long-wavelength (reds and oranges) and short-wavelength (blues and purples) preference or the highlighting of examples of successful/unsuccessful colour choices for products/packaging or advertising. Although these have produced valuable insights, fewer marketing based

investigations have bridged the gap between the sensory and cognitive aspects of colour perception and their impact on consumer decision making processes and the associated implications for marketing strategy.

Kotler [1973] argued that a firm's tangible product offering was only one component of a customer's consumption package. Consumer decision making processes are influenced by their view of the 'total product', which includes references to colour and colour associations [Kotler, 1973, p.48]. Colour is an important tool for shaping customers' feelings and responses and in a competitive market may constitute a competitive advantage by helping to predict or even generate the necessary buyer awareness, attitude, preference or behaviour knowledge required by the firm [Aslam, 2006, p.15].

According to Schmitt and Simonson [1997], colours bear cultural associations leading to different perceptions and evaluations; they have different meanings and aesthetic appeal in different parts of the world. Pastel colours which are considered to express softness and harmony are particularly appealing to the Japanese. In Chinese culture, red has been appreciated for centuries as the most appealing and luckiest colour. Blue, on the other hand, is the most frequently used corporate colour in the US. It is, however, considered to be a cold colour connoting evil and the sinister in Chinese culture [Schmitt and Simonson, 1997, p.273].

If the meaning associated with a colour or combination of colours is different across cultures, marketers may benefit from pursuing a customised strategy with respect to the colours associated with their total market offering (for example, product design, branding, packaging, etc). However, when colour meanings are similar across markets, a standardised approach may be more economically and strategically beneficial [Madden *et al.*, 2000, p.91]. An identity of a product as messaged by colours can form the opportunity for the development of similar preferences for consumer target markets globally across geographical boundaries [Mitry and Smith, 2009, p.317].

5.5 Global young consumers and youth culture

Nowadays, youth has becomes a cultural ideal that is no longer fixed to an exact biological or physical life stage. By the term youth as an ideal, the age boundaries of youthfulness expand both upward and downward. Askegaard and Kjeldgaard [2006]

have argued that youth culture emerges from the development of Western modernity and the growing sophistication of advertising and market-segmentation strategies and now becomes quite a large fragment in a global cultural economy [Askegaard and Kjeldgaard, 2006, p.232].

> *"Global teens from New York, Tokyo, Hong Kong, to those from Paris, London, and Seoul are sharing memorable experiences (through television, international education, and frequent travel) which are reflected in their consumption behaviour… the 'teenage culture' on a global scale shares a youthful lifestyle that values growth and learning with appreciation for future trends, fashion and music."*
>
> [Hassan and Katsanis, 1991, p.21]

Askegaard and Kjeldgaard [2006] also have stated that youth consumption is generally thought to be played out in a set of highly stylised arenas of clothing, music and communication technology (notably the mobile phone). These arenas operate to both similar youth cultural style expression and also enable differentiation [Askegaard and Kjeldgaard, 2006, p.233]. Especially, fashion product experiences are determined according to their perceived desirability. Young consumer preference, as based on these perceptions, is established and reinforced by media, which is still largely print, radio and television, and to a lesser extent, the Internet, where available [Mitry and Smith, 2009, p. 317].

Global marketing strategy refers to the marketing activities, harmonised and integrated across multiple country markets. The integration can involve standardised products, uniform packaging, identical brand names, synchronised product introductions, similar advertising messages or sales campaigns across markets in multiple countries [Mitry and Smith, 2009, p.319].

5.6 A psychophysical experiment

This experiment aimed to examine the target consumers' (young Korean and young UK) colour preferences for traditional Korean five colours (*obangsaek*). This information would then aid the development of a model for the cultural reinvention of Korean traditional *bojagi* textiles. There are five traditional Korean colours prominent in

bojagi design. Therefore, it was useful to consider whether younger Korean consumers recognise the five traditional colours as being traditional and also whether they regard these colours as being fashionable and/or preferred. Thus, samples of young Korean and UK (for comparison) consumers have been tested to examine their colour preferences and also what they considered to be successful fashion colours using the traditional Korean colours (in various degrees of saturation and hue nuance). In the case of the Korean participants, they were also asked which colours they considered to be more traditional. An interesting side question that may be answered by this research is that precisely which colours (for example, for red, exactly which hue and which saturation) are most associated by young Korean consumers as being traditional.

5.6.1 Colour specification

In this experiment a system of colour specification was used to enable objective and numeric data about colour to be collected. The CIE (Commission Internationale de l'Éclairage) system offers a precise means of specifying a colour stimulus under a set of viewing conditions; the CIELAB colour space is a useful representation of colours that correlates with perceptual attributes and is an international standard for colour specification [CIE, 1978].

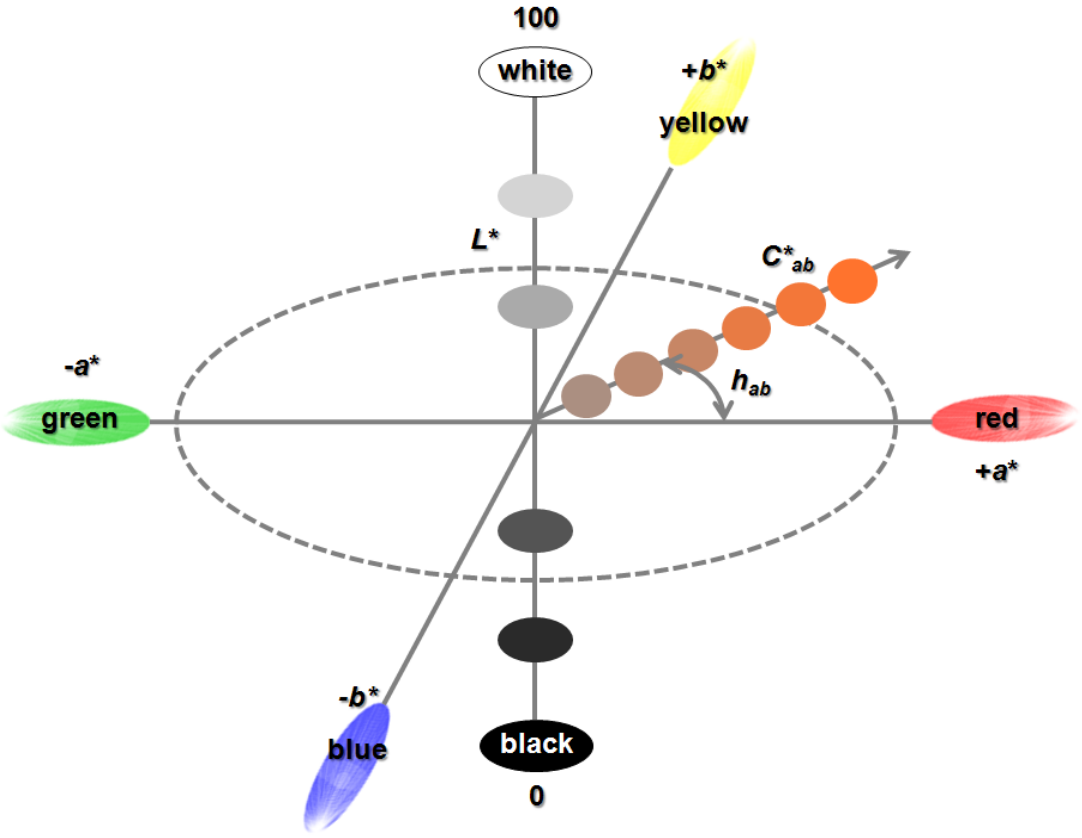


Figure 5.1 A schematic representation of the CIELAB colour space

The CIELAB system defines each colour by three numbers (L*, a* and b*) that specify the position of the colour in a three-dimensional space (see Figure 5.1). The vertical axis (defined by L*) relates to the lightness of the colour and usually ranges from 0 (black) to 100 (white). The other two axes (defined by a* and b*) are opponent colour axes that approximately represent red-green (a^*) versus yellow-blue (b^*). Whereas the Cartesian coordinates a* and b* are adequate for colour specification, it is sometimes preferable to use C* and h_{ab}, the polar coordinates [Westland and Ripamonti, 2004, p.50] as illustrated in Figure 5.1 C* represents the chroma of the colour whereas h_{ab} represents the hue angle; a* and b* confound chroma and hue.

5.6.2 Method

A total of 120 colour patches were printed (24 each of red, blue, yellow, white and black) using an HP8550 laser-jet printer with Kodak premium photo paper. The patches were arranged on five sheets with each sheet containing patches of one of the five colours. The colours on each sheet were arranged randomly but were clustered in CIELAB space around a centre whose colour coordinates were selected based on a

traditional Korean textile product called *obangnang* – silk pouches that are traditionally made in certain colours [Suh, 2007, p.90]. The 24 patches were designated around these traditional colours, being variously lighter, darker, stronger, weaker, warmer or cooler though subject to limitations of the gamut of the printer in some cases. The printer was only able to produce approximate representations of the target colours (because of limitations of colour management) but still sufficiently close to the target colours for the purposes of the experiment. Figure 5.2 shows the CIELAB colours (for illuminant D65 and the 1964 CIE standard observer) of the actual patches (the actual L*a*b* values were obtained from measurements using a Minolta CM2600d reflectance spectrophotometer). In fact, five replicates of each sheet were printed so as to speed up the collection of the psychophysical data. Each of the five sheets was separately measured and the variation between sheets was found to be small. Figure 5.2 shows the colour coordinates averaged over the five sheets.

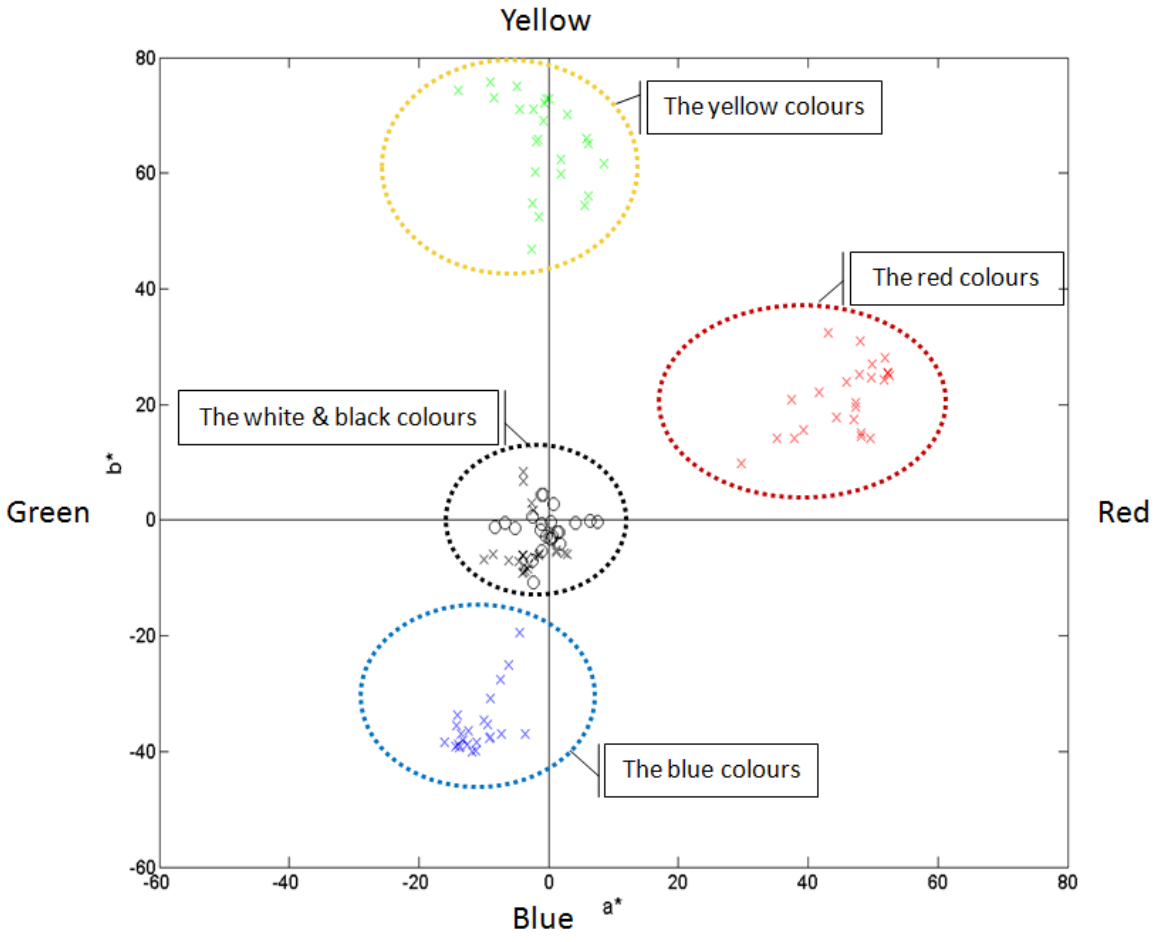


Figure 5.2 CIELAB coordinates of the 120 patches used in phase 1 of the experiment (the green, red and blue symbols represent the yellow, red and blue samples

respectively; the black crosses represent the white samples and the black circles represent the black samples)

A psychophysical experiment was carried out using 40 Korean observers (mainly recruited from Changwon National University) and 40 UK observers (mainly recruited from Leeds University). Before the experiment, all observers were given a test for colour blindness. Observers were presented in turn with one of five sheets (containing red, blue, yellow, white or black colours) and asked to pick the colour (1) they preferred; (2) that they thought was closest to the Korean traditional colour; (3) which they thought was most appropriate for fashion products. For UK observers only questions (1) and (3) were posed. Therefore, for each sheet, Korean observers made three separate selections which were recorded by the experimenter (UK observers made two separate selections). Most observers had some professional experience with design or clothing, and the demographic characteristics of the observers are summarised in Table 5.1.

	Korea	UK
Total number	40	40
Gender proportion (%): female-male	95.0-5.0	62.5-37.5
Age range	18-38	19-39
Mean age	23.6	22.2

Table 5.1 Observer attributes

The language of the experimental survey was chosen according to the observers' native language (Korean or English). The order of presentation (red, blue, yellow, white and black colours) was randomly selected for each observer. In order to assess intra-observer variability a second set of printed samples (25 sheets: 5 replicates of each of the 5 colours) was prepared and observers were asked to repeat their assessments, following an interval of 2 hours, using samples from this second set of printed sheets. The reason for having a second set of printed sheets was that the same colours were used but positioned in a different random order so that observers would not be able to remember which patch they selected the first time and simply base their second

selections on the remembered position. In the following analyses the first selections made by each observer will be referred to as phase 1 and the second selections will be referred to as phase 2. The analyses were carried out using the MATLAB programming language.

5.6.3 Findings

First, the reliability of the judgements made by the observers must be considered. For each observer and for each colour choice the colour difference between the selection made in phase 1 and the selection made in phase 2 was calculated. This colour difference is simply the Euclidean distance between the points in CIELAB space that represent the selections. Thus, if an observer makes exactly the same selection in phase 1 and phase 2 then this intra-observer colour difference will be zero; the higher the colour difference the less reliable the judgements are. The colour differences were averaged over each group of 40 observers and the average colour differences are displayed in Table 5. 2.

	Korean			UK	
	preferred	**traditional**	**fashion**	**preferred**	**fashion**
red	5.18	7.03	8.22	5.50	9.16
blue	4.57	4.93	6.63	5.62	8.44
yellow	4.27	7.31	9.53	7.11	9.64
black	4.27	5.16	5.18	4.52	5.79
white	2.31	4.38	5.58	4.63	6.72

Table 5.2 Mean colour differences between selections for phases 1 and 2 averaged for each observer group and colour choice

It is difficult to compare the mean colour differences across the different colours because the CIELAB colour space is not visually uniform; that is, the relationship between distances in CIELAB space and perceptual colour differences varies from one colour to the next [Westland and Ripamonti, 2004, p.9]. However, it is interesting, for each colour, to look at the reliability of judgements between the two groups of observers and also between the different colour choices. An initial analysis of Table 5.2

suggests that, in general, the reliability of an observer's judgement of what is preferred is high and the reliability of what is fashionable is low. In other words, observers seem to exhibit more certainty about what they like than they do about what is fashionable. Moreover, this trend is the same for both UK and Korean observers. To support this analysis the data were subjected to a t-test (homoscedastic two-tailed) that revealed statistically reliable differences for the Korean observers of preferred red v fashion red (p = 0.027), preferred blue v fashion blue (p = 0.027), preferred yellow v fashion yellow (p < 0.001), and preferred white v fashion white (p = 0.011). For Korean observers there were also statistically significant differences between preferred yellow v traditional yellow (p = 0.001) and preferred white v traditional white (p = 0.020). No such statistically reliable differences were in fact found for the UK observers. This could suggest that in general the notion of preferred colour is more precisely defined for Korean observers or that the notion of fashionable colour is less precisely defined for Korean observers; the data in Table 5.2 tend to support the former notion.

The above analysis is concerned solely with reliability of judgements. It is also interesting to consider whether, for each set of observers, the adjectives fashionable, traditional and preferred affect the judgements that are made. Therefore, it is needed to consider the average colour values for each set of adjectives and for each set of observers. Table 5.3 shows the average colour coordinates that were obtained for the responses from the Korean observers and Table 5.4 shows the equivalent data for the UK observers.

	preferred			traditional			Fashion		
	L*	C*	h_{ab}	L*	C*	h_{ab}	L*	C*	h_{ab}
red	47.52	50.70	23.63	46.02	47.80	23.57	46.11	47.95	22.47
blue	52.70	37.32	254.30	49.34	38.14	253.91	51.96	37.17	253.54
yellow	82.82	66.71	93.25	79.62	66.96	89.11	81.18	65.47	91.38
black	33.40	1.87	247.69	33.07	1.54	245.92	33.83	2.58	250.02
white	91.78	4.79	249.22	90.86	5.04	242.21	90.18	5.60	234.75

Table 5.3 CIELAB colour coordinates of the preferred, traditional and fashion colours for the Korean observers

	Preferred			fashion		
	L*	C*	h_{ab}	L*	C*	h_{ab}
red	47.94	51.23	23.41	45.89	47.08	23.94
blue	52.71	37.41	252.43	53.13	36.33	252.41
yellow	81.28	66.73	91.20	80.90	65.44	90.94
black	33.29	2.63	242.85	33.51	2.66	252.04
white	89.66	6.32	247.09	89.61	5.91	247.60

Table 5.4 CIELAB colour coordinates of the preferred and fashion colours for the UK observers

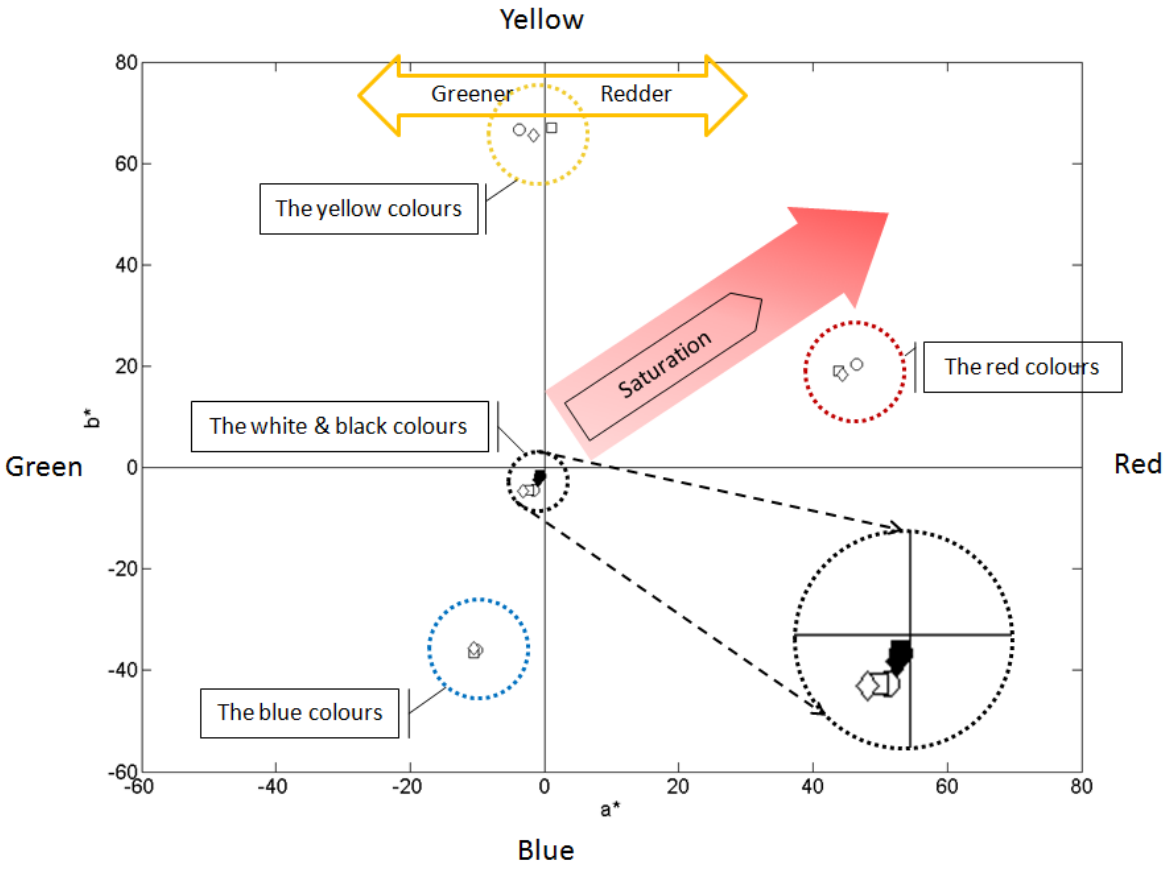


Figure 5.3 Graphical representations of preferred (circles), traditional (squares) and fashion (diamond) colours in CIELAB space (the black colours are denoted by filled symbols) for Korean observers

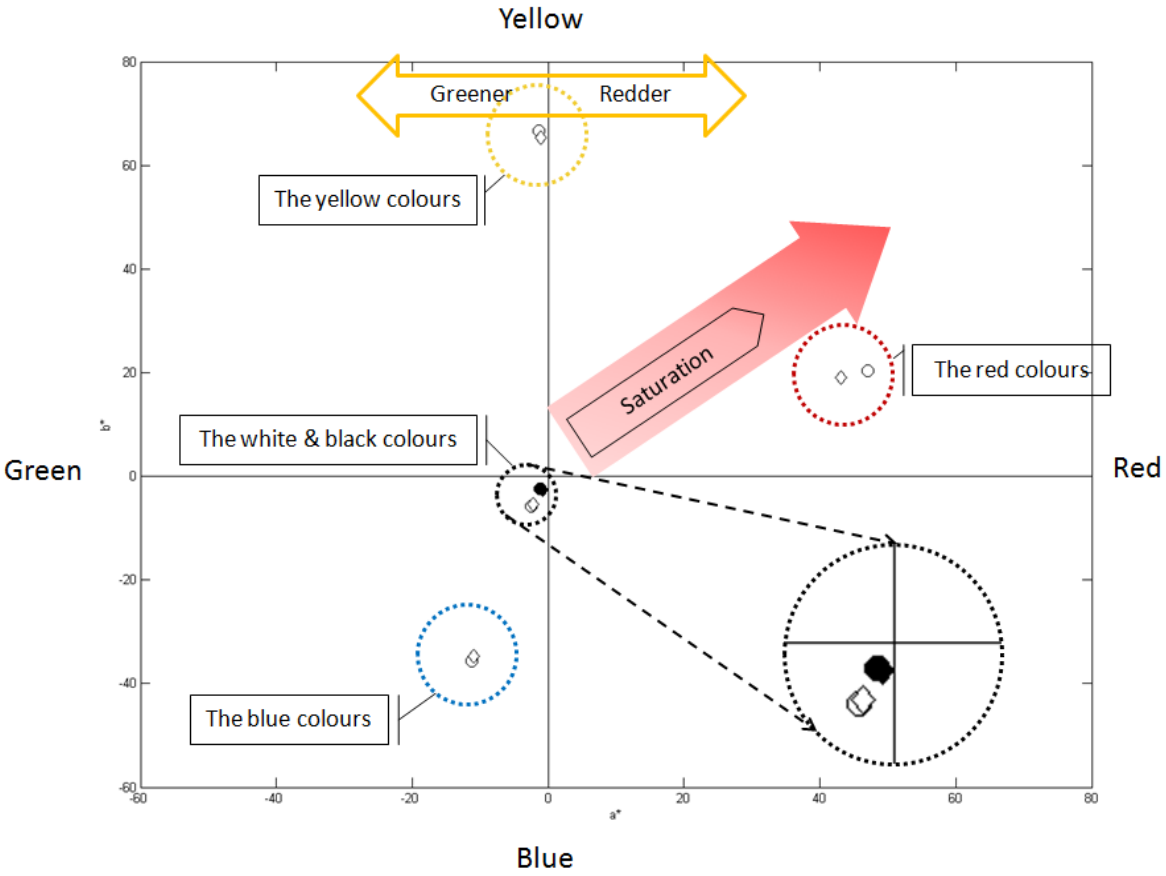


Figure 5.4 Graphical representations of preferred (circles) and fashion (diamond) colours in CIELAB space (the black colours are denoted by filled symbols) for UK observers

The data in Table 5.3 are represented in Figure 5.3. From Figure 5.3 it can be deduced that, for the Korean observers, the preferred red is more saturated than the fashion and traditional red. In addition, the traditional yellow is reddish and the preferred yellow is greenish compared with the fashion yellow. The UK data in Table 5.4 are represented in Figure 5.4. From Figure 5.4 it can be deduced that, for the UK observers, the preferred red is also more saturated than the fashion red. The agreement between the UK and Korean data is striking. However, there are differences. The greatest differences between UK and Korean preferences seems to be for the white colours; both sets of observers prefer a bluish white but both the preferred and fashion UK whites are bluer than the Korean preferred and fashion whites. There is a long history in European society of preferring bluish whites. From the middle of the 19th century people have added natural blue dyestuffs when washing white clothes. These blue

dyestuffs (for example, Reckitt's blue) were replaced in the middle of the 20th century by man-made fluorescent brightening agents (FBA) in commercial washing powders [Reckitt's Blue, 2010, Online]. In Korean society there is not such a long tradition of counter-acting the natural yellowness of many white materials with blue dyestuffs and FBAs and this may account for the differences in whiteness preferences [Zussman, 1963, p.695].

5.7 Summary

For cultural reinvention of traditional Korean *bojagi* textiles, the author investigates colour preferences and choices of the target consumers to develop contemporary fashion *bojagi* products. The chapter emphasises colour as a major issue in design and purchasing decisions of contemporary fashion products. Thus, the experiment identifies the differences and similarities in the colour choices of Korean observers for preferred, fashion and traditional categories and UK observers for preferred and fashion categories. The psychophysical experiment revealed that observers seem to exhibit more certainty about what they liked than they do about what is fashionable and this trend is the same for both Korean and UK observers. Furthermore, from the analysis of the data it was concluded that firstly, the preferred red is more saturated than the fashion and traditional red for Korean observers. Additionally, the traditional yellow is reddish and the preferred yellow is greenish compared with the fashion yellow. Similarly, for the UK observers, the preferred red is also more saturated than the fashion red. In case of white colour, both sets of observers prefer a bluish white. Overall, the colour choices and preferences among target Korean and UK consumers appear to be similar.

Among the sample population, the evidence supports the inference that similarities are partly the result of a global convergence in patterns of young consumer's preference, interdependencies in youth culture and the rapid expansion of communications technology [Mitry and Smith, 2009, p.320]. International young consumers are beginning to be defined by characteristics other than geographic location or heritage. The implementation of the reinvention of *bojagi* into a successful contemporary fashion product requires both an understanding of its cultural heritage, traditions and an awareness of the merging of colour preferences for fashion among the targeted segments. In a previous chapter, the author referred to the development of a web interface tool to be utilised for consumer preference research, product development and early promotion of Korean *bojagi* as a fashion fabric. The development, testing and

outcomes of this tool will be described in chapter six and chapter seven.

Chapter 6: Designing Korean *bojagi* website as an internet marketing tool

6.1 Introduction

In this research, e-business through the development of an interactive website was selected as the most effective promotion and design tool to communicate with target consumers. A Korean *bojagi* website was developed by Adobe Dreamweaver CS4 HTML programme, the contents of the website was structured six categories - history, styles, patterns, colours and fabrics of the traditional Korean *bojagi* and then had the '*design your own bojagi*' component (see appendix A). The '*design your own bojagi*' was developed using MATLAB 7.0.4 GUI programme (see appendix B). The development of the website will achieve the primary marketing aims of identifying, anticipating and satisfying customer requirements effectively through the application of digital technologies [Chaffey *et al.*, 2006, p.9]. Through the process of cultural reinvention for the Korean traditional *bojagi* discussed in chapter four, an internet marketing communication through a web based interface like Scottish tartan was considered an efficient design marketing tool for current times. This chapter will illustrate the process for developing the Korean *bojagi* website and the design process for the technical development of the new interactive textile design tool.

6.2 A design process for developing a Korean *bojagi* website

The fundamental textile characteristics of the Korean *bojagi* products - styles, patterns, colours and fabrics - became the basis of the contents for designing this website.

A concept of this website was to introduce and inform the traditional Korean cultural textile *bojagi* for global young consumers and to utilise this website as a marketing and design tool by the use of an interactive web based interface which incorporates both functional and entertainment characteristics. Further, if this website can make a connection with manufactures, consumer's designs will be manufactured and sold online. This could possibly increase the co-created value with design choices of patterns, colours and textures for designing new *bojagi* by consumers.

For generating these concepts in a Korean *bojagi* website, contents of the website consisted of six different categories - history, styles, patterns, colour & fabrics of Korean *bojagi* and design your own *bojagi*. All contents and each web page were designed by using the Adobe Dreamweaver CS4 HTMAL programme. An initial idea for

this website is shown as a storyboard in Figure 6.1 and an idea of a first page (homepage), a new textile design tool section and each category of contents for Korean *bojagi* website are shown in Figure 6.2, Figure 6.3 and Figure 6.4. Figure 6.5 illustrates the first page (homepage) of the Korean traditional *bojagi* website.

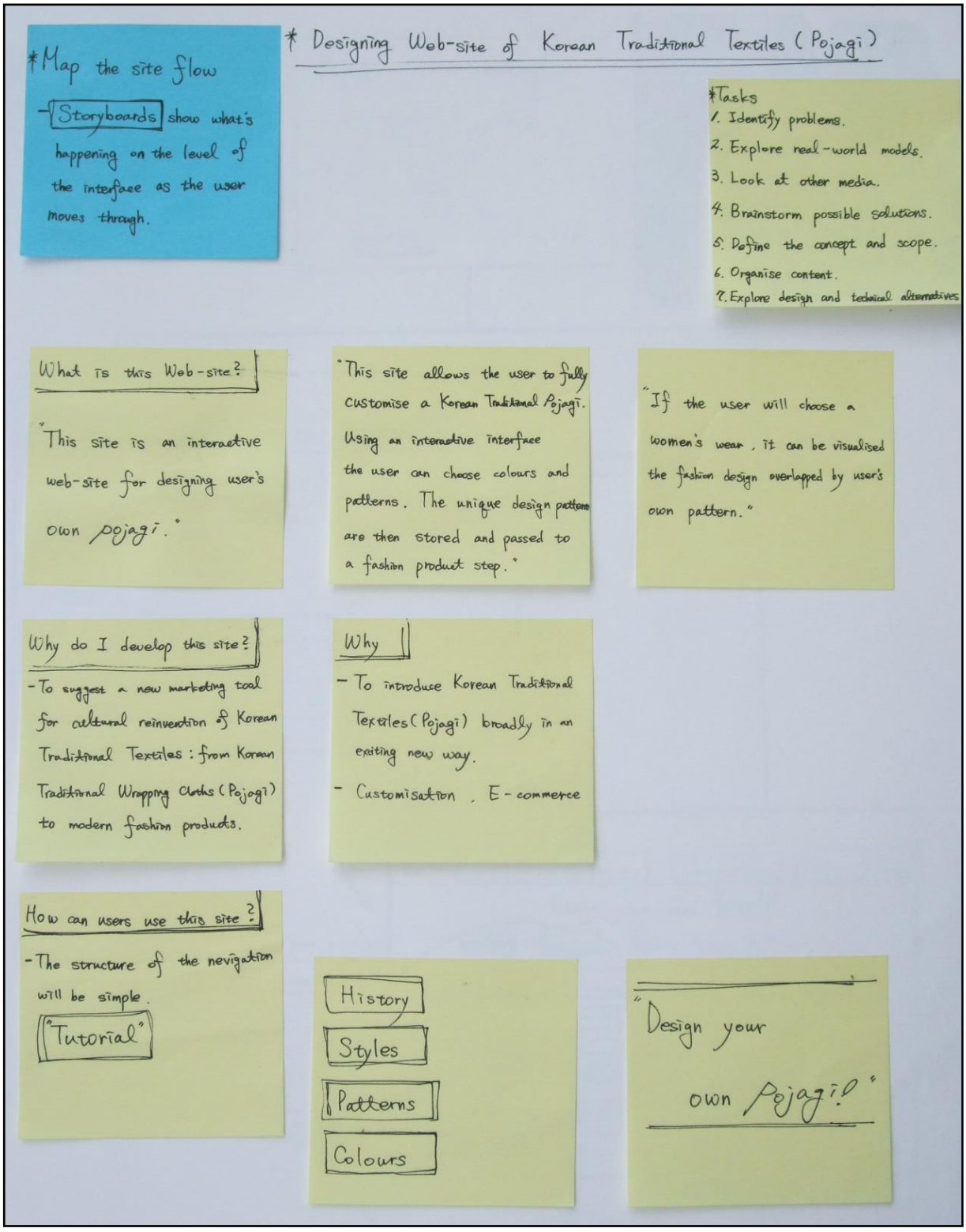


Figure 6.1 A storyboard for designing Korean *bojagi* website

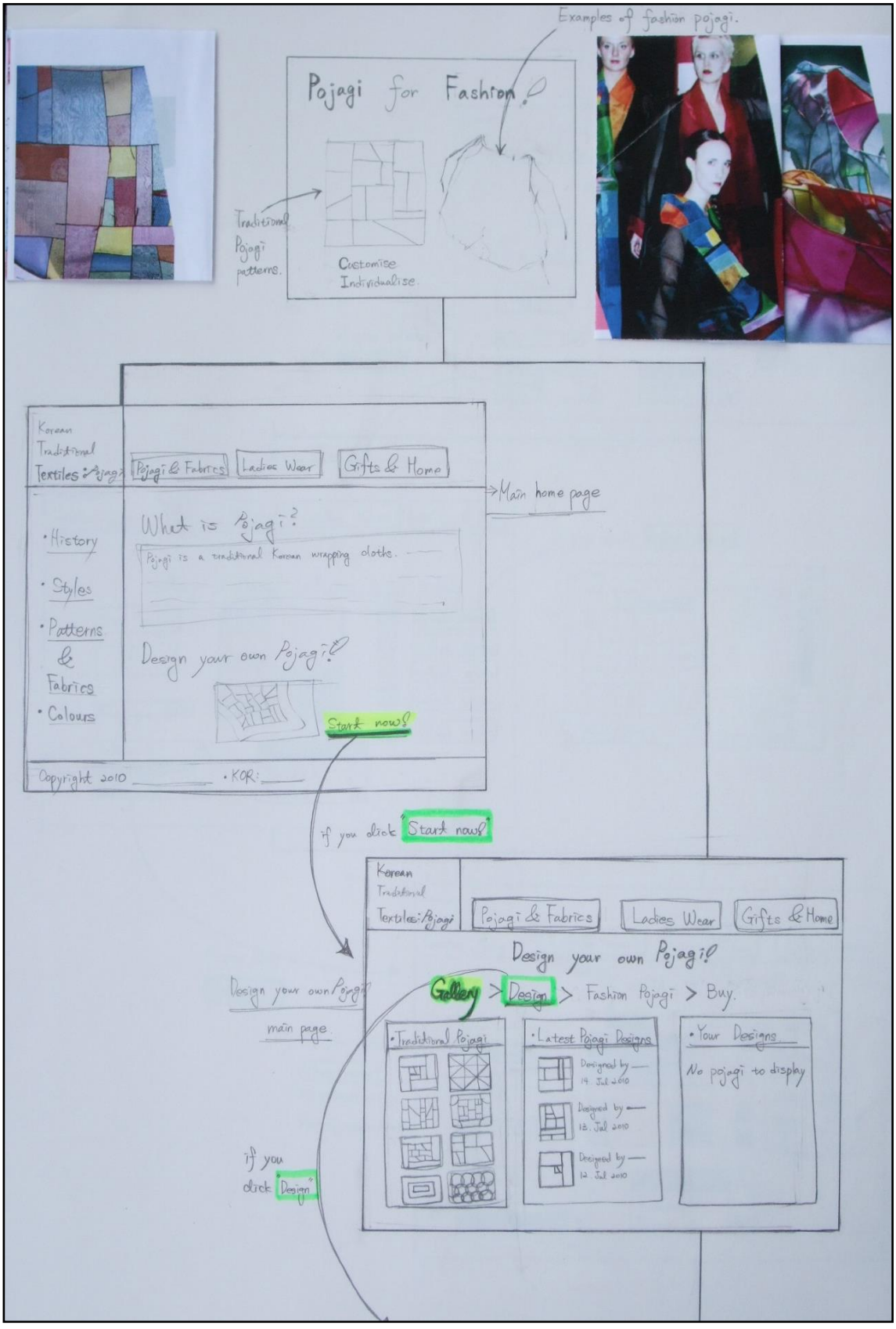


Figure 6.2 An initial idea of a homepage and a gallery section for Korean *bojagi* website

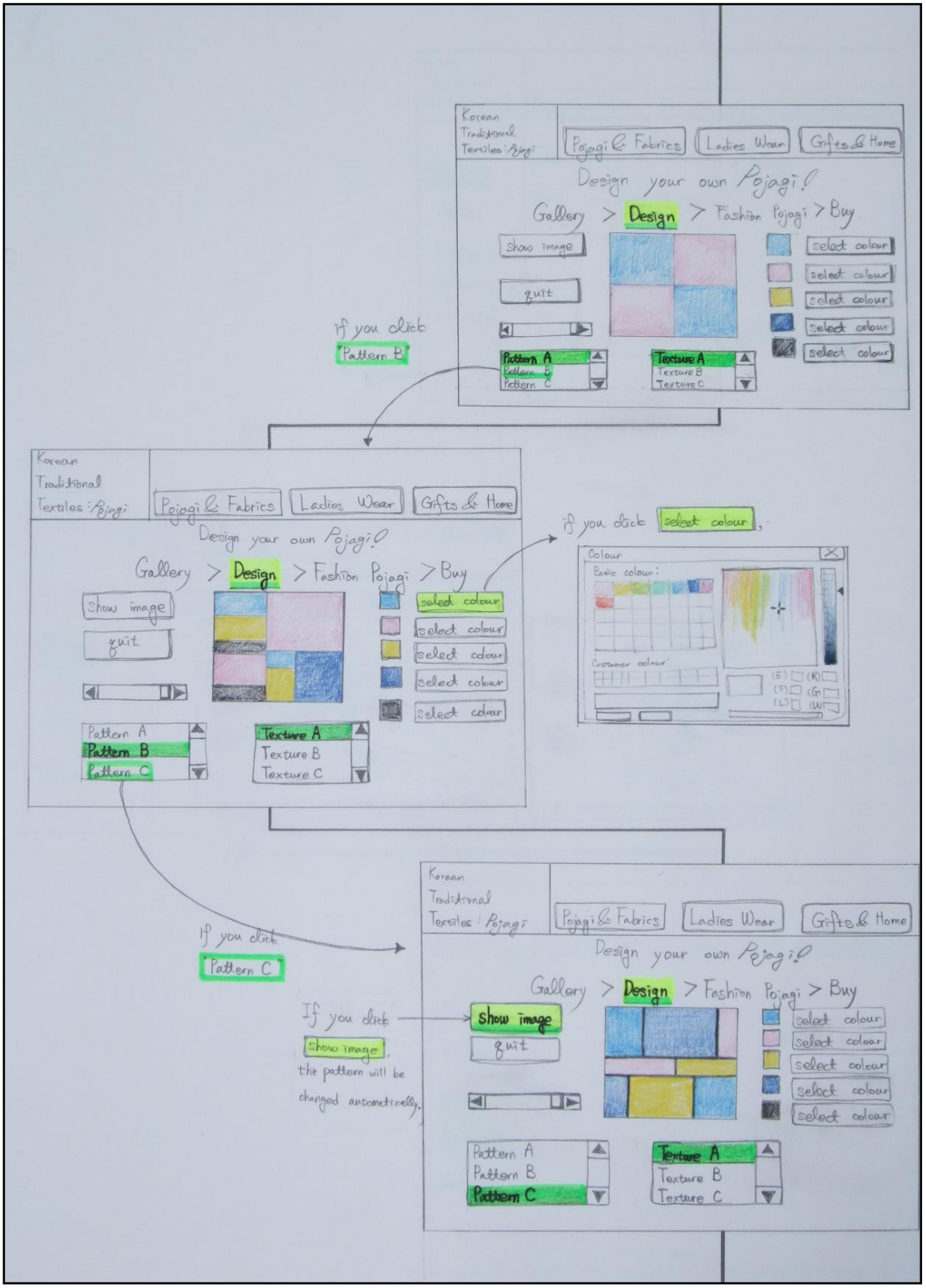


Figure 6.3 An initial idea of a new textile design tool section for Korean *bojagi* website

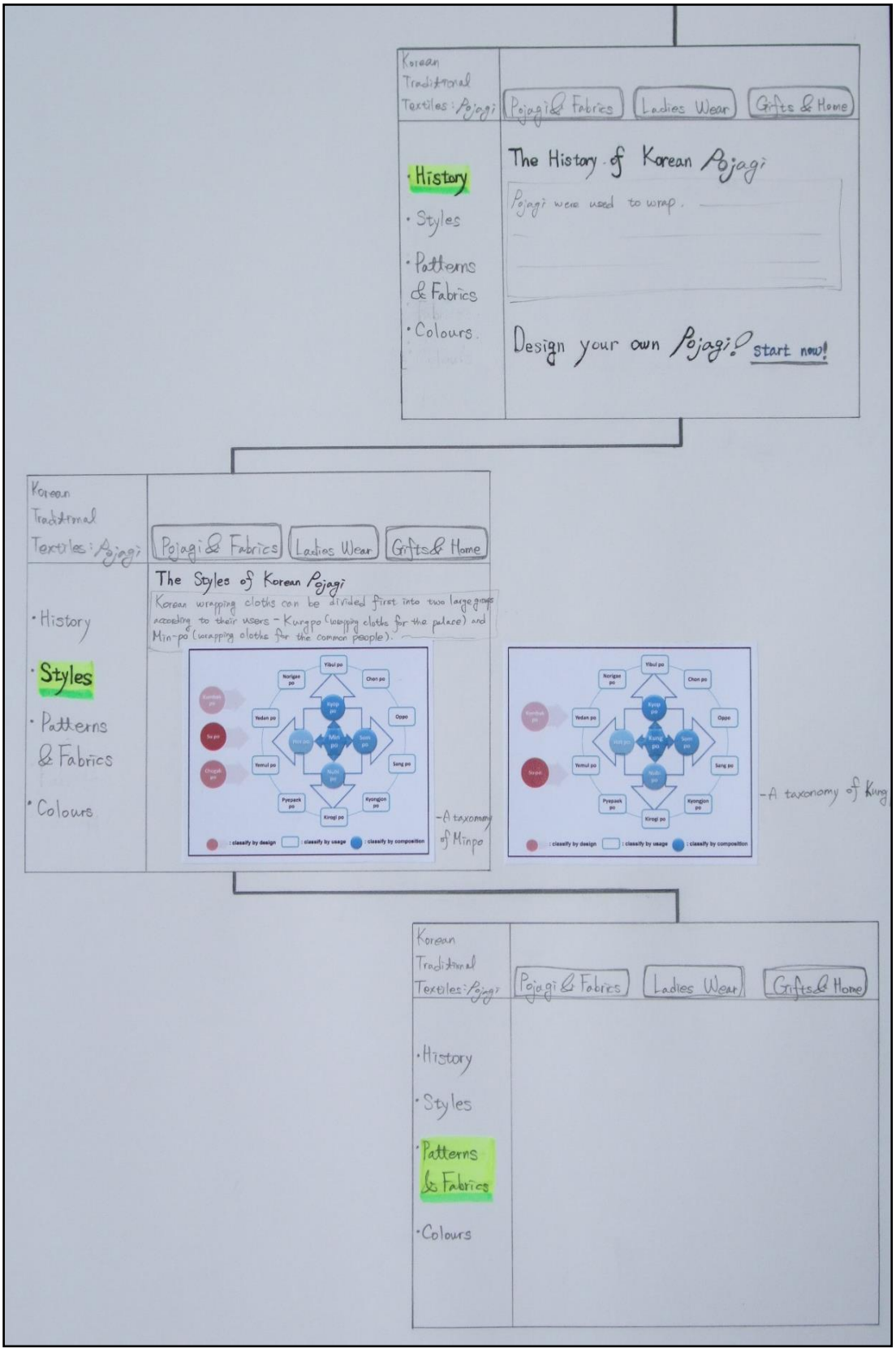


Figure 6.4 An initial idea of each category of contents for Korean *bojagi* website

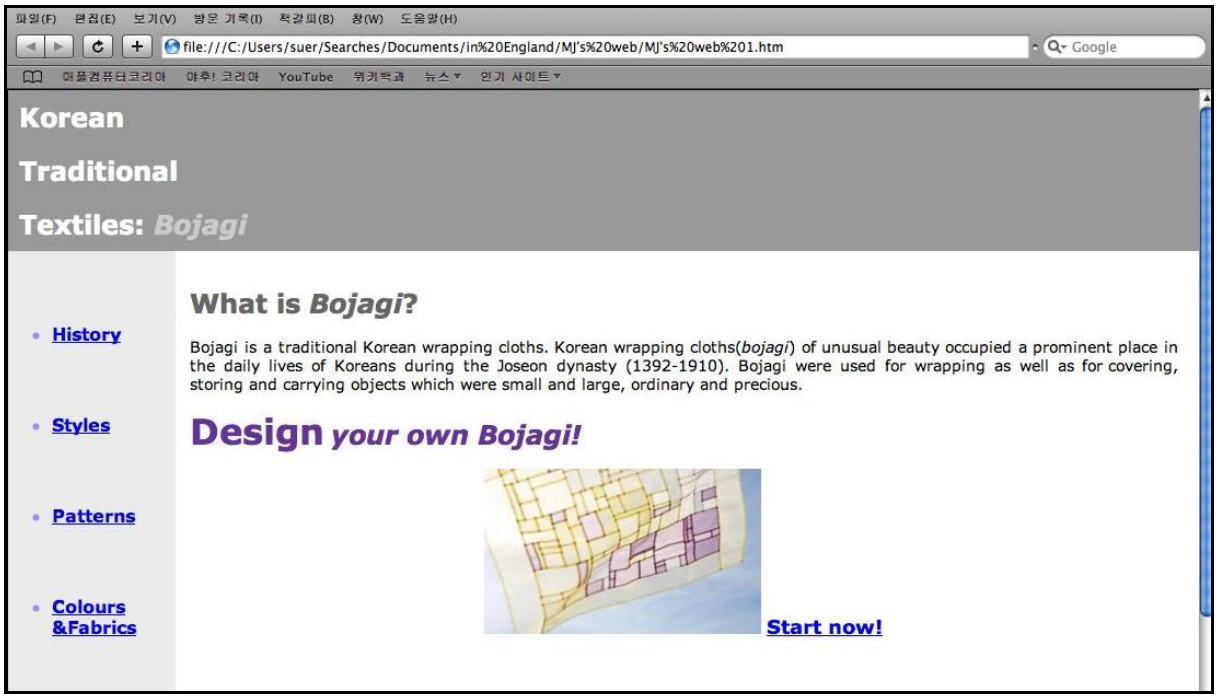


Figure 6.5 The first page (homepage) of Korean traditional *bojagi* website

This section reviews the kinds and symbolism of Korean traditional *bojagi* by history, styles, patterns, colours and fabrics to provide a deep understanding of the traditional Korean *bojagi* textile products for developing each category of the website's content. The history script of the website is a succinct distillation of the information collected during the author's study of the development of traditional Korean *bojagi* fabrics through to modern times. Also, some new models are used, for example Figures 6.7 and 6.8. The following text will describe what is included.

6.2.1 History

Korean wrapping cloths (*bojagi*) occupied a prominent place in the daily lives of Korean of all classes during the Joseon dynasty (1392-1910). Although *bojagi* has been in use for centuries, all the surviving examples are from this period. *Bojagi* has a variety of purposes, from covering a food table, draping a Confucian or Buddhist altar, wrapping a sacred text to carrying objects. Covering a table or an altar signified the importance of the occasion, the wrapping objects represented the individuals concern for that which was being wrapped and respect for its receiver. There was an unspoken Korean folk belief that to wrap an object means enclosing and capturing good luck within a *bojagi*. Special events such as weddings, therefore, required that an entirely new *bojagi* be used [Kim, 1998, p.13; Hur, 2001, p.35].

The traditional Korean *bojagi* was made from fabrics that were much easier and cheaper than wood to make boxes or chests, and also it had an advantage of taking up a small space due to the flexibility of a textile when it was not in use. In this light, *bojagi* was used by all classes of traditional Korean society as an expression of respect for others as well as for the items which were wrapped. The care taken in wrapping, even the most humble item, reflected the giver's appreciation for the recipient and for the item itself [Robert and Hur, 1998, p.19].

Traditional Korean *bojagi* which survives today is treasured as a unique expression of the character of the nameless women who created it. The magnificent and refined wrapping cloths are works created exclusively by women of the late Joseon dynasty. Korean women of the Joseon dynasty were subjected to severe restrictions in all aspects of daily life by the ethics of Confucianism [Yi, 1998, p.25]. In this respect, it seems that making *bojagi* and expressing their feelings and ideas was a way of controlling their remorse, and cherishing their hope for the afterlife as a free human being. This is what differentiates *bojagi*-making from other craft arts [Hur, 2004, p.20]. The section of history of the traditional Korean *bojagi* in the website is as shown in Figure 6.6.

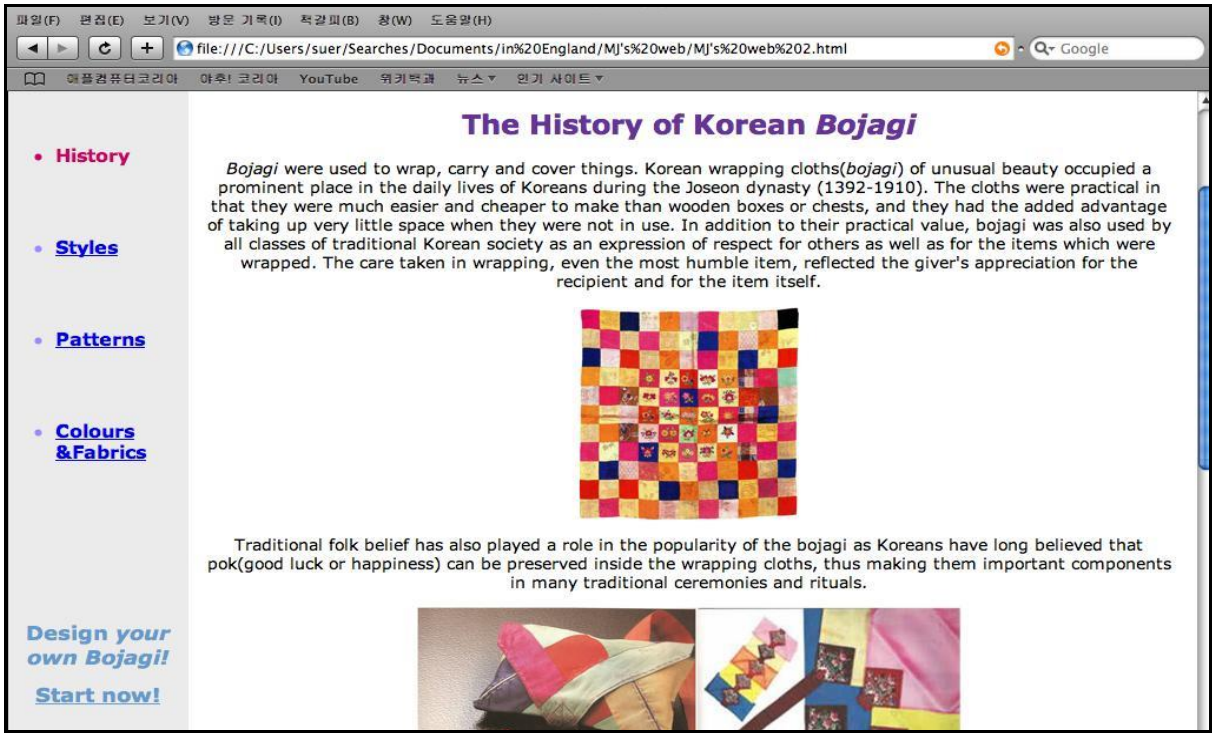


Figure 6.6 The history of Korean *bojagi* in the website

6.2.2 Styles

Bojagi is manufactured in different styles, patterns and colours. It can be divided into two groups according to the users: gung-bo (wrapping cloths for the gentry) and min-bo (wrapping cloths for ordinary people) [Roberts and Hur, 1998, p.13].

They can be further divided according to their construction, design and the purpose they serve. If they are lined, they are called gyeop-bo (gyeop means 'double'), while unlined ones are called hot-bo (hot means 'single'). Those made to wrap fragile objects are often padded with cotton and therefore called som-bo (som means 'cotton'), while quilted wrapping cloths are called nubi-bo (nubi means 'to quilt') [Roberts and Hur, 1998, p.14].

By classification according to usage, if they are made to wrap bedding, they are called yibul-bo (yibul means 'bedding'). Those for wrapping fabrics are chon-bo (chon means 'fabrics') and those for enclosing clothing are called op-bo (ot means 'clothes' - when it is followed by the word bo it pronounces as op and is thus referred to as op-bo) [Kim, 2003, p.13]. The wrapping cloths made to cover the food table are called sang-bo. During pre-modern times they not only kept food warm, but also protected it from flies and other insects. *Bojagi* for wrapping Buddhist rites are kyongjon-bo (kyongjon means 'Buddhist rites') and those for enclosing a wood carving goose are called kirogi-bo (kirogi means a wood carving goose) which was presented by the bridegroom's family to be placed on the central table during the traditional Korean wedding ceremony. Pyebaeck-bo, yemul-bo (wedding *bojagi* for a groom), yedan-bo (wedding *bojagi* for a bride) are used for wrapping a special object for the wedding ceremony. *Bojagi* for wrapping personal ornaments are called norigae-bo [Kim, 2003, p.16-17].

By classification in order of design, wrapping cloths with a patchwork design are called jogak-bo (jogak means 'small segments'), while embroidered wrapping cloths are called su-bo (su means 'embroidery') and if they are made of a cloth woven in patterns they are called jikmun-bo. Jogak-bo is the most popular wrapping cloths used exclusively by ordinary people. These were wrapping cloths with patchwork designs, which were made with small pieces of leftover cloth [Roberts and Hur, 1998, p.14]. In the case of su-bo, the embroidered motifs are based on trees, flowers, birds, clouds, fruits, dragons, phoenixes and ideographs [Kim, 2003, p.12]. The figures and designs portrayed in embroidered *bojagi* also represent a deep symbolic significance. The

layers of a complicated stitching portray those motifs which express the desire for happiness and good fortune as well as a belief in the spiritual power of objects and creatures found in nature [Hur, 2003, p.23]. *Bojagi* decorated with design in pressed gold are called geumbak-bo (geum means 'gold') and wrapping cloths with colour drawing designs on fabrics are called chaesaek-bo. However, Geumbak-bo and chaesaek-bo are only used by the gentry class. The author now returned to the taxonomies produced at the early stage of the study and shown in chapter one (see Figures 1.3 and 1.4). These taxonomies, were further developed and used in the website to help the users to understand the varieties of *bojagi* textiles and to learn the associated vocabulary. Figure 6.7 shows an example of this approach for a type of product known as gung-bo and Figure 6.8 illustrates an example of the same approach for min-bo. The section of styles of the traditional Korean *bojagi* in the website is as shown in Figure 6.9.

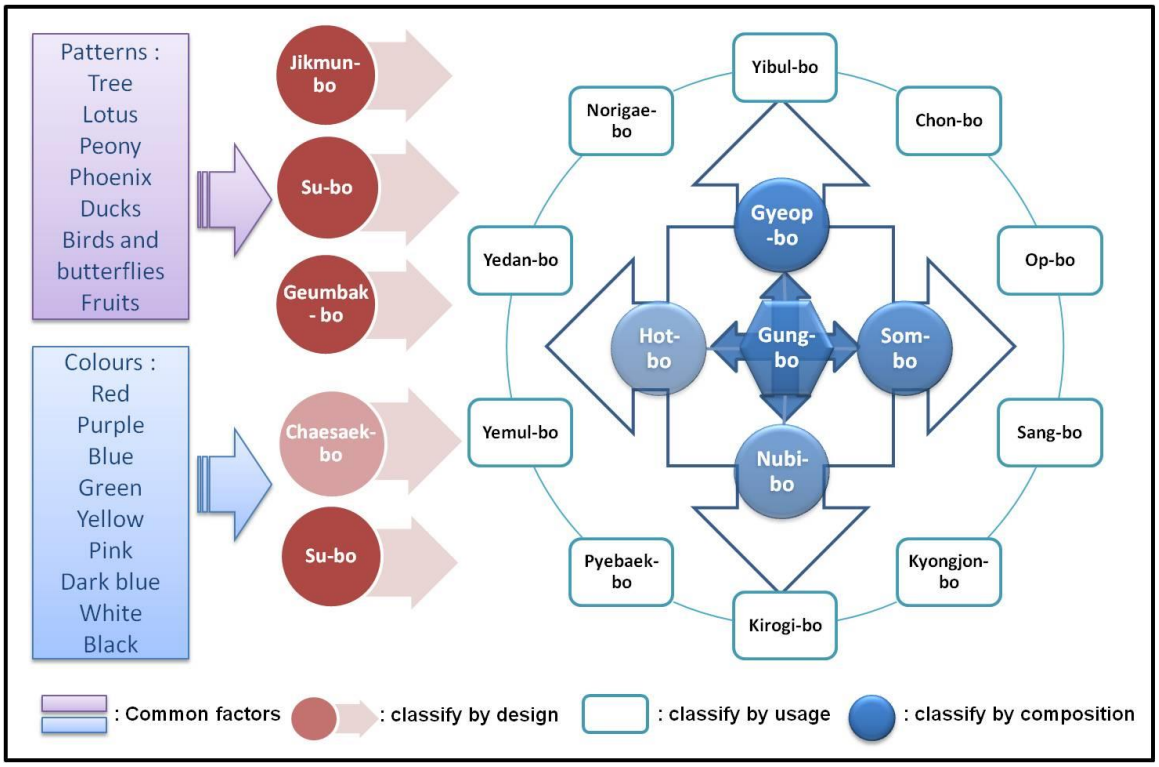
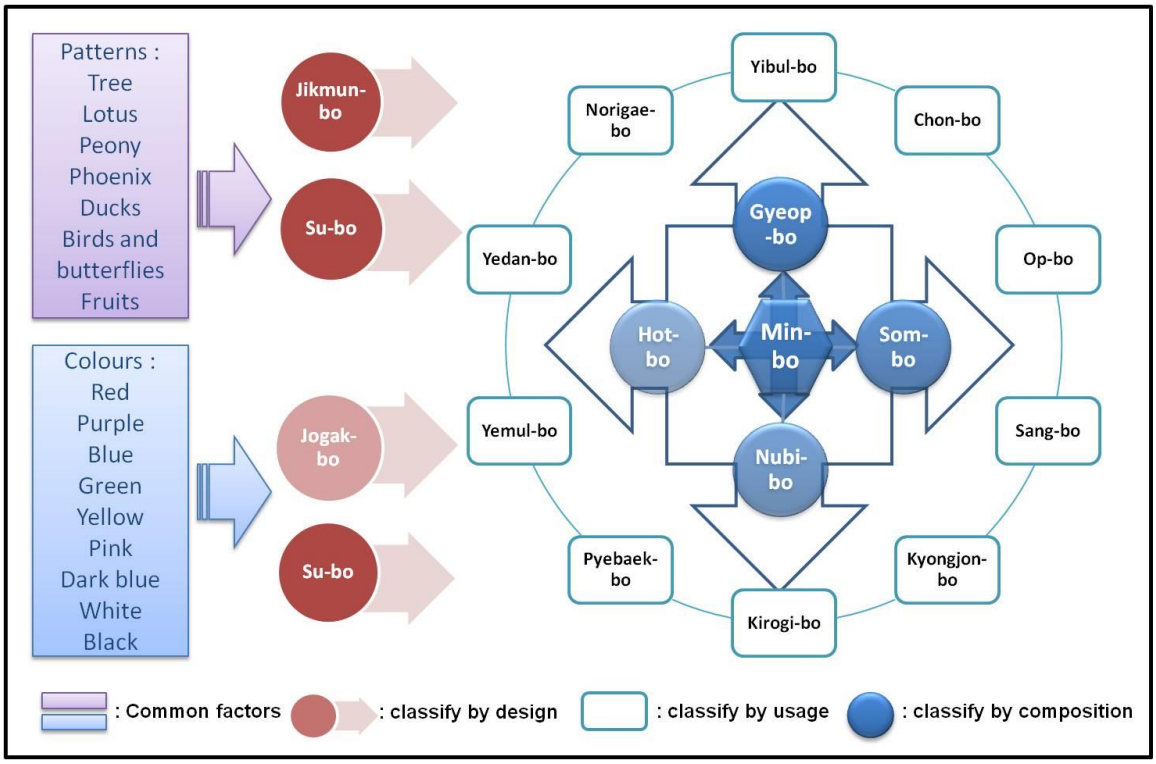


Figure 6.7 Revised taxonomy approach for gung-bo



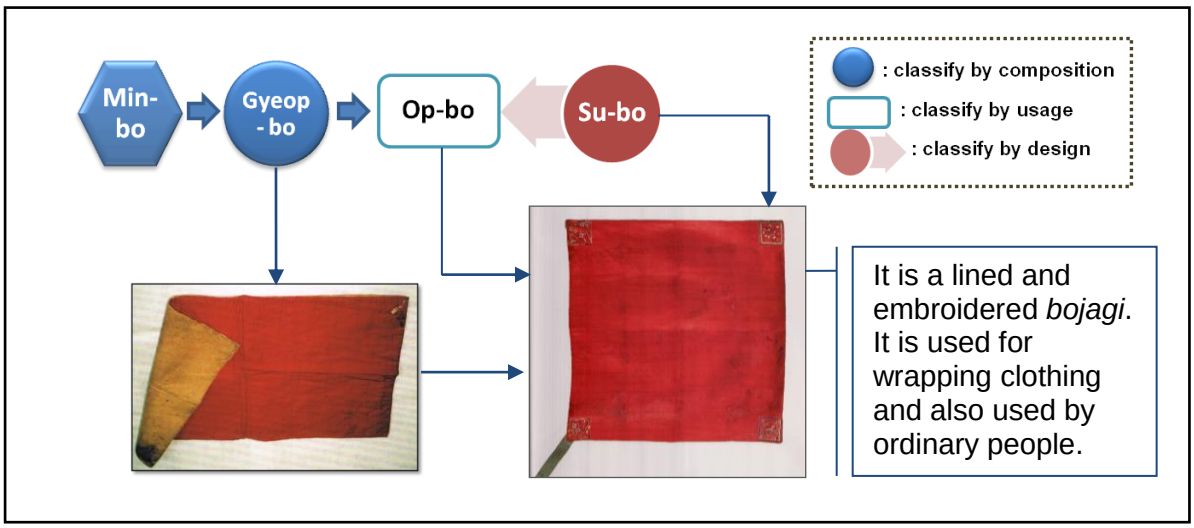


Figure 6.8 Revised taxonomy approach for min-bo (top),
an example of min-bo (bottom)

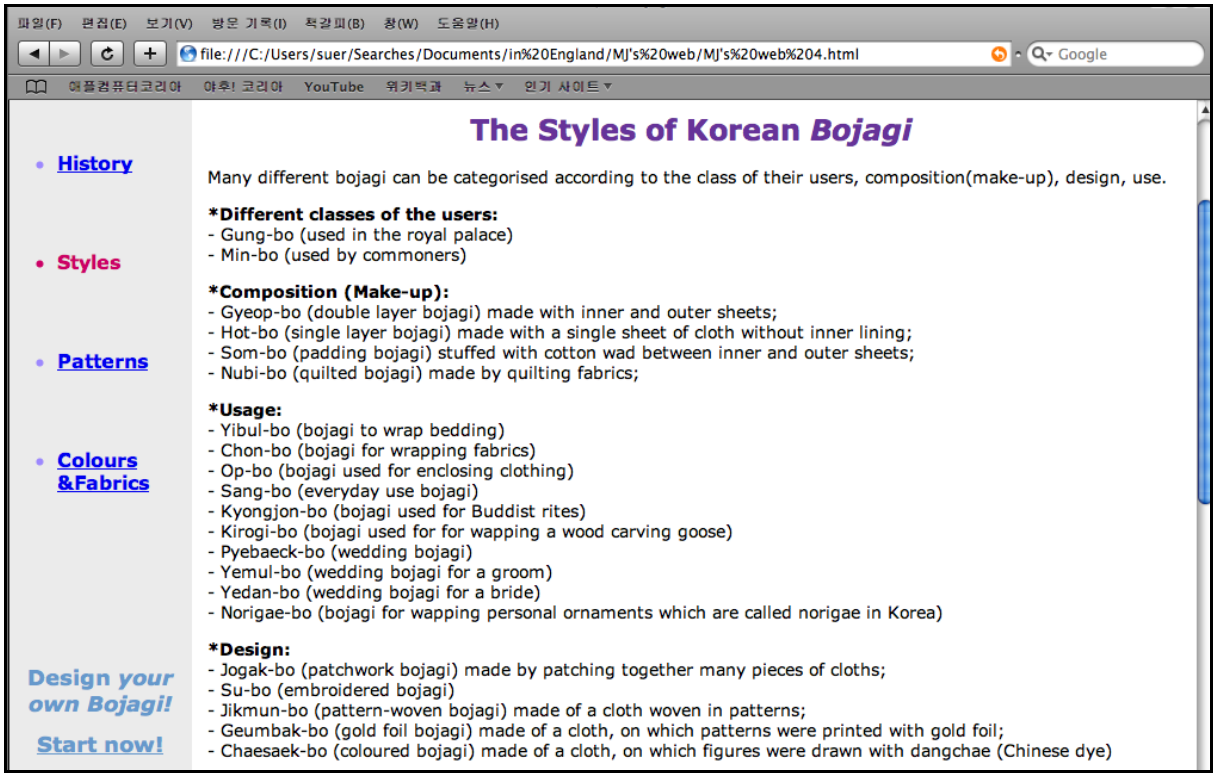


Figure 6.9 The styles of Korean *bojagi* in the website

6.2.3 Patterns

In general, *bojagi* textile products are square shape but, on rare occasions some are made of rectangular shapes. Depending on the usage *bojagi* can vary in size from one p'ok (about 35cm) to ten p'ok [Kim, 2003, p.12]. The scraps of cloths are put together in a variety of ways. Hur [2004] has stated four pattern types of composition as follows:

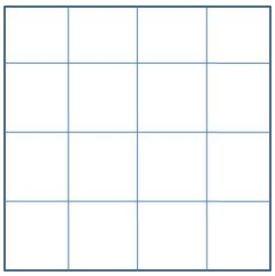
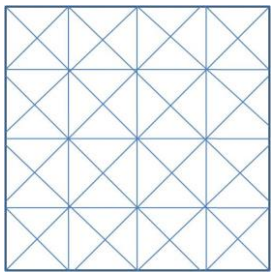
First, square or triangular cloths are connected in a methodical way. Some are made by cutting small pieces of cloths into triangular shapes, and these scraps of different colours are connected as to make a pattern of oblique lines [Hur, 2004, p.37].

Second, some *bojagi* start from a square in the centre, and are made larger by adding larger rectangles along the hem like drawing a concentric circle. In some other *bojagi*, the colour and the shape of each piece of cloth are adjusted and aligned as to make a shape of a symbol(井) in the centre [Hur, 2004, p.38].

Third, on some *bojagi* called yeoeuijumun-bo, circles enclosing a four-petal flower in

each of them are overlapped in a mathematical order to form regular geometrical patterns. A different fabric is sewn along the outline of the petals that the surface looks like a relief work. Yeoeuiju, or the mythical Buddhist beads, are believed to make the prayer's wishes come true [Hur, 2004, p.38].

Fourth, many delicate *bojagi* are made in an irregular pattern without rules. Numerous pieces with different sizes, shapes and colour are put together at random, but still make harmony with each other on a piece of *bojagi* [Hur, 2004, p.38]. Four types of the traditional Korean *bojagi* patterns are shown by Figure 6.10 and the section of patterns of the traditional Korean *bojagi* in the website is as shown in Figure 6.11.

Types of *bojagi*	Traditional *bojagi*	Patterns
Square or triangular type	 [White and Hur, 2003, p.58]  [Kim, 2002, p.79]	 

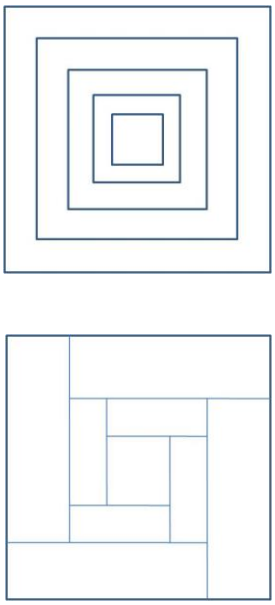
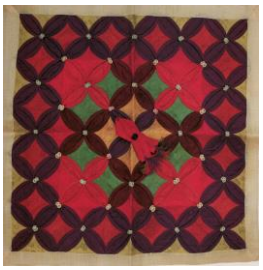
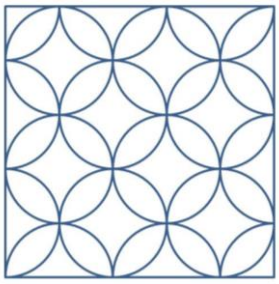
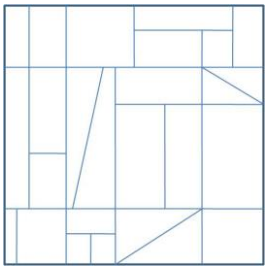
Start from a square in the centre type	 [White and Hur, 2003, p.55]	
Circles enclosing a four–petal type (Yeoeuijumun-bo)	 [White and Hur, 2003, p.81]	
Irregular type	 [Kim, 2002, p.77]	

Figure 6.10 Examples of *bojagi* pattern types

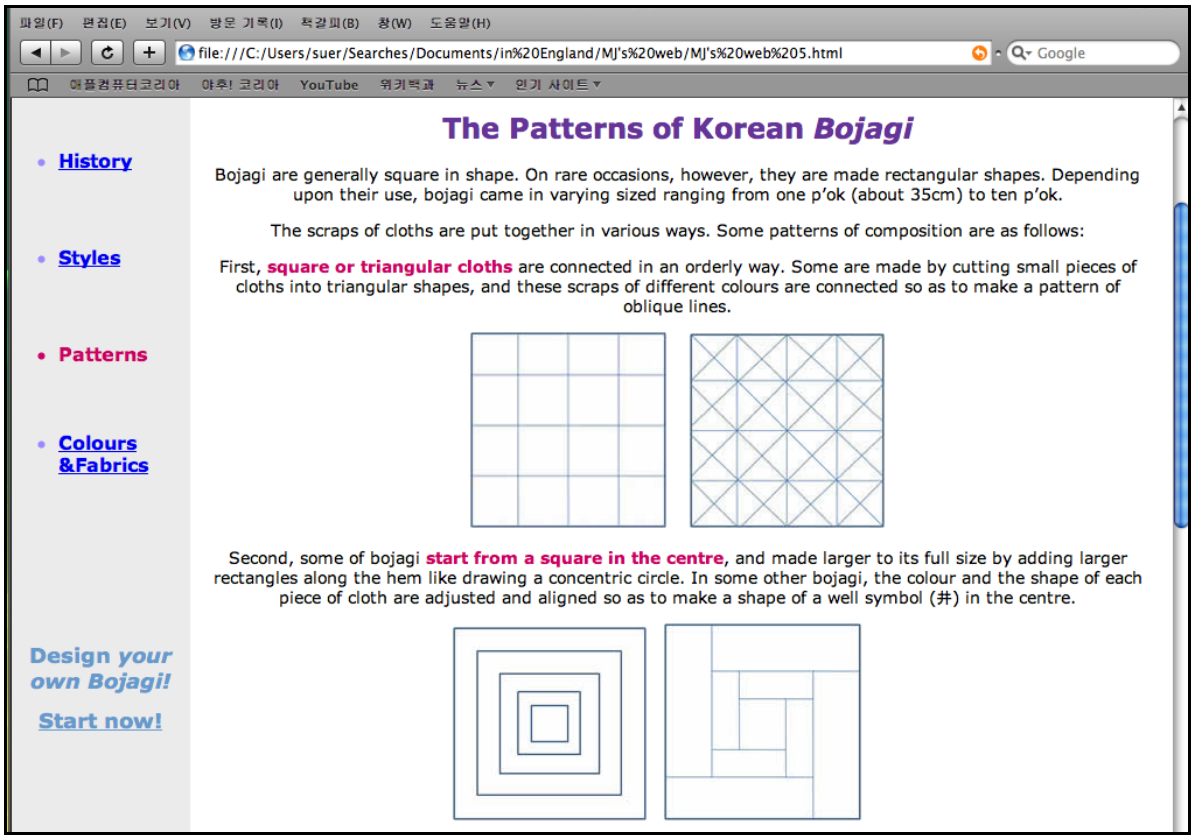


Figure 6.11 The patterns of Korean *bojagi* in the website

6.2.4 Colours and fabrics

The main colours used for *bojagi*, except for some jogak-bo where diverse colours of leftover fabrics were used in patchwork form. These colours are based on the Principle of yin and yang and the Five Primary Elements. White was used as a supplementary colour; black as the demarcation lines between different colours. Korean traditional colour symbolism is based upon the five elements, directions, seasons and the five basic colours are blue, red, yellow, white and black [Hur, 2004, p.23].

Yang symbolise the elements of bright, masculine, active, or warm; yin, those of dark, feminine, passive, or cool. Continuously interacting, these two spirits generate and change all the creatures in the world. The principle of yin and yang is classified into five, and their conceptualisation results in five primary elements. The five primary elements are wood, fire, water, earth and metal. These elements were theoretically clarified combining the concepts of five directions and five climatic conditions [Hur, 2004, p.23].

According to Hur [2004], blue is associated with wood, it signifies spring and eastward.

It is the colour for spring when the sun shines brightly and all living beings are revived; therefore, it symbolises life and vitality. Red is associated with fire, it means summer and southward. It is the colour for summer when all the creatures are lively with vitality; it symbolises sunshine, flame, and other things full of life. Like blue, it is a representative yang colour that repels evil and invites good luck. Yellow is associated with earth-the centre of all creatures. It also encompasses all four seasons. Yellow is the most important of all the five colours, and it symbolises the brightest light in the world. White is associated with metal, it indicates autumn and westward. It was said to reinforce the yin spirit, thus stops the operations of all the creatures in the world. Black is associated with water, it signifies winter and northward. It symbolises darkness and death [Hur, 2004, p.22]. Figure 6.12 shows the traditional Korean five colours ('obangsaek') in a simple diagram and two *bojagi* samples which are designed with these five colours.

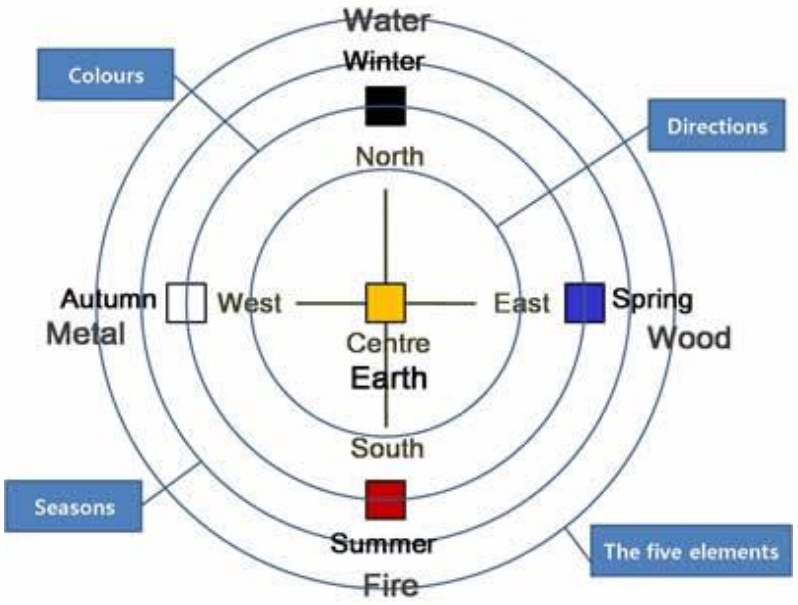
Korean traditional five colours	*Bojagi* samples
	

Figure 6.12 The traditional Korean five colours and *bojagi* samples (which are called '*obangnag'* made in traditional five colours)
[Source: http://upman4u.egloos.com/6576035, Suh, 2007, p.90]

Jogak-bo is the exception to this five colour rule. In the case of jogak-bo many different

colours and shapes of fabric pieces are used to make every jogak-bo unique. Even in jogak-bo that seems to have pieces of fabrics put together very randomly, but in harmony with the overall work (for example, at least one boundary line may be in a matching colour with the ground fabric). Jogak-bo in both primary and secondary colours has the full colours from the brightest to the darkest. Exquisitely sewn colourful pieces of cloths in jogak-bo produce a harmony of colours [Hur, 2004, p.38].

Most *bojagi* are generally made of silk, gossamer, cotton, and ramie in colours ranging from red, purple, blue, green, yellow and pink, to dark blue and white. The main materials used for *bojagi* were myeongju (fine silk with woven in patterns), mumyeong (cotton cloth), mosi (ramie), and sambae (hemp cloth). Among them, fine soft silk was specifically favoured. In particularly, jogak-bo made of loosely woven silk, thin silk, ramie or hemp was used in the summer months to protect food from flies and dust while permitting the circulation of air [Hur, 2003, p.22]. The section of colours and fabrics of the traditional Korean *bojagi* in the website are as shown in Figure 6.13 and Figure 6.14.

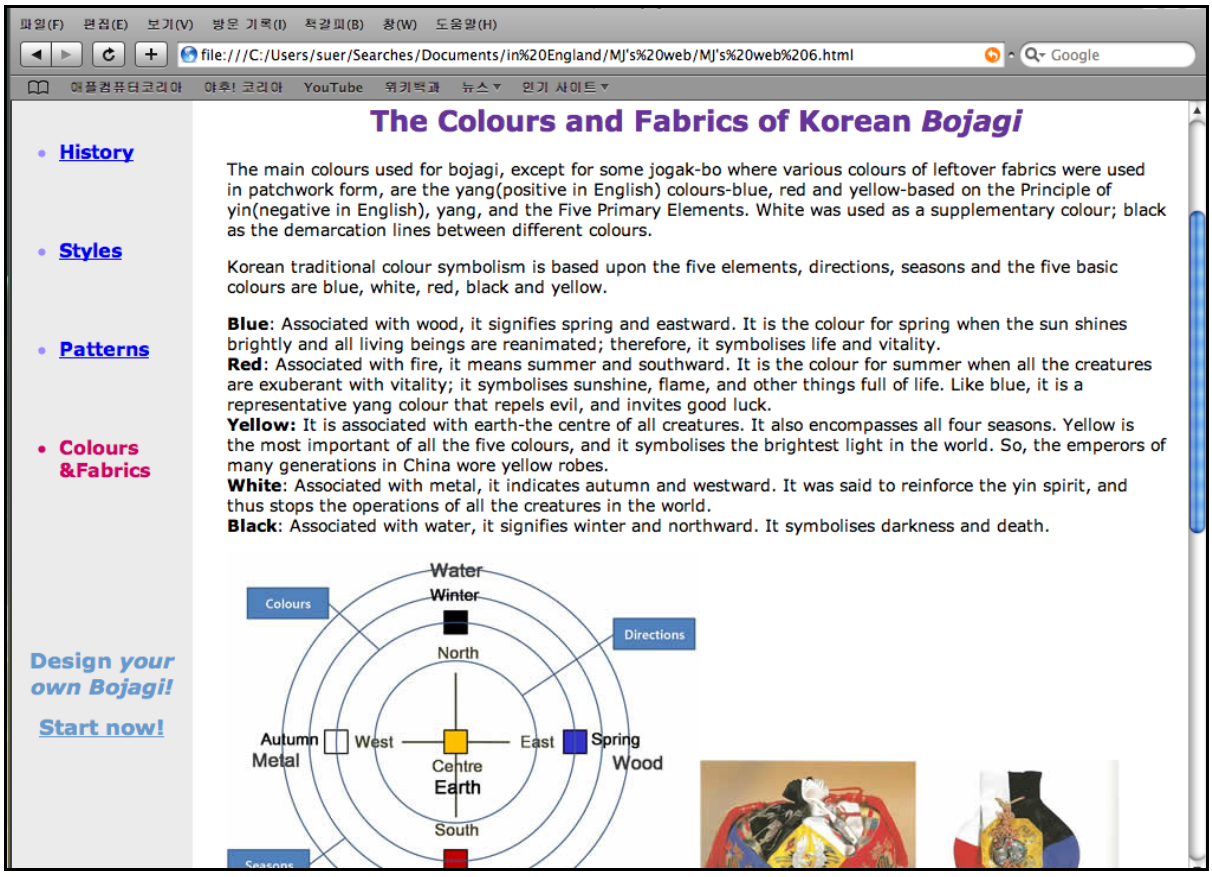


Figure 6.13 The colours of Korean *bojagi* in the website

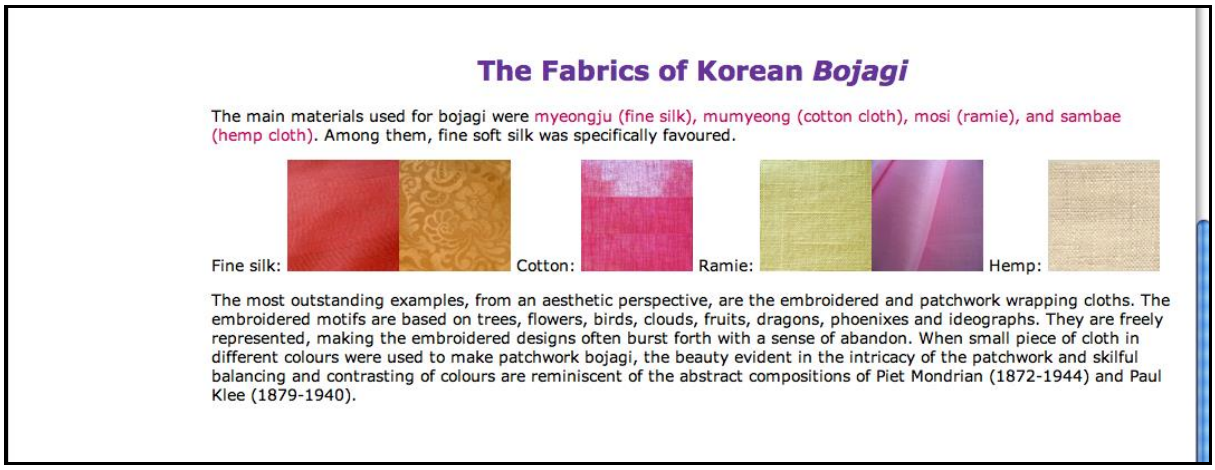
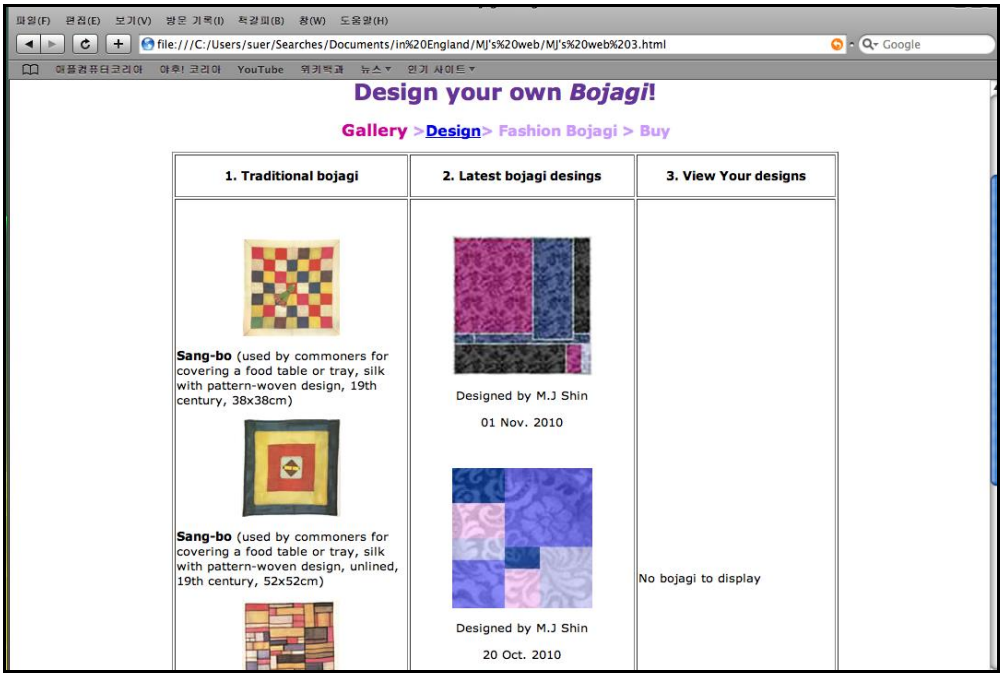


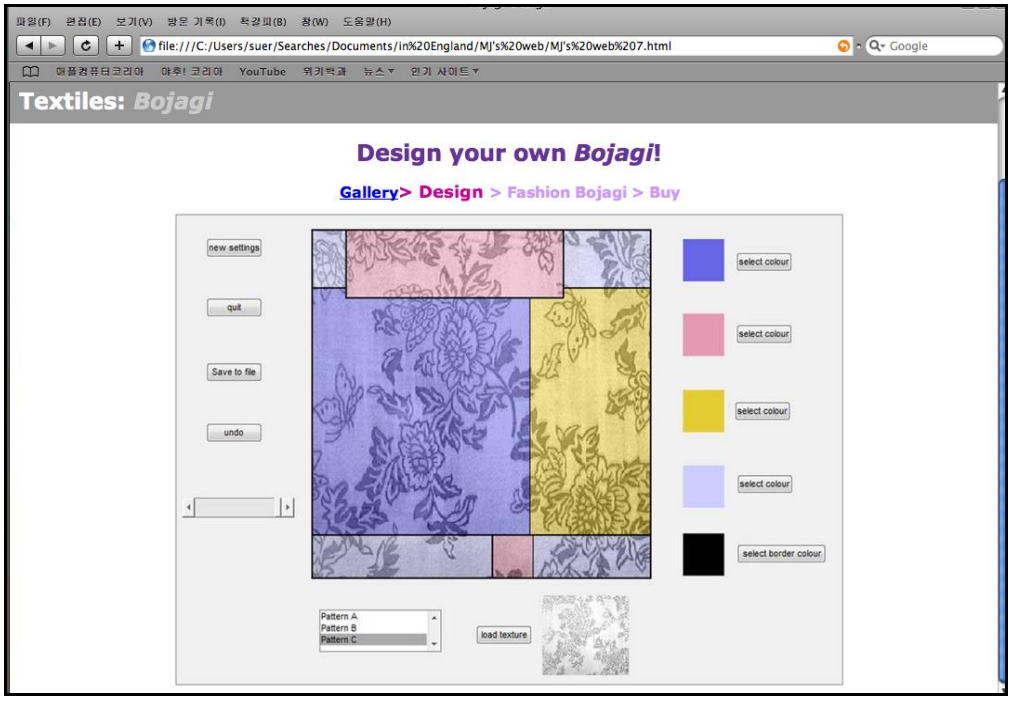
Figure 6.14 The fabrics of Korean *bojagi* in the website

6.2.5 Design your own *bojagi*

The 'design your own *bojagi*' is the main part of this website to allow users or consumers to design their *bojagi* patterns. The new fashion *bojagi* design tool can represent modernised and contemporised *bojagi* pattern designs using traditional *bojagi* design characteristics such as pattern styles, the number of colour choices and texture images of the traditional *bojagi* textiles. The *bojagi* design tool was made through the MATLAB 7.0.4 GUI programme. By using this design tool for creating new *bojagi* patterns, users or consumers can have some choice from five colours, patterns and textures from traditional Korean *bojagi* textiles in order to generate their own *bojagi* designs. Designers can be users of the design tool for designing new textiles while adding cultural value. This interactive textile design tool may be more useful for textile and fashion designers, however, if this website can make a link between manufacturers, marketers, companies and designers, it can be an effective marketing tool. Before the main design tool comes up on screen, a gallery section displays some examples - traditional *bojagi* samples and recent *bojagi* designs by other users - to aid them to design their own *bojagi* patterns easily (see in Figure 6.15).



(a)



(b)

Figure 6.15 The *bojagi* design tool in the website (the gallery section of the website as shown in (a) and the main design tool section of the website as shown in (b))

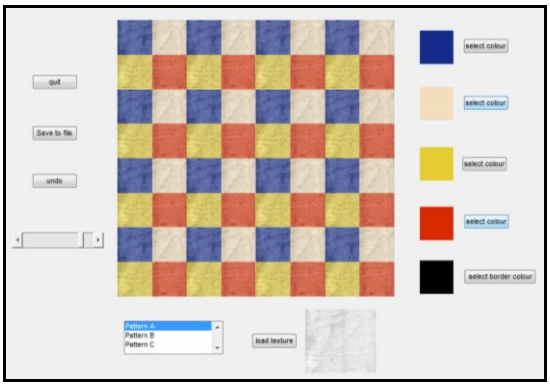
6.3 A process for developing a new interactive textile design tool

This interactive textile design tool can allow the users and consumers to become involved in the design process and also it can be an effective research and communication tool not only for promotional activity but also as an educational

interface. Furthermore, using this *bojagi* design tool can produce an educational impact that allows the user to learn about the history and design characteristics and cultural meanings of the Korean cultural textile *bojagi* in an entertaining way. Interactions within the web interface are not simply between the sender and receiver of information, but with the medium itself. Thus, the consumers and firms can interact and communicate with the medium [Chaffey *et al.*, 2006, p.22]. This following section deals with how the design tool generates the traditional *bojagi* textile designs and gives an explanation of each of the buttons in the new interactive design tool.

6.3.1 Pattern making

As outlined in section 6.2.3, there are four pattern types of the traditional Korean *bojagi*; square and triangle type, start from a square in the centre type, circles enclosing a four–petal and irregular type. However, Choi and Eun [2004] have argued that the irregular pattern type occupies the majority of *bojagi* patterns and square type and *bojagi* starting from a square in the centre type are next. Very few percentages are for circles enclosing a four–petal type [Choi and Eun, 2004, p.268]. Therefore, three types of patterns are determined to produce Korean *bojagi* patterns in this interactive textile design tool. Square type, start from a square in the centre type and irregular type are generated in Pattern A, Pattern B and Pattern C (see in Figure 6.16).

Pattern A	
Korean traditional *bojagi*	New design sample by the tool
 Silk sang-bo, 38x38cm, 19th century [White and Hur, 2003, p.58]	 

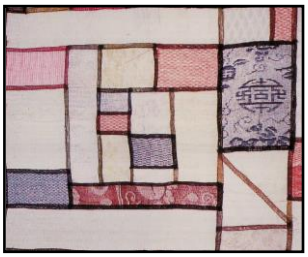
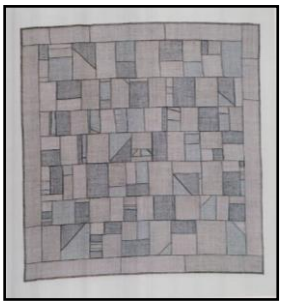
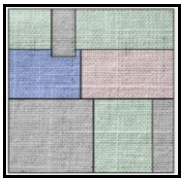
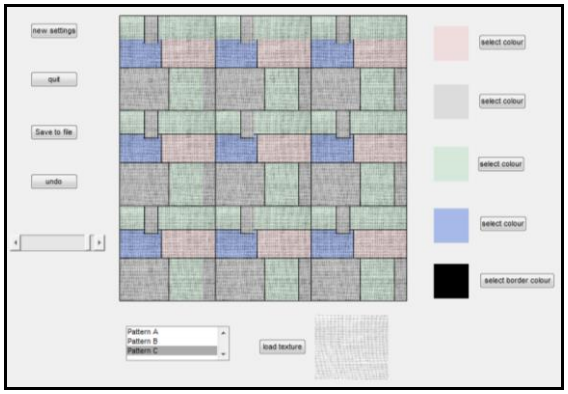
<table>
<tr><th colspan="2">Pattern B</th></tr>
<tr><td>Korean traditional bojagi</td><td>New design sample by the tool</td></tr>
<tr><td> 
Silk embroidered jogak-bo
58x58cm, 19th century
[Hur, 2001, p.82]</td><td> 
  </td></tr>
<tr><th colspan="2">Pattern C</th></tr>
<tr><td>Korean traditional bojagi</td><td>New design sample by the tool</td></tr>
<tr><td> 
Ramie jogak-bo, 86x83cm,
19th century
[Kim, 2002, p.77]</td><td> 
  </td></tr>
</table>

Figure 6.16 Examples of Pattern A, Pattern B, Pattern C

6.3.2 Colour selections

As stated previously, mainly five colours are used for designing traditional Korean *bojagi* textile products. Therefore, five colour choices are given to users for developing their new *bojagi* designs. In particular, five colour choices consist of four colours and one border colour (see in Figure 6.17).

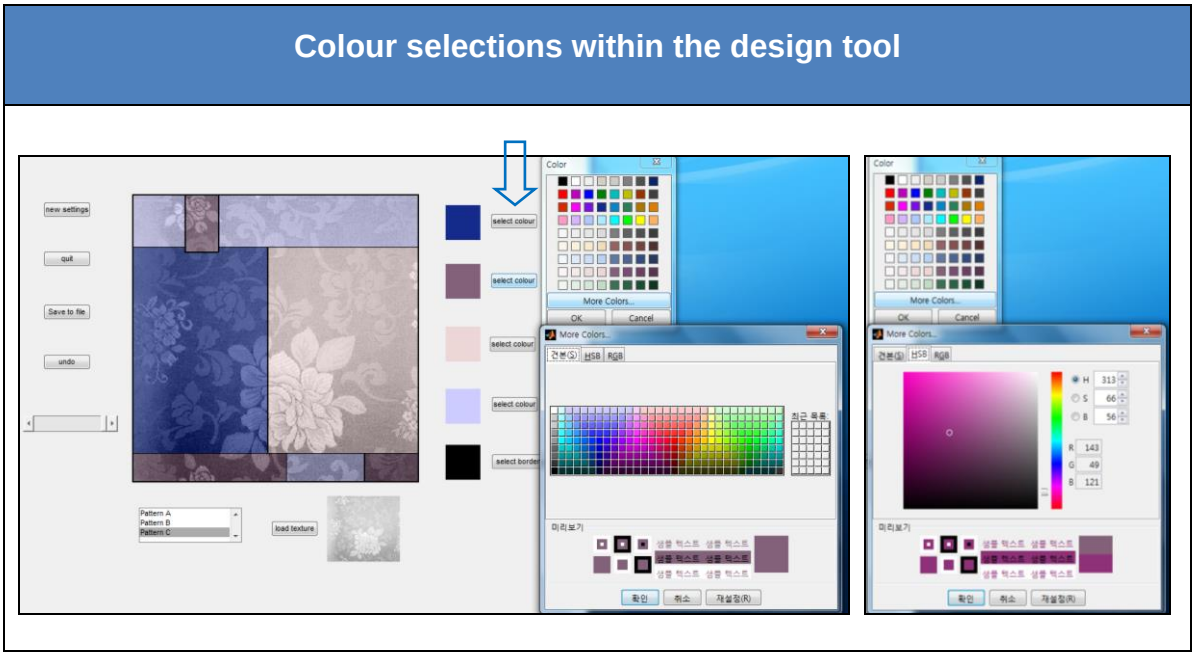


Figure 6.17 Colour selections within the design tool

Traditionally, *bojagi* products are hand-made and a wide range of borders can be created depending on the makers' individual style or preference, through the construction process for combining the pieces. Figure 6.18 shows how the borders translate into the *bojagi* designs and this perspective. Figure 6.19 shows how the selection of border colour is developed in this *bojagi* design tool.

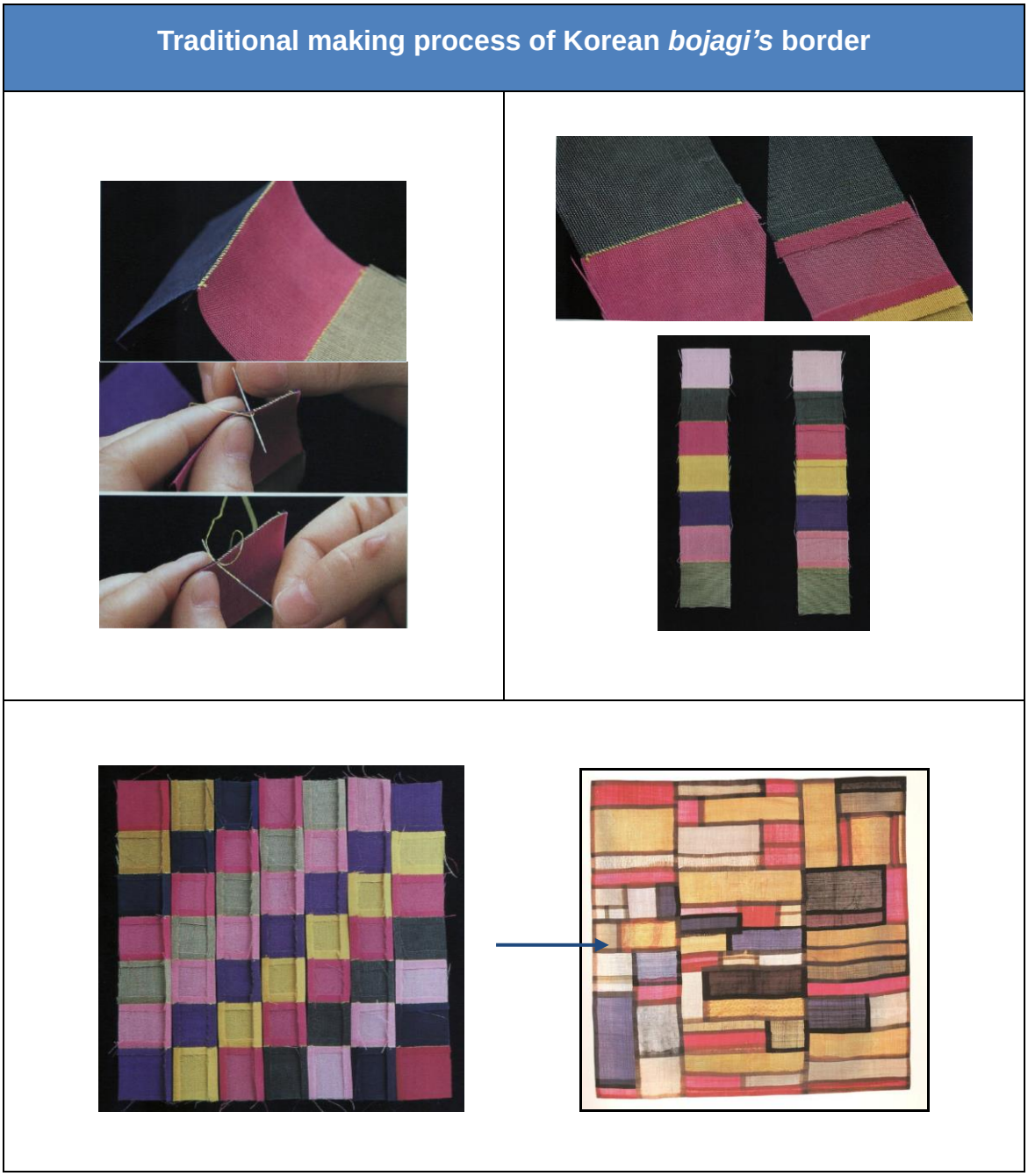


Figure 6.18 A traditional making process of the traditional *bojagi*'s border
[Kim, 2002, p.48-49]

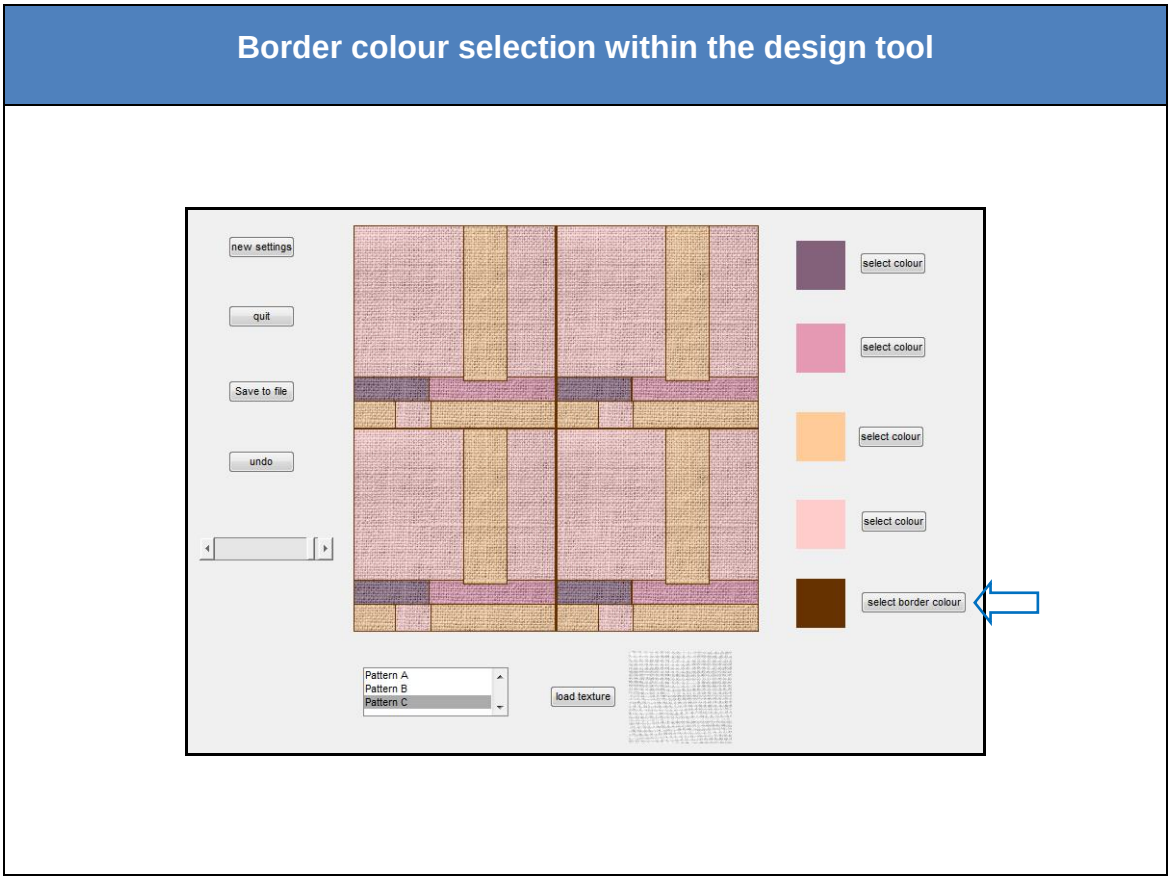
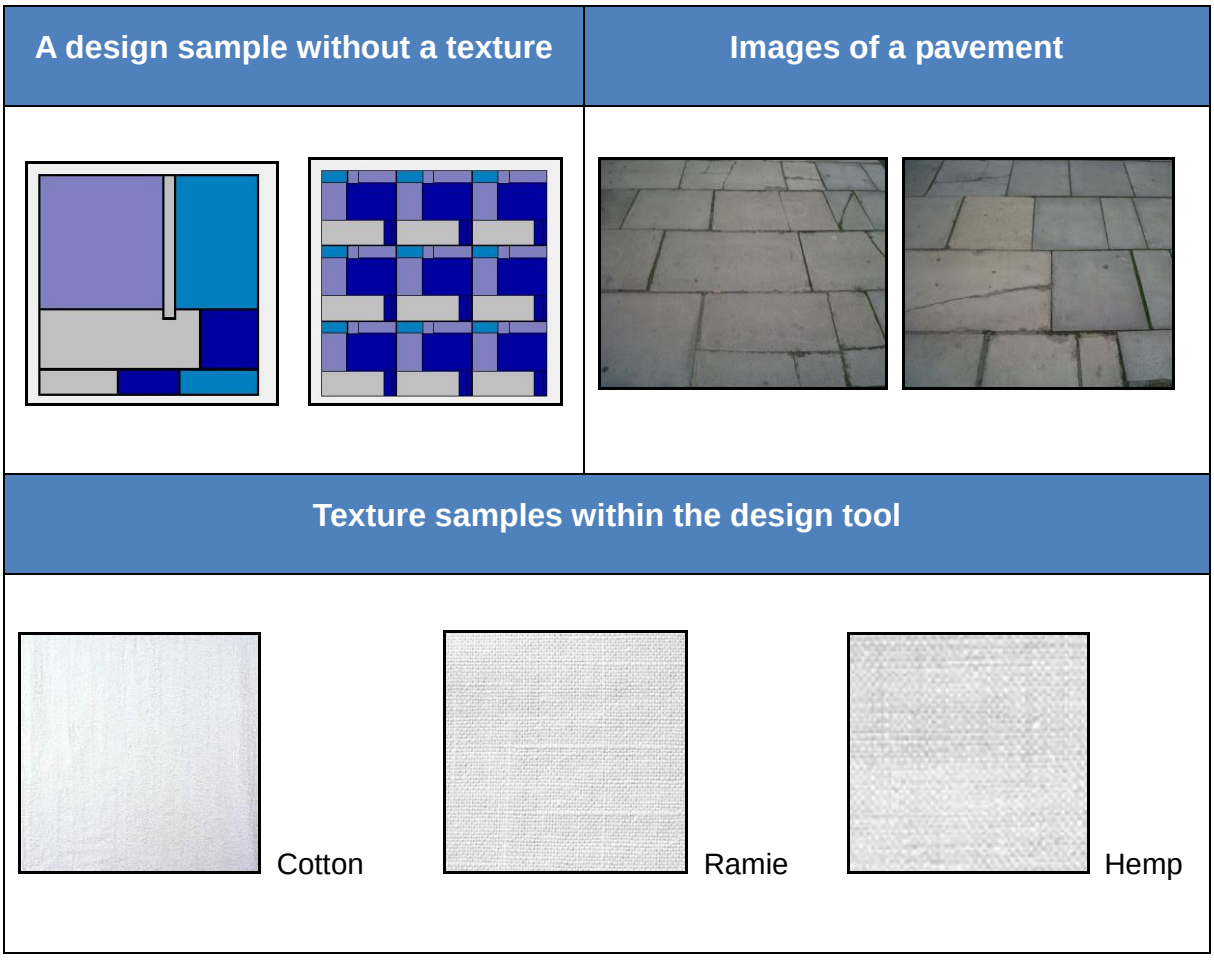


Figure 6.19 A border colour selection within the design tool

6.3.3 Texture selections

As described in section 6.2.4, there were four main materials used for *bojagi* which were myeongju (fine silk with a woven in patterns), mumyeong (cotton cloth), mosi (ramie), and sambae (hemp cloth). The materials can be selected when the users or consumers will order their designed *bojagi* by the website. The design tool had to incorporate texture images to allow the user to visualise the end fabric and make their design choices. Figure 6.20 illustrates design samples without an incorporation of a textured image by using the tool and some cases which have a similar pattern style with *bojagi* would be difficult to consider as designs based on the traditional Korean *bojagi* fabrics. These examples demonstrate that the traditional Korean *bojagi* designs should be visualised by incorporating with patterns, colours and textures. Therefore, it was essential to produce a section for a textured selection within the Korean textile *bojagi* design tool.



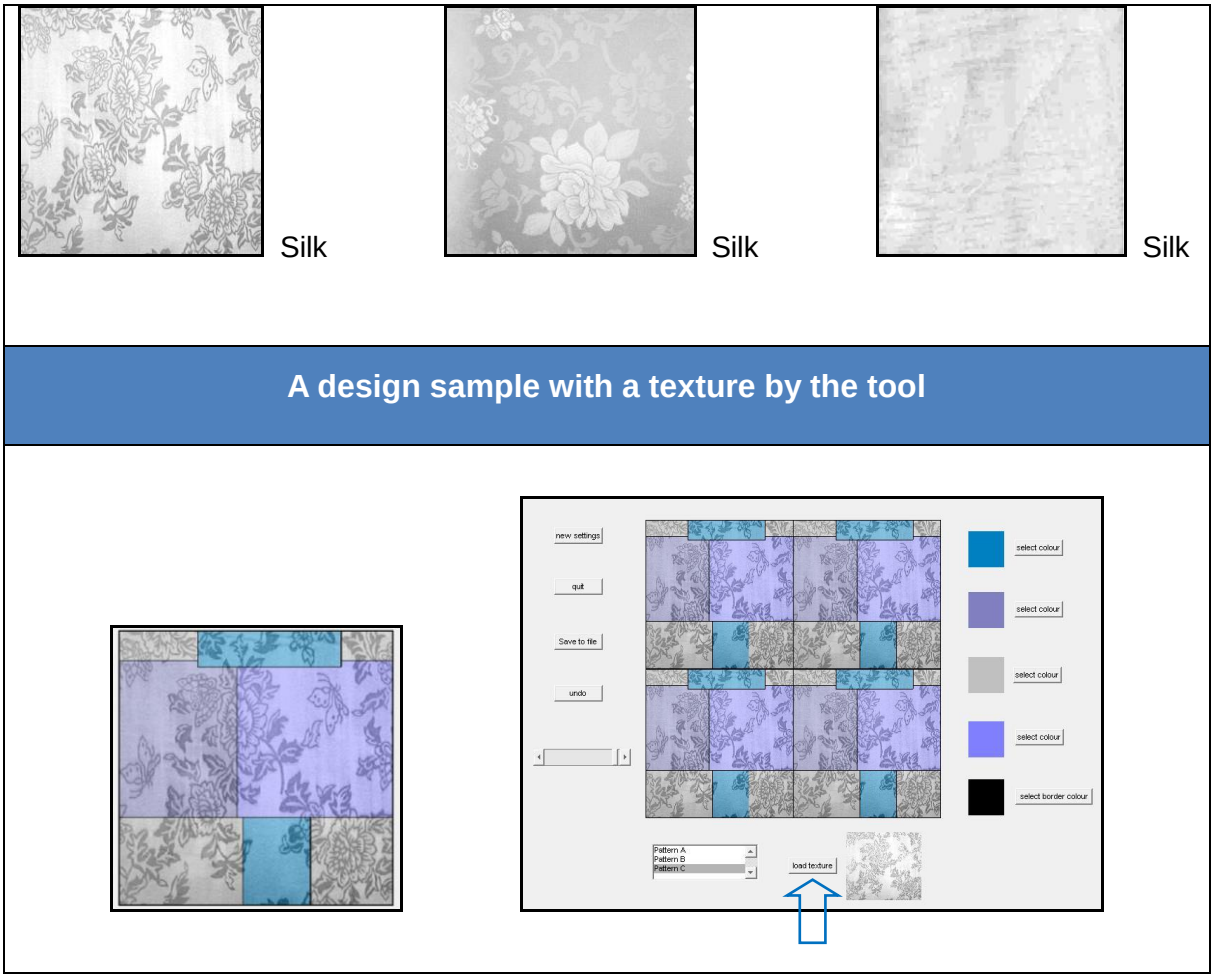


Figure 6.20 An example of a traditional *bojagi* pattern design without/with a texture

6.3.4 Scaling bar, undo, save to file, quit and new setting button

A vital element when designing a textile pattern for a fashion product is the repeating or scaling of patterns. Thus, a scaling bar has been developed for producing a repeated pattern within the design tool. The scaling bar can be represented a repeated pattern with four to thirty-six times repeating of one pattern (see in Figure 6.21).

By incorporating an undo button, the users and consumers can return to see their previous design when they are designing their own *bojagi* patterns. After finishing their design process, the designs can be saved as a TIFF file format by clicking a save to file button (see in Figure 6.22). When the users and consumers wish to leave this design section, clicking a quit button allows them to exit from the Korean *bojagi* design tool.

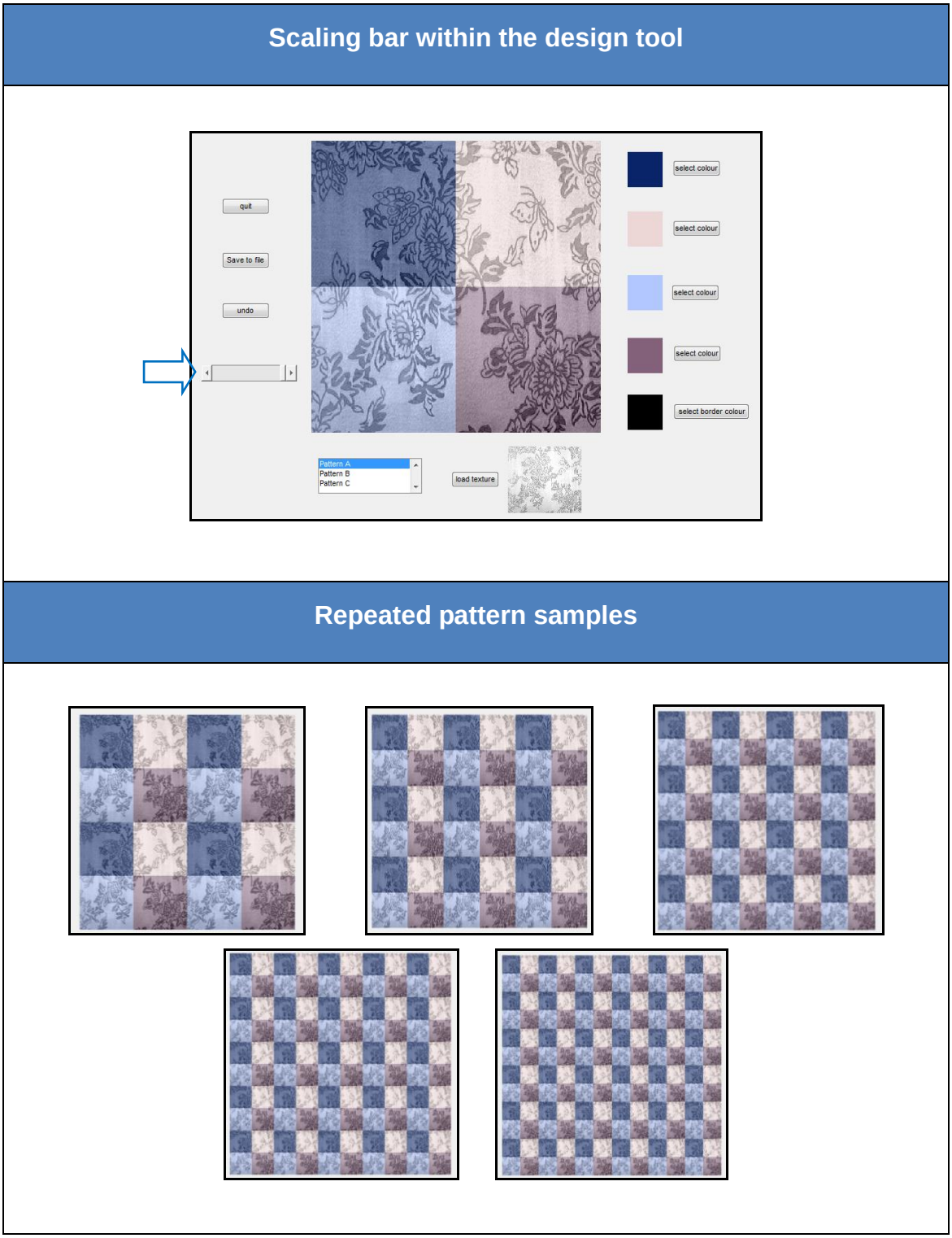


Figure 6.21 A scaling bar of the design tool and an example of a repeated pattern

Save to file button within the design tool

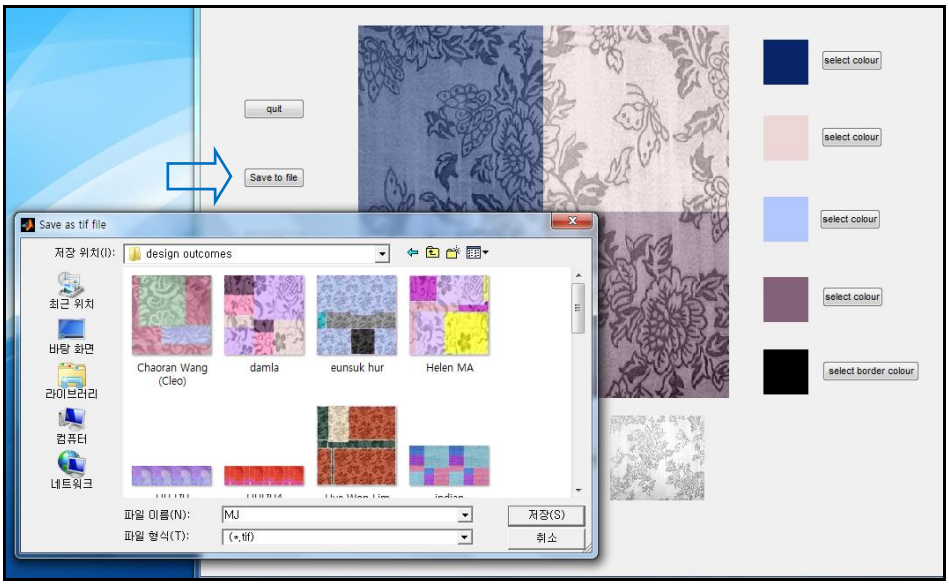
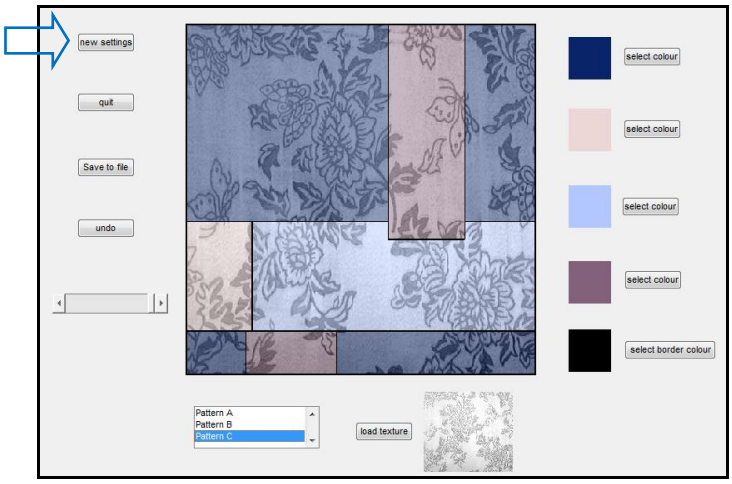


Figure 6.22 A save to file button of the design tool

A new setting button is activated only for pattern C. It is not needed for pattern A or pattern B, which are fixed patterns. Pattern C is developed for generating the irregular pattern type of the Korean *bojagi* so that pattern C is programmed to randomly change the portion of each blocks of pattern C by clicking the new setting button (see in Figure 6.23).

New setting button within the design tool



Pattern C samples by clicking new setting button

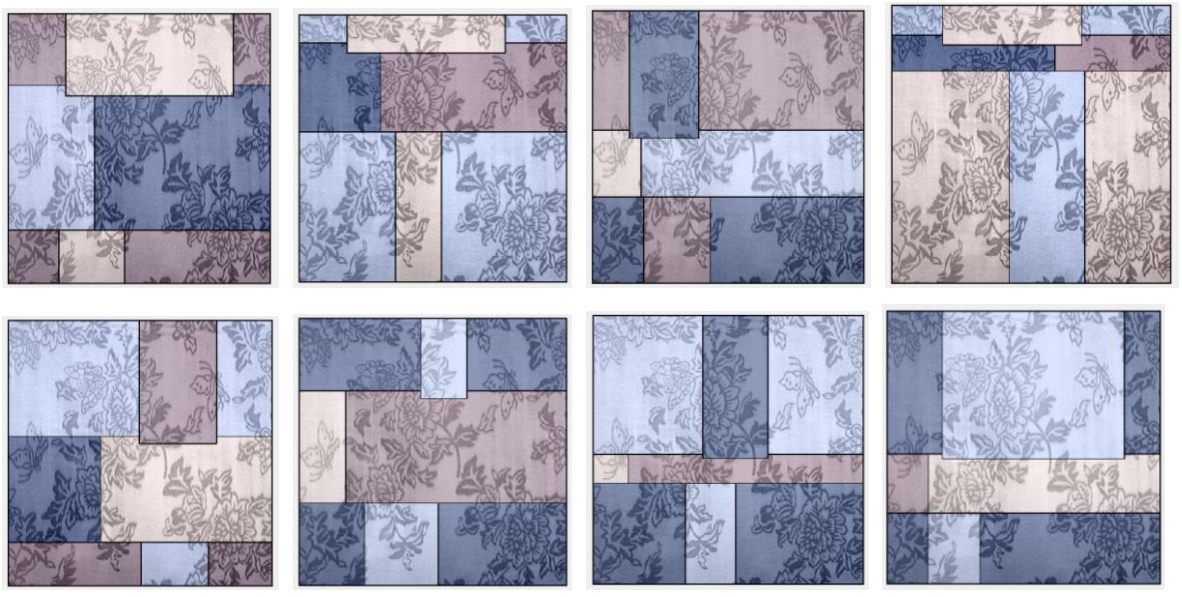


Figure 6.23 A new setting button of the design tool

6.4 Summary

This chapter has described the development of a web based design tool, which can be utilised for user preference, product development and the early promotion of Korean *bojagi* as a fashion fabric. It also opens up an opportunity to be an effective research tool as an educational web based interface.

In particular, the Korean *bojagi* website is developed as the six categories - history, styles, patterns, colours and fabrics of the traditional Korean *bojagi* and 'design your own *bojagi*'- of the website by Adobe Dreamweaver CS4 HTML programme. After reviewing the kinds and symbolism of the Korean traditional *bojagi* a detailed development of each section of the design tool is given. MATLAB 7.0.4 GUI programme is used for developing the category of '*design your own bojagi*' and this new interactive *bojagi* design tool produces three pattern types, five colours and six textures for selection from traditional Korean *bojagi* textiles in order to generate the users own *bojagi* designs. The website allows the users or consumers to learn about the traditional Korean textile *bojagi* products and create their own *bojagi* designs.

Chapter 7: Evaluation of Korean *bojagi* website and applications of Korean fashion *bojagi* textiles

7.1 Introduction

As discussed in chapter six, the Korean *bojagi* website was developed as a web based design tool which can be used for fashion textile design and promotion of Korean *bojagi* as a fashion fabric. To evaluate the Korean *bojagi* web based interface and the design tool, it was essential to test this tool among young consumers and to examine the usability and entertainment (enjoyable) values among this target group. In addition, it was crucial to receive feedback from fashion industry experts in order to evaluate the commercial values of these fashion *bojagi* applications for a successful translation from the traditional Korean cultural textile products into market relevant fashion products.

In this chapter, the Korean *bojagi* website and the design tool were tested by target consumers, which were clustered into four different cultural groups and one cross cultural group. The testing initially allowed the individual to browse the website and then participants were asked to design their own *bojagi* for a fashion product using the design tool. After this participants took part in a survey and individually answered questions. The final step in the research process involved a focus group discussion. The survey and focus group findings and the individual design outcomes will be summarised in this chapter.

Moreover, the fashion *bojagi* designs could be exemplified to show achievable applications of Korean fashion *bojagi* products for testing the *bojagi* fabric samples by fashion designers or fabric sourcing managers of fashion companies. This chapter will describe results of the evaluations of Korean fashion *bojagi* samples from four fashion retailer companies in UK.

7.2 Evaluating Korean *bojagi* website by different cultural groups within target consumers

Evaluation of the web based interface can be carried out in many forms and various levels. In this study, evaluation was a assessment of the concept, as well as an analysis of the usability of the Korean *bojagi* website which are measured by such criteria as navigation and construction, usability of content, informative, appearance, functionality, applicableness and enjoyable.

As a deep insight into target consumer groups with cultural differences or countries, was required for this research, the focus group method was selected for evaluation. The interactive nature of the groups provides researchers with a powerful means for gaining an insight into the options, beliefs and values of a particular segment of a population of interest [De Leur *et al.* 2006]. The focus group method basically involves an intensive group discussion focused on particular issues. Focus groups as a different cultural background can be able to share their understanding of, for this, their experiences in their background.

7.2.1 Participants

In this study, four groups were categorised by their different cultural backgrounds - Korean, Indian, European and Chinese. For comparison purposes one cross-cultural group was also organised to evaluate the web interface. The participants of the five groups were all female who were recruited from the School of Design students of Leeds University and they were experienced in design.

	Korean	Indian	European	Chinese	Cross-cultural
Total number	5	5	5	6	4
Age range	25-32	21-24	24-29	21-25	22-32
Mean age	28.4	22.4	25	23	25.25

Table 7.1 Participant attributes

7.2.2 Procedure

All five groups went through the same procedure. The session began with the moderator giving an explanation of how the test was to be conducted. Participants were then allowed to individual browsing the website for approximately 15 minutes and after this each participant were asked to design their own *bojagi* for a fashion product using the design tool within 20 minutes (an instruction model for carrying out a task as shown in Figure 7.1).

In the second part of the session, participants took part in a survey and answered

questions composed of seven distinct issues; quality of welcome, navigation and information construction, information quality, the purpose of the homepage, the aesthetic and minimalist design of page layout, contents usability and enjoying this website (survey questions are shown by Table 7.2). The assessment part of the website in this questionnaire was designed a five-point Likert scale (poor = 1 to excellent = 5, strongly disagree =1 to strongly agree = 5).

The final part of the session involved a group discussion; this allowed a deeper understanding of the website as a design marketing tool to be explored as well as identification of suggestions for appropriate to the target market.

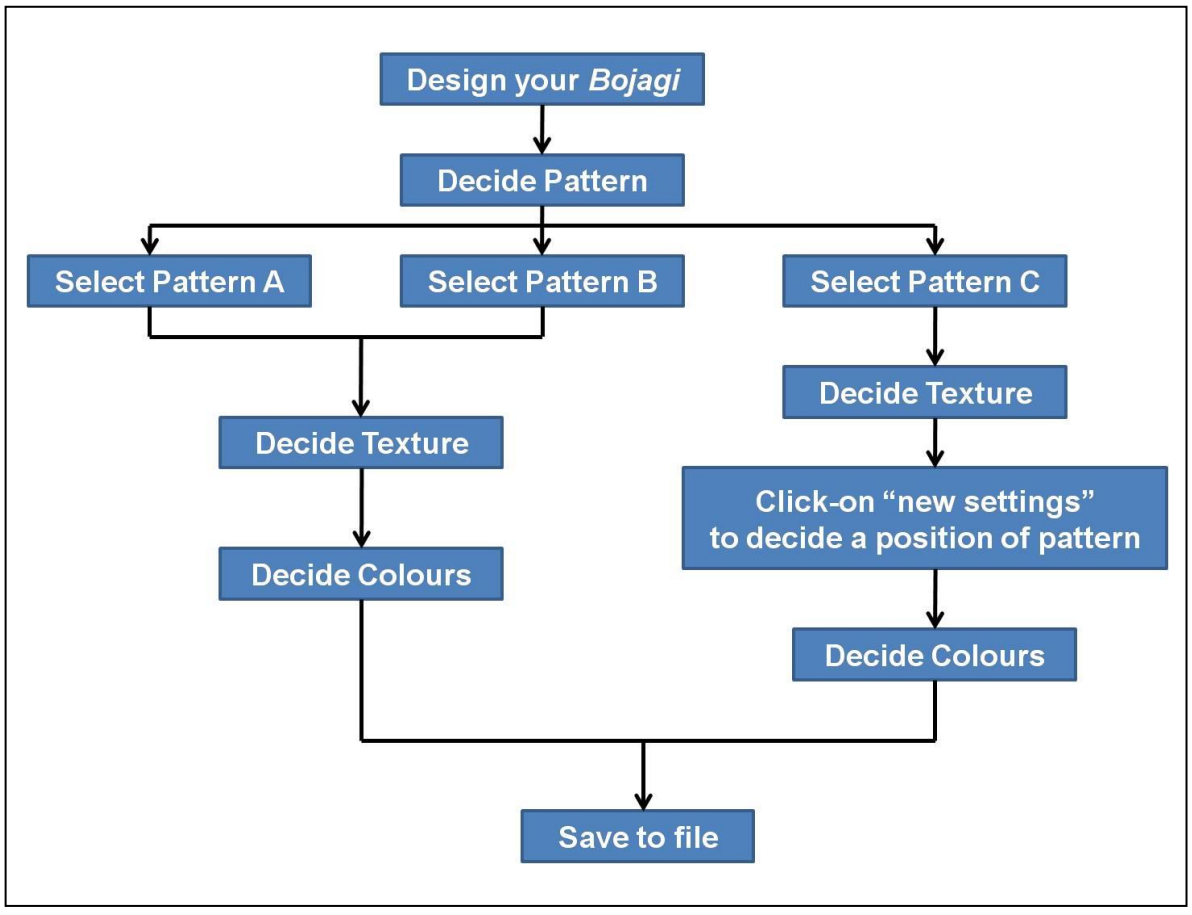


Figure 7.1 A task model for designing a new *bojagi* pattern

Survey for Korean *bojagi* website	
Demographic information	Name/ Age/ Gender/ Occupation
Internet/ Web experience	Average usage; hours per day
	Using for Research, Information Gathering (daily, weekly, monthly, never)
	Using for Shopping (daily, weekly, monthly, never)
	Using for Entertainment (daily, weekly, monthly, never)
Quality of welcome	Quality of welcome
Navigation and information construction	Category and link names
	Link is clear and easy to understand
	Link design
	Opening new browser windows
Information quality	Information on the website is easy to find
	Information is useful
Purpose of homepage	It is apparent from the first website page (homepage) what the purpose of the website is.
Design of page layout	Aesthetic and minimalist design of page layout
Content usability	Contents present information clearly
	Contents present information in an aesthetically pleasing manner
	Readability of the presenting texts
Enjoyable	I enjoyed using this website.

Table 7.2 Survey questions for evaluating a Korean *bojagi* website

7.2.3 Results and discussion

The survey showed that participants are using internet for more than 5 hours per day and the majority of them answered that they shop via the internet at least every month. This highlighted that they are already familiar with online purchasing and this method of shopping is becoming more important among the target consumers.

According to the Korean *bojagi* website assessment (see in Table 7.3), the Korean group ranked the quality of welcome, the purpose of the homepage and the enjoyment of the website as their top categories followed by information quality. Using a scale of 1 to 5 and getting mean values between 3 to 4 it can be assumed that and standard deviation of 1 and above means there was poor agreement between member of a group; from 0.6 to 1 would mean reasonable agreement and anything below 0.6 can be assumed to be a group which had a high level of agreement. The design of page layout was the lowest point for the Korean group, however, the Korean focus group displayed a high degree of agreement for all categories, which is supported by the standard deviation. In the Indian group, quality of welcome and enjoyable categories occupied the top followed by information quality and content usability was the lowest level. In the case of the European group, information quality was positioned peak and purpose of homepage and navigation and information construction followed in second place. Quality of welcome produced the lowest point, in contrary to Korean and Indian groups. In the Chinese group, the enjoyable category occupied the top position with the ranking being exactly the same for information quality and navigation and information construction. Similar to the European group, quality of welcome and design of page layout were graded the lowest in the Chinese group. Finally, the cross cultural group comprised of two European and two Asian participants. In this group, enjoyable was positioned top and information quality followed. Design of page layout also ranked the lowest point in the cross cultural group. Distilled statements from the in-depth discussions by the five focus groups are presented in table 7.4.

		Korean	Indian	European	Chinese	Cross-cultural
Quality of welcome	Mean	3.60	4.20	3.00	3.30	4.00
	SD	0.55	1.30	1.22	0.82	1.15
Navigation and information construction	Mean	3.35	3.80	3.60	3.90	4.33
	SD	0.46	1.05	1.01	0.90	0.52
Information quality	Mean	3.50	4.10	4.00	3.90	4.70
	SD	0.50	0.23	0.71	1.07	0.54
Purpose of homepage	Mean	3.60	3.80	3.60	3.80	4.00
	SD	0.55	0.84	0.89	0.98	0.82
Design of page layout	Mean	3.00	3.80	3.20	3.30	3.80
	SD	0.71	0.45	1.30	1.03	0.50
Content usability	Mean	3.47	3.73	3.53	3.63	4.47
	SD	0.89	0.84	0.66	0.78	0.50
Enjoyable	Mean	3.60	4.20	3.60	4.20	4.80
	SD	0.55	0.84	1.14	0.75	0.50

Table 7.3 Result of the questionnaire

	Korean	Indian	European	Chinese	Cross-cultural
Navigation and construction	Category and link names are important to recognise information.	Link design is simple and clear.	It is simple to understand and use but it is not interesting.	Link is clear and easy to understand.	Category and names are good and understandable.
Usability of content	This website should change the location of 'design your own *bojagi*' for easy to access.	The contents are very simple and clear to use and understand.	The contents of this website are clear and readable.	Presenting contents information in an aesthetically pleasing manner is important to effectively use the website.	Presenting contents information is clear with aesthetically pleasing manner.
Informative	Information is useful but not easy to find.	Information is very useful but it is hard to match between images and texts.	Information is really interesting and useful to know about *bojagi*.	It is not enough to know *bojagi*, so this website should add more details about *bojagi* with more images.	Information is useful but it is not easy to understand.
Appearance	Aesthetic and minimalist design of page layout is very important to attract for consumers.	The layout is clear and simple.	The layout is too simple and boring. If there are some animations, it will be more interesting.	Aesthetic of layout is important to make it different compared to other similar websites.	This website is too simple so should put in more flash works to make it tempting.
Functionality	The function of the design tool is simple	The design tool is really good and	The functionality of this design tool	This design tool is simple, easy and	Showing our designed fabrics directly

	and very nice.	easy to use.	is very easy to use and efficient.	interactive to design.	is so impressive.
Applicableness	It is possible to design fashion clothing, scarves and home interiors.	It can be applied to design fashion clothing, fabrics, scarves, home interiors, wedding packaging and fabric lamps.	It could be applied to design fashion clothing, wall papers, home interiors and scarves. Also, this website can be used for educating primary school students globally.	This website can be applied for designing fashion clothing, fabrics and scarves.	It can be applied to design fashion clothing, scarves, home interiors
Enjoyable	It is enjoyable and exciting.	It is interesting and also entertaining.	This website is pleasant to design our own *bojagi* fabrics.	This website is really interesting and enjoyable.	Enjoyable is the most important factor that gives a nice impression to consumers.
Other comments	It could be useful tool for designing neckties and scarves.	Providing videos about a traditional process for making *bojagi* can be useful to understand easily.	Changing this design tool to 3D interactive design tool will be extremely exiting to young consumers. To incorporate *bojagi* into your actual designs or products will be useful.	Showing possible applications after our design could be helpful.	Supplying a tutorial video for explaining the design tool will be nice.

Table 7.4 Summary of the five focus group discussions

Participants were asked to save their designs of new Korean *bojagi* textile designs after finishing their design process by using the tool in the website. Design samples categorised by five different focus groups are represented in table 7.5. It is difficult to say there is an obvious trend between different focus groups however, by analysing these design samples, most of Korean group choose pattern C (randomly changed the portion of the blocks) and a small scaled texture image with less saturated colours. The Indian group favoured the use of pattern B (fixed blocks pattern) but used different kinds of texture images with comparatively bright colours. The European group used patterns B and C and they were likely to utilise a big scale texture image with purplish colours. The Chinese group, desired to use mainly pattern C and a big scale texture image with reddish colours. The participants of the cross cultural group selected all different patterns and texture images but western people choose less saturated and brownish colours and eastern people used more saturated and warm colours (see in Table 7.5).

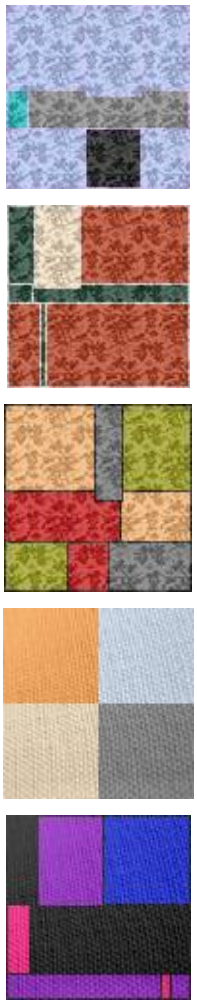
Korean	Indian	European	Chinese	Cross-cultural
				

Table 7.5 Design outcomes of the five focus groups

7.3 Producing design samples of Korean fashion *bojagi*

After the evaluation of the *bojagi* design tool among the target consumers, it was crucial to receive feedback from the fashion industry to evaluate the commercial values of these fashion *bojagi* applications for a successful translation to a fashion market. The main thing was to present some applications of fashion products by designing new fashion *bojagi* patterns. Therefore, by using the *bojagi* design tool, ten fashion *bojagi* patterns were designed and these designs were digital printed on five different kinds of fabrics; coated stretch twill classic cotton, coated plain cotton, coated linen, coated twill silk heavy, coated medium visc satin silk.

The majority of patterns were designed using pattern C, which was programmed to change the portion of each block by clicking a new setting button. The colours of the patterns were selected from both the S/S 2011 women's wear trend colours by WSGN trend report and preference colours and the results of the colour psychophysical experiment from target consumer groups in both UK and Korea (see in Table 5.3 and Table 5.4 in chapter five).

To visualise a possibility of designing fashion products by using these designs, it was essential to put illustrations of the fashion *bojagi* applications on the *bojagi* fabric sample book. Adobe Photoshop 7.0 was used for producing the illustrations which is a simple method of superimposing a design image over an existing photograph of a garment or room set to illustrate a potential end use of the design. Fashion *bojagi* design samples consisted of home-textiles and fashion garments and two samples are shown in Figure 7.2.

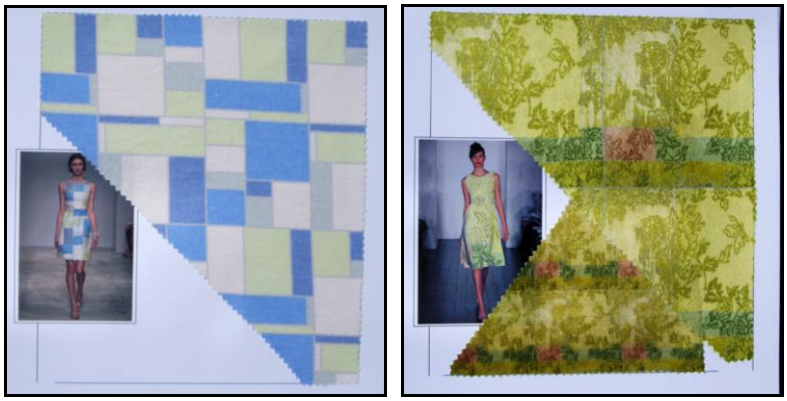
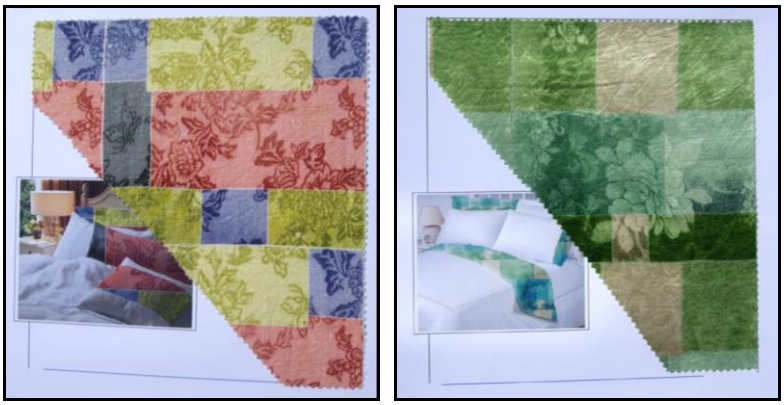
Fashion *bojagi* design samples	
Fashion garments	
Home-textiles	

Figure 7.2 Examples of fashion *bojagi* designs in *bojagi* fabric sample book

7.4 Evaluating the fashion *bojagi* samples by four fashion retail companies in UK

For evaluating these fashion *bojagi* samples, four fashion retail companies were selected to assess these fabric samples. In this study, the evaluation considered such criteria as their opinion of the fabric samples (design and commercial values), the interest of these designs to their company, a suggestion of relevant companies or brands, other types of fashion products that would be suitable for these designs and any thoughts on the adoption of cultural textile products into mainstream fashion.

7.4.1 Participants

Four fashion retail companies were interviewed and these ranged from high street,

middle market to high end fashion companies in the UK; Cohen & Wilks International (a big supplier for high street retailers), Next, Mother of Pearl and Hawick Cashmere. These firms were selected with the target of global young consumers including the women's wear section. In particular, one designer, one fabric sourcing manager and one quality assurance manager at high street fashion retailer companies and two designers at middle market company and two designers at high end company participated in these in-depth interviews (see in Table 7.6).

<table>
<tr><th colspan="2">High street market</th><th colspan="2">Middle market</th><th colspan="2">High end market</th></tr>
<tr><td rowspan="2">Cohen & Wilks International</td><td>Designer</td><td rowspan="3">Mother of Pearl</td><td rowspan="3">Two designers</td><td rowspan="3">Hawick Cashmere</td><td rowspan="3">Two designers</td></tr>
<tr><td>Quality assurance manager</td></tr>
<tr><td>Next</td><td>Fabric sourcing manager</td></tr>
</table>

Table 7.6 Participants of four fashion retail companies

7.4.2 Procedure

The four interviews went through the same procedure. The interview began by giving an explanation of the purpose of the project and how these fashion *bojagi* patterns were designed. Participants were then asked to look at the fashion *bojagi* samples in the Korean *bojagi* fabric book, which was provided by the author for this interview and then, participants were asked to consider these design samples from a commercial perspective. There were certain questions relating to the assessment of the Korean fashion *bojagi* fabrics; design values of (patterns, colours, texture images and fabrics), commercial values of the design samples, suggestions of relevant fashion companies or brands that these designs may be relevant to, any thoughts on the adoption of cultural textile products into main fashion stream and other opinions. The interviews were based on an open-interview method which allowed for flexible conversation.

7.4.3 Results and discussion

The interviews allowed a deeper investigation of the commercial values of the fashion *bojagi* designs, as well as analysing design values of the fabric samples for fashion

market applications. Cohen & Wilks is a dedicated apparel supplier, offering comprehensive supply chain solutions to major fashion retail brands. This company specialises in manufacturing women's, men's and children's outer wear and casual wear for the retail market and offers an end to end service backed up by their partners. In Table 7.6 a summary of the findings at Cohen & Wilks International is presented.

Design values	Patterns	We like these block pattern designs. Most of designs look gorgeous but we have to think about the scale of the patterns. For example, one big scale pattern is suitable on a dress and a very small scale pattern could fit into a raincoat or a scarf design.
	Colours	Colour combinations and colour choices look very trendy and fashionable. An intense colour combination on coated medium visc satin silk is very nice. However, we would like to recommend changing the black colour to a dark indigo or dark blue colour.
	Texture images	Floral texture images are beautiful and these images are suitable for fashion garments.
	Fabrics	Designs printed on coated linen and cotton will be suitable for home-textiles such as cushions, curtains, table wear and bedding. Silk design samples could fit into fashion products like a scarf, a dress or a blouse.
Commercial values	The design samples are successfully commercialised for the fashion industry. We are definitely sure these designs are all suitable for the fashion market.	
Suitable fashion products and brands	Fashion products	Home-textiles: table wear, beddings, cushions and curtains. Fashion garments: dresses, blouses and scarves for women's wear, rain coats for children's wear.
	Fashion	Fashion brands: M&S, Monsoon, Top shop

	brands	and John Lewis. Home-textiles: Laura Ashley and Zara home wear.
Adoption of cultural values into main stream of fashion	A lot of cases are out there. Especially, high-end fashion designer brands are influenced by eastern cultural textile products and it is still an ongoing process.	
Other opinions	For a successful translation into the fashion industry, using a modern way of manufacturing may be necessary. Probably, the traditional way of Korean *bojagi* products will have some limitations. First of all, a hand-made system will raise the cost of the products and also being time consuming will be an issue. Secondly, consistency of quality of the products and thirdly, it may be hard to control the weight of the products.	

Table 7.7 Summary of the findings from Cohen & Wilks International

Next is a UK based high street retailer offering beautifully designed, excellent quality fashion and accessories for men, women and children together with a full range of home wares. Next International has more than 180 stores throughout continental Europe, Scandinavia, Russia, the Middle East, India and Japan and also has a growing website capability worldwide. A summary of the findings at Next is shown in Table 7.7.

Design values	Patterns	Patterns are all very nice and it looks like Mondrian art work.
	Colours	Colour combinations are great but if these colours can be made slightly lighter than now, it will be more appropriate for fashion garments.
	Texture images	All floral texture designs are suitable for our company.
	Fabrics	Designs printed on cottons will be suitable for T-shirts and silk design samples could fit as

		fashion products like a scarf or a dress.
Commercial values	The design samples have commercial value to go into the fashion industry. But the main issue will be cost of the products.	
Suitable fashion products and brands	Fashion products	Home-textiles for interiors Fashion garments and accessories: dresses, T-shirts and scarves
	Fashion brands	M&S and Monsoon
Adoption of cultural values into main stream of fashion	Probably, there are many cases. Because cultural factors could be a great value-added factor to provide differentiation in the fashion industry. Particularly, this process has happened in the high-end fashion markets more frequently.	
Other opinions	Our main issue is the price of the product. So if we will buy and use these designs to produce fashion products, we might not be able to keep the cultural meanings of these patterns. But, you can find a relevant fashion brand in the high-end fashion market. One thing I would like to suggest for designing is using appliqué design to produce fashion *bojagi* products.	

Table 7.8 Summary of the findings from Next

The company Mother of Pearl offers high quality fashion and accessories for women and collaborates with celebrated artists to produce a series of prints, which form the foundations of the collection. An outline of the findings at Mother of Pearl is presented in Table 7.9.

Design values	Patterns	Patterns look really lovely and cool and also it reminds me of Mondrian art works. We usually use printing and these patterns have come out very well. Especially, we love one big pattern printed on dress.

	Colours	Colour combinations and colour choices are very nice and luxurious. However, if these colours can change to be slightly brighter than now, it will be more appropriate for fashion garments. Also, one suggestion is designing one colour pattern design but based on these pattern styles.
	Texture images	Small scaled floral texture images look very delicate and these fine texture images can be applied to design a jacket for women.
	Fabrics	Designs printed on coated linen will be appropriate to the home wear market and both heavy and satin silk design samples could fit into fashion products like a shirt, a dress, a blouse and a scarf.
Commercial values	The design samples are successfully commercialised to go into the fashion industry. Particularly, silk designs could fit into the high street fashion market and linen and cotton designs should be suitable for the luxury high end home-textiles market.	
Suitable fashion products and brands	Fashion products	Home-textiles for interior designs Fashion garments and accessories: dresses, shirts, blouses and scarves
	Fashion brands	Jonathan Saunders
Adoption of cultural values into main stream of fashion	Generally, cultural values come into fashion trends and then each fashion brand interprets the main fashion trend to match their brand image.	
Other opinions	Scaling is a big issue in the fashion design process. Depending on different scales of pattern designs they will fall into different fashion styles. Also, combining printing and embroidery design could be useful for proposing a new fashion *bojagi* product.	

Table 7.9 Summary of the findings from Mother of Pearl

Hawick Cashmere is based in an original nineteenth century Mill in Hawick, Scotland. They are offering the highest quality cashmere fashion and accessories for men and women also, they have many outlets including a store at Elizabeth Street in London and in Switzerland, Germany, Slovakia, USA and Japan. A summary of the findings at Hawick Cashmere is shown in Table 7.10.

Design values	Patterns	We love these block pattern designs and geometric designs. It looks gorgeous and beautiful. Specifically, one big scale pattern will be suitable for a scarf design. Generally, a proportion (scaling) of the patterns plays an important role in block style patterns.
	Colours	Colour combinations and colour choices look very sophisticated and luxurious.
	Texture images	Small scaled floral texture images look good and these textured images can be applied to design fashion products.
	Fabrics	Designs printed on coated linen will be appropriate for interior designs and satin silk design samples could fit into fashion products like a scarf or a dress. As a matter of fact, it will be possible to print on cashmere.
Commercial values	The design samples are effectively commercialised to go into fashion industry. Also, we think the design tool will have a big commercial value in fashion industry for fashion designers.	
Suitable fashion products and brands	Fashion products	Home-textiles for interior designs Fashion garments: dresses, blouses and scarves
	Fashion brands	Fashion brands: Zara and Monsoon Home-textiles: Laura Ashley and Pierre Frey
Adoption of cultural values into main stream of fashion	Nowadays, cultural values are getting important in general fashion trend and most inspirations come from Asia.	

Other opinions	Scaling of the patterns will be a main issue to produce fashion *bojagi* products. Printing on cashmere is also one possibility to produce fashion products. Especially, the design tool is exactly what we need to design for printing on cashmere so we are very interested in that tool.

Table 7.10 Summary of the findings from Hawick Cashmere

7.5 Summary

The Korean *bojagi* website including the design tool was evaluated by the five focus groups and the test examined the usability and entertainment (enjoyable) values of the web interface among four different cultural groups (Korean, Indian, European and Chinese) and one cross-cultural group. Groups were formed based upon cultural backgrounds so that an international perspective could be ascertained. The analysis showed that overall all groups found this an interesting and interactive way to learn about traditional Korean *bojagi* and create their own *bojagi* designs. In particularly, the Korean focus group had a high degree of agreement for all categories, which is supported by the standard deviations as shown in Table 7.3.

By evaluating the commercial values of the fashion *bojagi* designs, it appears that there is a positive potential for a translation from the traditional Korean cultural textile products into contemporary fashion products. Four fashion retail companies were interviewed and these ranged from high street, middle market to high end fashion companies in UK. The evaluation results of the Korean fashion *bojagi* applications by these companies have suggested that these design samples could be successfully commercialised into current fashion markets of the young consumers.

Chapter 8: Conclusion

8.1 Key findings and discussion

The goal of this research was to identify what defines a successful cultural product and to develop design management models for the transfer of cultural meanings to design elements and to design modern products that meet the requirements of contemporary target markets. This research claimed that the concept of cultural reinvention is an effective design management tool for producing a successful cultural product to fit into a current market. The focus of the study was to examine and discuss design marketing strategies and tools for the effective and commercial reinvention of cultural textile products. Specifically, this study was about how to translate the traditional Korean *bojagi*'s cultural meanings into design elements and to produce fashion *bojagi* prototypes that meet the needs of the contemporary target markets.

This research has provided a concise explanation of the basic understanding of the disciplines of culture, cultural products, and design management discussed in chapter two. Culture refers to a way of life and a common set of values shared by members of a society. Cultural products reflect a symbolic meaning of a society; especially traditional textiles and fashion products have cultural values reflecting historical native culture. A development of culturally motivated fashion products reflecting cultural identities will be a possible way to provide a competitive advantage or product differentiation in the fashion industry. For a strategic design process of a culturally influenced textile product, the investigation of design management has been provided through a definition of the term, a discussion of design as a planning process, an exploration of designing a cultural concept into new product, and design reinvention for cultural textile products. This research investigated the concept of design reinvention which is to present something in a new form or image containing a story or a message. It is based on an existing product redesigned to produce a commercial and iconic product, which is relevant to contemporary markets. Using modern technology and generating a story are key components of design reinvention. Looking for design reinvention of a culturally motivated textile product combined with modern technology should be a commercially feasible way of development in the contemporary fashion market.

In chapter three, the case study of Scottish tartan has exemplified a successful form of culturally reinvented textiles from a traditional cultural textile product towards a modern

fashion product. The translation process from the traditional clan tartan to modern fashion tartans has shown the possibility for design marketing through cultural reinvention. The concept of cultural reinvention for traditional textile products means to present a new form or a new image into modern products embodied with a country-specific cultural meaning but based on an existing cultural product. During the case study the author investigated a range of marketing strategies and tools used to promote tartan's adoption into the contemporary fashion market. As a result of this investigation the author concluded that a web based interface enabling consumers to design their own *bojagi* patterns would be an effective marketing tool.

Research into the current Korean cultural textile market, described in chapter four, highlighted a limited variation of items and range of product prices and a lack of promotion, which has resulted in low product image and inadequate association of Korean cultural meanings. By exploring traditional Korean cultural textile products, the traditional Korean *bojagi* category was identified as the strongest category of Korean cultural textile products for cultural reinvention by the formative characteristics of *bojagi* - the use of colour, pattern, fabric and style to convey meaning and aesthetic value. Chapter four also described the process for producing successful cultural products through cultural reinvention (see Figure 4.2). Cultural reinvention begins with a cultural value, which is developed into a contemporary cultural product within a popular cultural industry, and then under goes some types of cultural reinvention (modernisation/contemporisation or popularisation/globalisation), and is finally manufactured and commercialised. The process of cultural reinvention for Korean traditional *bojagi* was proposed in this chapter as shown in Figure 4.3. These models presented how the traditional Korean *bojagi* textile products can translate to a modern popular product using modern technology to suit the contemporary market. The possible design marketing strategies were suggested by one design strategy model; transformation of design element of cultural products, transformation of functional usage of cultural products, and integration of design element, functional usage and traditional features of cultural products, and by one target marketing strategy model; young trendy generation (domestic, global consumers), tourists (Western, Asian consumers), and business market for designers (high fashion, low fashion designers) for an effective design marketing of Korean *bojagi* products (see Figures 4.4 and 4.5). For an efficient communication with target consumers, internet marketing through the development of an interactive web interface was employed. By means of this chapter,

the author pointed out the development processes of the concept of cultural reinvention for producing a successful cultural product and especially, for the traditional Korean *bojagi* textile products.

In this research, the last option of design strategies (integration of design element, functional usage and traditional features of a cultural product) was considered as the optimum strategy for developing modernised fashion *bojagi* products for the target market. The young trendy generation (Korean/Western) as a primary target consumer group was decided for the target market. Thus, for a successful transformation from the traditional Korean *bojagi* textile products into modern fashion products, chapter five examined the colour choices and preferences for Korean traditional colours among the target consumers (young generation group) in Korea and the UK. In general, the colour of fashion products is a significant component to incite consumers to make a decision to purchase. This colour experiment identified the differences and similarities in the colour choices of Korean observers for preferred, fashion and traditional categories and UK observers for preferred and fashion categories. Overall, from the analysis of the data it was concluded that the colour choices and preferences among target Korean and UK consumers appear to be similar. Through this colour experiment, the possibility of using the five traditional Korean colours was verified for designing modern fashion products for the target consumer market. It is suggested that the similarities are partly the result of a global convergence in patterns of young consumers' preferences and that brings out the possibility of using these data to design Korean fashion *bojagi* for the target consumer group.

For effective communication with target consumers, e-business through the development of a web interface tool was suggested by the author. The development process of the new web based design tool was discussed in chapter six. This chapter describes the web based design tool, which can be utilised for user preference, product development and the early promotion of Korean *bojagi* as a fashion fabric. The website was developed by Adobe Dreamweaver CS4 HTML programme and six categories were considered; history, styles, patterns, colours, fabrics of the traditional Korean *bojagi* and the '*design your own bojagi*' component. For developing the '*design your own bojagi*' section, MATLAB 7.0.4 GUI programme was employed to generate an interactive design tool for the users and consumers. The interactive fashion *bojagi* design tool produced three pattern types, five colour choices, and six texture image

selections. The design elements were all derived from the traditional Korean *bojagi* textile products. By this chapter, the author presented the development of the new Korean *bojagi* website and that has opened up an opportunity to be an effective research tool as an educational web based interface to learn about the traditional Korean textile *bojagi* products and create their own *bojagi* designs.

To evaluate the Korean *bojagi* website and the design tool, it was necessary to evaluate this tool by target consumers and in addition, to examine the fashion *bojagi* applications by fashion industry experts. The website was tested by five focus groups (Korean, Indian, European, Chinese, Cross-cultural group) in chapter seven. The findings were shown to give high usability and entertainment (enjoyable) values of the website by all the different cultural groups within the target consumers. For evaluating the commercial value of fashion *bojagi* designs, the author produced a Korean *bojagi* sample book, which included ten fashion *bojagi* pattern designs which were digitally printed on five different fabrics. These designs were produced by using the Korean *bojagi* design tool. Four fashion retail companies, which ranged from high street to high end fashion market, were interviewed to evaluate the fashion *bojagi* design samples. The findings of interviews have suggested a positive potential for a translation from the traditional Korean cultural textile products into contemporary fashion products. Commonly, they highlighted that these design samples were successfully commercialised to go into the contemporary fashion market.

Regarding the findings of this research, it is verified that the meaning of a successful cultural product and the concept of cultural reinvention is an effective design management tool to produce a new contemporary form of a traditional cultural product which has both cultural meanings and commercial values. The design process and findings are coherent with the Lin *et al*. [2007] study exploring how the Taiwan aboriginal garment culture translates into modern bags. Compared with that study, this research provided not only a design model but also an effective marketing model for developing a commercially reinvented cultural product. Overall, the findings are consistent with Best [2010] perspective that studying design management is a management of the relationships between different disciplines such as design, marketing, business, and the growing demand for understanding the cultural, societal and technological impact of how commercial businesses operate. This research provides an empirical support as an integration of the interdisciplinary relationships but,

it was focused on designer-centred design management rather than marketer-centred design management. Furthermore, the new design concept tool demonstrates a kind of consumer-led design process for designing cultural textile products. User experiences are becoming a core value of creativity to sustain a competitive advantage in the future. Combining, modifying and integrating technology, marketing, sociology, textile and fashion design studies are all relevant to create a new consumer-led design marketing tool. Thus, the web based Korean *bojagi* textile design tool exemplifies a possible avenue for the consumer-led market for culturally motivated textile products.

8.2 Limitations and further research

As with all research, limitations must be considered and there will be many avenues in which future work can be carried out to discover more about the applications of the concept of cultural reinvention as an aspect of design management.

First, the colour experiment research relied on a limited number of target consumer attributes and examined only two countries (Korea and UK). Further research (with more extensive and fractionalised sets of target consumer attributes and countries) is needed to generalise these results confidently. Also, this study could be expanded by comparing different age groups; it will be useful to establish a database of colour preferences for Korean traditional colours by each age group.

Second, the Korean website including the design tool could only generate a restricted style of Korean *bojagi* designs. Therefore, putting on new patterns or texture images based on the traditional Korean *bojagi* designs could produce various options for consumers to design fashion *bojagi* textiles.

Third, the evaluation of the website depended on a limited sample size for target consumers. There were a number of useful opinions and suggestions but, because of the limitation, it was difficult to demonstrate a certain trend for each cultural group in data analysis and design outcomes. Especially, if it is possible to obtain more design outcomes from large numbers of people within different cultural groups, it should be feasible to present a tendency in their design characteristics for different cultural groups.

Fourth, the applications of Korean *bojagi* designs were only illustrated by home-textiles and fashion garments for women’s wear in this thesis. The illustrations used in the

Korean fashion *bojagi* sample book may have constrained the imagination of the interviewees with regard to wider end-use possibilities. In the interview from Hawick Cashmere, they pointed out that if the file format for saving the new textile designs can change to JPEG file format in the textile design tool, it will be a very useful design tool for fashion designers. This study also can be enlarged by applying these designs to different product types.

Application of the concept of cultural reinvention to another country's cultural products and other product categories (industrial products, art works, toys and graphic designs such as typography) is potentially of considerable value to the design of commercially reinvented products. An understanding of this concept as a design management tool which will be a bridge among designers, marketers and technicians with close collaborations is potentially of great value across numerous subject fields in the future.

Concisely, there are three categories for future research. Identifying changing cultural values of a traditional cultural product for enhancing the cultural heritage is the first possible category that is important for the future growth of the creative, cultural industries, and future well-being. Taking advantage of new opportunities as innovative ways to use and interpret the traditional heritage which emerge within the creative industries will be helpful to make a balance among the historical tradition, the current needs and the benefit of future generations. Secondly, potential future research is developing a design marketing model for translating cultural factors through design elements. The effective translation model of the past into the present can be considered to not only bring traditional cultural references into modern product designs, but also could promote design elements (such as colour, pattern, style, etc.) of different countries' cultures into marketing strategies for packaging design or advertising as a promotion. The third category for future research is developing a design tool by using digital technology for the global market. Design creativity using advanced digital technology brings new opportunities to designers and global consumers, which has huge potential to develop as a tool for the consumer-led design market. For example, application designs for cultural products will be able to provide an educational and promotional marketing tool for a global society.

This research is a very interdisciplinary involving cultural study, textile and product design, design marketing, digital technology and marketing management. By building

on existing strengths in areas such as design study, marketing management, and digital technology, innovative collaborations between designers, marketers and technicians in cross disciplinary fields, this will be able to open up new scopes for collaboration and learning between design, marketing and science.

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Appendix A

Adobe Dreamweaver CS4 HTML programme script for developing the Korean *bojagi* website

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
 "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<!-- TemplateBeginEditable name="doctitle" -->
<title>Korean traditional wrapping cloths:Pojagi</title>
<!-- TemplateEndEditable -->
<!-- TemplateBeginEditable name="head" -->
<!-- TemplateEndEditable -->
<style type="text/css">
<!--
body  {
 font: 80% Verdana, Arial, Helvetica, sans-serif;
 background:#FFFFFF;
 margin: 0; /* it's good practice to zero the margin and padding of the
 body element to account for differing browser defaults */
 padding: 0;
 text-align: center; /* this centers the container in IE 5
 browsers. The text is then set to the left aligned default in the
 #container selector */
 color: #000000;
}
.twoColHybLtHdr #container {
 width: 100%;  /* this will create a container 80% of the browser width
 */
 background: #FFFFFF;
 margin: 0 auto; /* the auto margins (in conjunction with a width)
 center the page */
 border: 1px solid #000000;
 text-align: left; /* this overrides the text-align: center on the body
 element. */
}
.twoColHybLtHdr #header {
 background: #999999;
 padding: 0 10px;  /* this padding matches the left alignment of the
 elements in the divs that appear beneath it. If an image is used in
 the #header instead of text, you may want to remove the padding. */
}
.twoColHybLtHdr #header h1 {
 margin: 0; /* zeroing the margin of the last element in the #header
 div will avoid margin collapse - an unexplainable space between divs.
 If the div has a border around it, this is not necessary as that also
 avoids the margin collapse */
 padding: 10px 0; /* using padding instead of margin will allow you to
 keep the element away from the edges of the div */
}

.twoColHybLtHdr #sidebar1 {
 float: left;
 width: 12em; /* since this element is floated, a width must be given
 */
 background: #EBEBEB; /* the background color will be displayed for the
 length of the content in the column, but no further */
 padding: 15px 0; /* top and bottom padding create visual space within
 this div  */
}
.twoColHybLtHdr #sidebar1 h3, .twoColHybLtHdr #sidebar1 p {
```

```
 margin-left: 10px; /* the left and right margin should be given to
 every element that will be placed in the side columns */
 margin-right: 10px;
 list-style-position: outside;
 list-style-image: none;
 list-style-type: circle;
}

.twoColHybLtHdr #mainContent {
 margin: 0 20px 0 13em; /* the right margin can be given in percentages
 or pixels. It creates the space down the right side of the page. */
}
.twoColHybLtHdr #footer {
 padding: 0 10px; /* this padding matches the left alignment of the
 elements in the divs that appear above it. */
 background:#DDDDDD;
}
.twoColHybLtHdr #footer p {
 margin: 0; /* zeroing the margins of the first element in the footer
 will avoid the possibility of margin collapse - a space between divs
 */
 padding: 10px 0; /* padding on this element will create space, just as
 the the margin would have, without the margin collapse issue */
}

/* Miscellaneous classes for reuse */
.fltrt { /* this class can be used to float an element right in your
 page. The floated element must precede the element it should be next
 to on the page. */
 float: right;
 margin-left: 8px;
}
.fltlft { /* this class can be used to float an element left in your
 page */
 float: left;
 margin-right: 8px;
}
.clearfloat { /* this class should be placed on a div or break element
 and should be the final element before the close of a container that
 should fully contain a float */
 clear:both;
    height:0;
    font-size: 1px;
    line-height: 0px;
}
.style1 {
 font-size: 80%
}
.style8 {font-size: x-large; }
.style11 {color: #FFFFFF}
.style16 {
 color: #666666;
 font-size: x-large;
 font-weight: bold;
}
.style19 {color: #663399}
.style20 {font-size: xx-large}
.style23 {
 color: #0000FF;
```

```
 font-size: medium;
 font-weight: bold;
}
.style27 {font-size: 14px; color: #000000;}
.style28 {color: #330066}
.style35 {color: #CCCCCC}
.style36 {
 font-size: large;
 font-weight: bold;
}
.style37 {color: #9D88FF; font-size: medium; font-weight: bold; }
.style371 {color: #9D88FF; font-size: medium; font-weight: bold; }
-->
</style>
<!--[if IE]>
<style type="text/css">
/* place css fixes for all versions of IE in this conditional comment
 */
.twoColHybLtHdr #sidebar1 { padding-top: 30px; }
.twoColHybLtHdr #mainContent { zoom: 1; padding-top: 15px; }
/* the above proprietary zoom property gives IE the hasLayout it may
 need to avoid several bugs */
</style>
<![endif]--></head>
<head></head>

<body class="twoColHybLtHdr">
<span class="style11"></span>
<div id="container">
  <div id="header">
    <h1 class="style8"><span class="style11">K</span><span
 class="style11">orean </span></h1>
    <h1 class="style8"><span class="style11">T</span><span
 class="style11">raditional</span></h1>
    <h1 class="style1"><span class="style8"><span
 class="style11">Textiles:</span> <em><span
 class="style35">Bojagi</span></em></span>
      <!-- end #header -->
    </h1>
  </div>
  <div id="sidebar1">
    <p align="left" class="style23 style28"> </p>
    <ul>
      <li class="style37"><a href="MJ's web 2.html"
 target="_parent">History</a></li>
      <br />
      <br/>
      <br />
      <br/>
      <li class="style37"><a href="MJ's web 4.html"
 target="_parent">Styles</a></li><br />
        <br/>
        <br />
       <br/>
      </li>
      <li class="style37"><a href="MJ's web 5.html"
 target="_parent">Patterns</a></li><br />
  <br/>
  <br />
```

```
 <br/>
    </li>
    <li class="style37"><a href="MJ's web 6.html"
target="_parent">Colours</a><br>
      <span class="style37"><a href="MJ's web 6.html"
target="_parent">&amp;Fabrics</a></span><br/>
  </li>
  </ul>
  <p align="left">
    <!-- end #sidebar1 -->
  </p>
  <p align="left"> </p>
  <p align="left"> </p>
  <p align="left"> </p>
  <p align="left"> </p>
  <p align="left"> </p>
 </div>
 <div id="mainContent">
   <br>
   <h1 class="style19"><span class="style20"><span class="style16">What
is <em>Bojagi</em>?</span></span></h1>
   <p align="justify"><span class="style27">Bojagi is a traditional
Korean wrapping cloths. Korean wrapping cloths(<em>bojagi</em>) of
unusual beauty  occupied a prominent  place  in the daily lives of
Koreans during the Joseon dynasty (1392-1910). Bojagi were used for
wrapping as well as for covering, storing and carrying objects which
were small and large, ordinary and precious.</span></p>
   <h2><span class="style19"><span class="style20">Design</span> <span
class="style8"><em>your own Bojagi!</em></span></span></h2>
   <p align="center" class="style27"><img src="pojagi-1.jpg"
width="253" height="151" /> <span class="style36"><u><a href="MJ's web
3.html" target="_parent">Start now!</a></u></span></p>
   <p align="center" class="style27"> </p>
 <!-- end #mainContent --></div>
 <!-- This clearing element should immediately follow the #mainContent
 div in order to force the #container div to contain all child floats -
 ->
 <br class="clearfloat" />
 <div id="footer">
   <p>Footer</p>
 <!-- end #footer --></div>
<!-- end #container --></div>
</body>
</html>



<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
 "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<!-- TemplateBeginEditable name="doctitle" -->
<title>Korean traditional wrapping cloths:Pojagi</title>
<!-- TemplateEndEditable -->
<!-- TemplateBeginEditable name="head" -->
<!-- TemplateEndEditable -->
<style type="text/css">
<!--
```

```
body  {
 font: 80% Verdana, Arial, Helvetica, sans-serif;
 background:#FFFFFF;
 margin: 0; /* it's good practice to zero the margin and padding of the
 body element to account for differing browser defaults */
 padding: 0;
 text-align: center; /* this centers the container in IE 5
 browsers. The text is then set to the left aligned default in the
 #container selector */
 color: #000000;
}
.twoColHybLtHdr #container {
 width: 100%;  /* this will create a container 80% of the browser width
 */
 background: #FFFFFF;
 margin: 0 auto; /* the auto margins (in conjunction with a width)
 center the page */
 border: 1px solid #000000;
 text-align: left; /* this overrides the text-align: center on the body
 element. */
}
.twoColHybLtHdr #header {
 background: #999999;
 padding: 0 10px;  /* this padding matches the left alignment of the
 elements in the divs that appear beneath it. If an image is used in
 the #header instead of text, you may want to remove the padding. */
}
.twoColHybLtHdr #header h1 {
 margin: 0; /* zeroing the margin of the last element in the #header
 div will avoid margin collapse - an unexplainable space between divs.
 If the div has a border around it, this is not necessary as that also
 avoids the margin collapse */
 padding: 10px 0; /* using padding instead of margin will allow you to
 keep the element away from the edges of the div */
}

.twoColHybLtHdr #sidebar1 {
 float: left;
 width: 12em; /* since this element is floated, a width must be given
 */
 background: #EBEBEB; /* the background color will be displayed for the
 length of the content in the column, but no further */
 padding: 15px 0; /* top and bottom padding create visual space within
 this div  */
}
.twoColHybLtHdr #sidebar1 h3, .twoColHybLtHdr #sidebar1 p {
 margin-left: 10px; /* the left and right margin should be given to
 every element that will be placed in the side columns */
 margin-right: 10px;
 list-style-position: outside;
 list-style-image: none;
 list-style-type: circle;
}

.twoColHybLtHdr #mainContent {
 margin: 0 20px 0 13em; /* the right margin can be given in percentages
 or pixels. It creates the space down the right side of the page. */
}
.twoColHybLtHdr #footer {
```

```
 padding: 0 10px; /* this padding matches the left alignment of the
 elements in the divs that appear above it. */
 background:#DDDDDD;
}
.twoColHybLtHdr #footer p {
 margin: 0; /* zeroing the margins of the first element in the footer
 will avoid the possibility of margin collapse - a space between divs
 */
 padding: 10px 0; /* padding on this element will create space, just as
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/* Miscellaneous classes for reuse */
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 page. The floated element must precede the element it should be next
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 float: right;
 margin-left: 8px;
}
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 page */
 float: left;
 margin-right: 8px;
}
.clearfloat { /* this class should be placed on a div or break element
 and should be the final element before the close of a container that
 should fully contain a float */
 clear:both;
    height:0;
    font-size: 1px;
    line-height: 0px;
}
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.style19 {color: #663399}
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.style27 {font-size: 14px; color: #000000;}
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 font-weight: bold;
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.style371 {color: #9D88FF; font-size: medium; font-weight: bold; }
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```

```
</style>
<!--[if IE]>
<style type="text/css">
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.twoColHybLtHdr #mainContent { zoom: 1; padding-top: 15px; }
/* the above proprietary zoom property gives IE the hasLayout it may
 need to avoid several bugs */
</style>
<![endif]--></head>
<head></head>

<body class="twoColHybLtHdr">
<span class="style11"></span>
<div id="container">
  <div id="header">
    <h1 class="style8"><span class="style11">K</span><span
 class="style11">orean </span></h1>
    <h1 class="style8"><span class="style11">T</span><span
 class="style11">raditional</span></h1>
    <h1 class="style1"><span class="style8"><span
 class="style11">Textiles:</span> <em><span
 class="style35">Bojagi</span></em></span>
      <!-- end #header -->
    </h1>
  </div>
  <div id="sidebar1">
    <p align="left" class="style23 style28"> </p>
    <ul>
      <li class="style37"><a href="MJ's web 2.html"
 target="_parent">History</a></li>
      <br />
      <br/>
      <br />
      <br/>
      <li class="style37"><a href="MJ's web 4.html"
 target="_parent">Styles</a></li><br />
        <br/>
        <br />
       <br/>
      </li>
      <li class="style37"><a href="MJ's web 5.html"
 target="_parent">Patterns</a></li><br />
  <br/>
  <br />
  <br/>
      </li>
      <li class="style37"><a href="MJ's web 6.html"
 target="_parent">Colours</a><br>
       <span class="style37"><a href="MJ's web 6.html"
 target="_parent">&amp;Fabrics</a></span><br/>
    </li>
    </ul>
    <p align="left">
      <!-- end #sidebar1 -->
    </p>
    <p align="left"> </p>
    <p align="left"> </p>
```

```
    <p align="left"> </p>
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  wrapping as well as for covering, storing and carrying objects which
  were small and large, ordinary and precious.</span></p>
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  3.html" target="_parent">Start now!</a></u></span></p>
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  <!-- end #mainContent --></div>
  <!-- This clearing element should immediately follow the #mainContent
  div in order to force the #container div to contain all child floats -
  ->
  <br class="clearfloat" />
  <div id="footer">
    <p>Footer</p>
  <!-- end #footer --></div>
<!-- end #container --></div>
</body>
</html>
```

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
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<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
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<style type="text/css">
<!--
body  {
  font: 80% Verdana, Arial, Helvetica, sans-serif;
  background:#FFFFFF;
  margin: 0; /* it's good practice to zero the margin and padding of the
  body element to account for differing browser defaults */
  padding: 0;
  text-align: center; /* this centers the container in IE 5
  browsers. The text is then set to the left aligned default in the
  #container selector */
  color: #000000;
}
.twoColHybLtHdr #container {
```

```
 width: 100%;  /* this will create a container 80% of the browser width
 */
 background: #FFFFFF;
 margin: 0 auto; /* the auto margins (in conjunction with a width)
 center the page */
 border: 1px solid #000000;
 text-align: left; /* this overrides the text-align: center on the body
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}
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 background: #999999;
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 elements in the divs that appear beneath it. If an image is used in
 the #header instead of text, you may want to remove the padding. */
}
.twoColHybLtHdr #header h1 {
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 If the div has a border around it, this is not necessary as that also
 avoids the margin collapse */
 padding: 10px 0; /* using padding instead of margin will allow you to
 keep the element away from the edges of the div */
}

.twoColHybLtHdr #sidebar1 {
 float: left;
 width: 12em; /* since this element is floated, a width must be given
 */
 background: #EBEBEB; /* the background color will be displayed for the
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 padding: 15px 0; /* top and bottom padding create visual space within
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}
.twoColHybLtHdr #sidebar1 h3, .twoColHybLtHdr #sidebar1 p {
 margin-left: 10px; /* the left and right margin should be given to
 every element that will be placed in the side columns */
 margin-right: 10px;
 list-style-position: outside;
 list-style-image: none;
 list-style-type: circle;
}

.twoColHybLtHdr #mainContent {
 margin: 0 20px 0 13em; /* the right margin can be given in percentages
 or pixels. It creates the space down the right side of the page. */
}
.twoColHybLtHdr #footer {
 padding: 0 10px; /* this padding matches the left alignment of the
 elements in the divs that appear above it. */
 background:#DDDDDD;
}
.twoColHybLtHdr #footer p {
 margin: 0; /* zeroing the margins of the first element in the footer
 will avoid the possibility of margin collapse - a space between divs
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```

```
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 float: right;
 margin-left: 8px;
}
.fltlft { /* this class can be used to float an element left in your
 page */
 float: left;
 margin-right: 8px;
}
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 and should be the final element before the close of a container that
 should fully contain a float */
 clear:both;
    height:0;
    font-size: 1px;
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.style371 {color: #9D88FF; font-size: medium; font-weight: bold; }
-->
</style>
<!--[if IE]>
<style type="text/css">
/* place css fixes for all versions of IE in this conditional comment
 */
.twoColHybLtHdr #sidebar1 { padding-top: 30px; }
.twoColHybLtHdr #mainContent { zoom: 1; padding-top: 15px; }
/* the above proprietary zoom property gives IE the hasLayout it may
 need to avoid several bugs */
</style>
<![endif]--></head>
<head></head>
```

```
<body class="twoColHybLtHdr">
<span class="style11"></span>
<div id="container">
 <div id="header">
   <h1 class="style8"><span class="style11">K</span><span
class="style11">orean </span></h1>
   <h1 class="style8"><span class="style11">T</span><span
class="style11">raditional</span></h1>
   <h1 class="style1"><span class="style8"><span
class="style11">Textiles:</span> <em><span
class="style35">Bojagi</span></em></span>
     <!-- end #header -->
   </h1>
 </div>
 <div id="sidebar1">
   <p align="left" class="style23 style28"> </p>
   <ul>
     <li class="style37"><a href="MJ's web 2.html"
target="_parent">History</a></li>
     <br />
     <br/>
     <br />
     <br/>
     <li class="style37"><a href="MJ's web 4.html"
target="_parent">Styles</a></li><br />
        <br/>
        <br />
      <br/>
     </li>
     <li class="style37"><a href="MJ's web 5.html"
target="_parent">Patterns</a></li><br />
 <br/>
 <br />
 <br/>
     </li>
     <li class="style37"><a href="MJ's web 6.html"
target="_parent">Colours</a><br>
      <span class="style37"><a href="MJ's web 6.html"
target="_parent">&amp;Fabrics</a></span><br/>
   </li>
   </ul>
   <p align="left">
     <!-- end #sidebar1 -->
   </p>
   <p align="left"> </p>
   <p align="left"> </p>
   <p align="left"> </p>
   <p align="left"> </p>
   <p align="left"> </p>
 </div>
 <div id="mainContent">
   <br>
   <h1 class="style19"><span class="style20"><span class="style16">What
is <em>Bojagi</em>?</span></span></h1>
   <p align="justify"><span class="style27">Bojagi is a traditional
Korean wrapping cloths. Korean wrapping cloths(<em>bojagi</em>) of
unusual beauty  occupied a prominent  place  in the daily lives of
Koreans during the Joseon dynasty (1392-1910). Bojagi were used for
```

```
 wrapping as well as for covering, storing and carrying objects which
 were small and large, ordinary and precious.</span></p>
   <h2><span class="style19"><span class="style20">Design</span> <span
 class="style8"><em>your own *Bojagi*!</em></span></span></h2>
   <p align="center" class="style27"><img src="pojagi-1.jpg"
 width="253" height="151" /> <span class="style36"><u><a href="MJ's web
 3.html" target="_parent">Start now!</a></u></span></p>
   <p align="center" class="style27"> </p>
  <!-- end #mainContent --></div>
 <!-- This clearing element should immediately follow the #mainContent
 div in order to force the #container div to contain all child floats -
 ->
 <br class="clearfloat" />
 <div id="footer">
   <p>Footer</p>
  <!-- end #footer --></div>
<!-- end #container --></div>
</body>
</html>
```

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
 "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<!-- TemplateBeginEditable name="doctitle" -->
<title>Korean traditional wrapping cloths:Pojagi</title>
<!-- TemplateEndEditable -->
<!-- TemplateBeginEditable name="head" -->
<!-- TemplateEndEditable -->
<style type="text/css">
<!--
body  {
 font: 80% Verdana, Arial, Helvetica, sans-serif;
 background:#FFFFFF;
 margin: 0; /* it's good practice to zero the margin and padding of the
 body element to account for differing browser defaults */
 padding: 0;
 text-align: center; /* this centers the container in IE 5
 browsers. The text is then set to the left aligned default in the
 #container selector */
 color: #000000;
}
.twoColHybLtHdr #container {
 width: 100%;  /* this will create a container 80% of the browser width
 */
 background: #FFFFFF;
 margin: 0 auto; /* the auto margins (in conjunction with a width)
 center the page */
 border: 1px solid #000000;
 text-align: left; /* this overrides the text-align: center on the body
 element. */
}
.twoColHybLtHdr #header {
 background: #999999;
```

```
 padding: 0 10px;  /* this padding matches the left alignment of the
 elements in the divs that appear beneath it. If an image is used in
 the #header instead of text, you may want to remove the padding. */
}
.twoColHybLtHdr #header h1 {
 margin: 0; /* zeroing the margin of the last element in the #header
 div will avoid margin collapse - an unexplainable space between divs.
 If the div has a border around it, this is not necessary as that also
 avoids the margin collapse */
 padding: 10px 0; /* using padding instead of margin will allow you to
 keep the element away from the edges of the div */
}

.twoColHybLtHdr #sidebar1 {
 float: left;
 width: 12em; /* since this element is floated, a width must be given
 */
 background: #EBEBEB; /* the background color will be displayed for the
 length of the content in the column, but no further */
 padding: 15px 0; /* top and bottom padding create visual space within
 this div  */
}
.twoColHybLtHdr #sidebar1 h3, .twoColHybLtHdr #sidebar1 p {
 margin-left: 10px; /* the left and right margin should be given to
 every element that will be placed in the side columns */
 margin-right: 10px;
 list-style-position: outside;
 list-style-image: none;
 list-style-type: circle;
}

.twoColHybLtHdr #mainContent {
 margin: 0 20px 0 13em; /* the right margin can be given in percentages
 or pixels. It creates the space down the right side of the page. */
}
.twoColHybLtHdr #footer {
 padding: 0 10px; /* this padding matches the left alignment of the
 elements in the divs that appear above it. */
 background:#DDDDDD;
}
.twoColHybLtHdr #footer p {
 margin: 0; /* zeroing the margins of the first element in the footer
 will avoid the possibility of margin collapse - a space between divs
 */
 padding: 10px 0; /* padding on this element will create space, just as
 the the margin would have, without the margin collapse issue */
}

/* Miscellaneous classes for reuse */
.fltrt { /* this class can be used to float an element right in your
 page. The floated element must precede the element it should be next
 to on the page. */
 float: right;
 margin-left: 8px;
}
.fltlft { /* this class can be used to float an element left in your
 page */
 float: left;
 margin-right: 8px;
```

```
}
.clearfloat { /* this class should be placed on a div or break element
 and should be the final element before the close of a container that
 should fully contain a float */
 clear:both;
    height:0;
    font-size: 1px;
    line-height: 0px;
}
.style1 {
 font-size: 80%
}
.style8 {font-size: x-large; }
.style11 {color: #FFFFFF}
.style16 {
 color: #666666;
 font-size: x-large;
 font-weight: bold;
}
.style19 {color: #663399}
.style20 {font-size: xx-large}
.style23 {
 color: #0000FF;
 font-size: medium;
 font-weight: bold;
}
.style27 {font-size: 14px; color: #000000;}
.style28 {color: #330066}
.style35 {color: #CCCCCC}
.style36 {
 font-size: large;
 font-weight: bold;
}
.style37 {color: #9D88FF; font-size: medium; font-weight: bold; }
.style371 {color: #9D88FF; font-size: medium; font-weight: bold; }
-->
</style>
<!--[if IE]>
<style type="text/css">
/* place css fixes for all versions of IE in this conditional comment
 */
.twoColHybLtHdr #sidebar1 { padding-top: 30px; }
.twoColHybLtHdr #mainContent { zoom: 1; padding-top: 15px; }
/* the above proprietary zoom property gives IE the hasLayout it may
 need to avoid several bugs */
</style>
<![endif]--></head>
<head></head>

<body class="twoColHybLtHdr">
<span class="style11"></span>
<div id="container">
  <div id="header">
    <h1 class="style8"><span class="style11">K</span><span
 class="style11">orean </span></h1>
    <h1 class="style8"><span class="style11">T</span><span
 class="style11">raditional</span></h1>
```

```
  <h1 class="style1"><span class="style8"><span
class="style11">Textiles:</span> <em><span
class="style35">Bojagi</span></em></span>
    <!-- end #header -->
  </h1>
 </div>
 <div id="sidebar1">
  <p align="left" class="style23 style28"> </p>
  <ul>
    <li class="style37"><a href="MJ's web 2.html"
target="_parent">History</a></li>
    <br />
    <br/>
    <br />
    <br/>
    <li class="style37"><a href="MJ's web 4.html"
target="_parent">Styles</a></li><br />
       <br/>
       <br />
      <br/>
    </li>
    <li class="style37"><a href="MJ's web 5.html"
target="_parent">Patterns</a></li><br />
 <br/>
 <br />
 <br/>
    </li>
    <li class="style37"><a href="MJ's web 6.html"
target="_parent">Colours</a><br>
      <span class="style37"><a href="MJ's web 6.html"
target="_parent">&amp;Fabrics</a></span><br/>
  </li>
  </ul>
  <p align="left">
    <!-- end #sidebar1 -->
  </p>
  <p align="left"> </p>
  <p align="left"> </p>
  <p align="left"> </p>
  <p align="left"> </p>
  <p align="left"> </p>
 </div>
 <div id="mainContent">
  <br>
  <h1 class="style19"><span class="style20"><span class="style16">What
is <em>Bojagi</em>?</span></span></h1>
  <p align="justify"><span class="style27">Bojagi is a traditional
Korean wrapping cloths. Korean wrapping cloths(<em>bojagi</em>) of
unusual beauty  occupied a prominent  place  in the daily lives of
Koreans during the Joseon dynasty (1392-1910). Bojagi were used for
wrapping as well as for covering, storing and carrying objects which
were small and large, ordinary and precious.</span></p>
  <h2><span class="style19"><span class="style20">Design</span> <span
class="style8"><em>your own Bojagi!</em></span></span></h2>
  <p align="center" class="style27"><img src="pojagi-1.jpg"
width="253" height="151" /> <span class="style36"><u><a href="MJ's web
3.html" target="_parent">Start now!</a></u></span></p>
  <p align="center" class="style27"> </p>
 <!-- end #mainContent --></div>
```

```
 <!-- This clearing element should immediately follow the #mainContent
 div in order to force the #container div to contain all child floats -
 ->
 <br class="clearfloat" />
 <div id="footer">
   <p>Footer</p>
  <!-- end #footer --></div>
<!-- end #container --></div>
</body>
</html>


<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
 "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<!-- TemplateBeginEditable name="doctitle" -->
<title>Korean traditional wrapping cloths:Pojagi</title>
<!-- TemplateEndEditable -->
<!-- TemplateBeginEditable name="head" -->
<!-- TemplateEndEditable -->
<style type="text/css">
<!--
body  {
 font: 80% Verdana, Arial, Helvetica, sans-serif;
 background:#FFFFFF;
 margin: 0; /* it's good practice to zero the margin and padding of the
 body element to account for differing browser defaults */
 padding: 0;
 text-align: center; /* this centers the container in IE 5
 browsers. The text is then set to the left aligned default in the
 #container selector */
 color: #000000;
}
.twoColHybLtHdr #container {
 width: 100%;  /* this will create a container 80% of the browser width
 */
 background: #FFFFFF;
 margin: 0 auto; /* the auto margins (in conjunction with a width)
 center the page */
 border: 1px solid #000000;
 text-align: left; /* this overrides the text-align: center on the body
 element. */
}
.twoColHybLtHdr #header {
 background: #999999;
 padding: 0 10px;  /* this padding matches the left alignment of the
 elements in the divs that appear beneath it. If an image is used in
 the #header instead of text, you may want to remove the padding. */
}
.twoColHybLtHdr #header h1 {
 margin: 0; /* zeroing the margin of the last element in the #header
 div will avoid margin collapse - an unexplainable space between divs.
 If the div has a border around it, this is not necessary as that also
 avoids the margin collapse */
 padding: 10px 0; /* using padding instead of margin will allow you to
 keep the element away from the edges of the div */
```

```
}

.twoColHybLtHdr #sidebar1 {
 float: left;
 width: 12em; /* since this element is floated, a width must be given
 */
 background: #EBEBEB; /* the background color will be displayed for the
 length of the content in the column, but no further */
 padding: 15px 0; /* top and bottom padding create visual space within
 this div  */
}
.twoColHybLtHdr #sidebar1 h3, .twoColHybLtHdr #sidebar1 p {
 margin-left: 10px; /* the left and right margin should be given to
 every element that will be placed in the side columns */
 margin-right: 10px;
 list-style-position: outside;
 list-style-image: none;
 list-style-type: circle;
}

.twoColHybLtHdr #mainContent {
 margin: 0 20px 0 13em; /* the right margin can be given in percentages
 or pixels. It creates the space down the right side of the page. */
}
.twoColHybLtHdr #footer {
 padding: 0 10px; /* this padding matches the left alignment of the
 elements in the divs that appear above it. */
 background:#DDDDDD;
}
.twoColHybLtHdr #footer p {
 margin: 0; /* zeroing the margins of the first element in the footer
 will avoid the possibility of margin collapse - a space between divs
 */
 padding: 10px 0; /* padding on this element will create space, just as
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}

/* Miscellaneous classes for reuse */
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 page. The floated element must precede the element it should be next
 to on the page. */
 float: right;
 margin-left: 8px;
}
.fltlft { /* this class can be used to float an element left in your
 page */
 float: left;
 margin-right: 8px;
}
.clearfloat { /* this class should be placed on a div or break element
 and should be the final element before the close of a container that
 should fully contain a float */
 clear:both;
    height:0;
    font-size: 1px;
    line-height: 0px;
}
.style1 {
 font-size: 80%
```

```
}
.style8 {font-size: x-large; }
.style11 {color: #FFFFFF}
.style16 {
 color: #666666;
 font-size: x-large;
 font-weight: bold;
}
.style19 {color: #663399}
.style20 {font-size: xx-large}
.style23 {
 color: #0000FF;
 font-size: medium;
 font-weight: bold;
}
.style27 {font-size: 14px; color: #000000;}
.style28 {color: #330066}
.style35 {color: #CCCCCC}
.style36 {
 font-size: large;
 font-weight: bold;
}
.style37 {color: #9D88FF; font-size: medium; font-weight: bold; }
.style371 {color: #9D88FF; font-size: medium; font-weight: bold; }
-->
</style>
<!--[if IE]>
<style type="text/css">
/* place css fixes for all versions of IE in this conditional comment
 */
.twoColHybLtHdr #sidebar1 { padding-top: 30px; }
.twoColHybLtHdr #mainContent { zoom: 1; padding-top: 15px; }
/* the above proprietary zoom property gives IE the hasLayout it may
 need to avoid several bugs */
</style>
<![endif]--></head>
<head></head>

<body class="twoColHybLtHdr">
<span class="style11"></span>
<div id="container">
  <div id="header">
    <h1 class="style8"><span class="style11">K</span><span
 class="style11">orean </span></h1>
    <h1 class="style8"><span class="style11">T</span><span
 class="style11">raditional</span></h1>
    <h1 class="style1"><span class="style8"><span
 class="style11">Textiles:</span> <em><span
 class="style35">Bojagi</span></em></span>
      <!-- end #header -->
    </h1>
  </div>
  <div id="sidebar1">
    <p align="left" class="style23 style28"> </p>
    <ul>
      <li class="style37"><a href="MJ's web 2.html"
 target="_parent">History</a></li>
      <br />
      <br/>
```

```
    <br />
    <br/>
    <li class="style37"><a href="MJ's web 4.html"
target="_parent">Styles</a></li><br />
       <br/>
       <br />
     <br/>
    </li>
    <li class="style37"><a href="MJ's web 5.html"
target="_parent">Patterns</a></li><br />
 <br/>
 <br />
 <br/>
    </li>
    <li class="style37"><a href="MJ's web 6.html"
target="_parent">Colours</a><br>
     <span class="style37"><a href="MJ's web 6.html"
target="_parent">&amp;Fabrics</a></span><br/>
  </li>
  </ul>
  <p align="left">
    <!-- end #sidebar1 -->
  </p>
  <p align="left"> </p>
  <p align="left"> </p>
  <p align="left"> </p>
  <p align="left"> </p>
  <p align="left"> </p>
 </div>
 <div id="mainContent">
  <br>
  <h1 class="style19"><span class="style20"><span class="style16">What
is <em>Bojagi</em>?</span></span></h1>
  <p align="justify"><span class="style27">Bojagi is a traditional
Korean wrapping cloths. Korean wrapping cloths(<em>bojagi</em>) of
unusual beauty  occupied a prominent  place  in the daily lives of
Koreans during the Joseon dynasty (1392-1910). Bojagi were used for
wrapping as well as for covering, storing and carrying objects which
were small and large, ordinary and precious.</span></p>
  <h2><span class="style19"><span class="style20">Design</span> <span
class="style8"><em>your own Bojagi!</em></span></span></h2>
  <p align="center" class="style27"><img src="pojagi-1.jpg"
width="253" height="151" /> <span class="style36"><u><a href="MJ's web
3.html" target="_parent">Start now!</a></u></span></p>
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 <!-- end #mainContent --></div>
<!-- This clearing element should immediately follow the #mainContent
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->
<br class="clearfloat" />
<div id="footer">
  <p>Footer</p>
 <!-- end #footer --></div>
<!-- end #container --></div>
</body>
</html>
```

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
 "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<!-- TemplateBeginEditable name="doctitle" -->
<title>Korean traditional wrapping cloths:Pojagi</title>
<!-- TemplateEndEditable -->
<!-- TemplateBeginEditable name="head" -->
<!-- TemplateEndEditable -->
<style type="text/css">
<!--
body  {
 font: 80% Verdana, Arial, Helvetica, sans-serif;
 background:#FFFFFF;
 margin: 0; /* it's good practice to zero the margin and padding of the
 body element to account for differing browser defaults */
 padding: 0;
 text-align: center; /* this centers the container in IE 5
 browsers. The text is then set to the left aligned default in the
 #container selector */
 color: #000000;
}
.twoColHybLtHdr #container {
 width: 100%;  /* this will create a container 80% of the browser width
 */
 background: #FFFFFF;
 margin: 0 auto; /* the auto margins (in conjunction with a width)
 center the page */
 border: 1px solid #000000;
 text-align: left; /* this overrides the text-align: center on the body
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}
.twoColHybLtHdr #header {
 background: #999999;
 padding: 0 10px;  /* this padding matches the left alignment of the
 elements in the divs that appear beneath it. If an image is used in
 the #header instead of text, you may want to remove the padding. */
}
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 If the div has a border around it, this is not necessary as that also
 avoids the margin collapse */
 padding: 10px 0; /* using padding instead of margin will allow you to
 keep the element away from the edges of the div */
}

.twoColHybLtHdr #sidebar1 {
 float: left;
 width: 12em; /* since this element is floated, a width must be given
 */
 background: #EBEBEB; /* the background color will be displayed for the
 length of the content in the column, but no further */
 padding: 15px 0; /* top and bottom padding create visual space within
 this div  */
}
.twoColHybLtHdr #sidebar1 h3, .twoColHybLtHdr #sidebar1 p {
```

```
 margin-left: 10px; /* the left and right margin should be given to
 every element that will be placed in the side columns */
 margin-right: 10px;
 list-style-position: outside;
 list-style-image: none;
 list-style-type: circle;
}

.twoColHybLtHdr #mainContent {
 margin: 0 20px 0 13em; /* the right margin can be given in percentages
 or pixels. It creates the space down the right side of the page. */
}
.twoColHybLtHdr #footer {
 padding: 0 10px; /* this padding matches the left alignment of the
 elements in the divs that appear above it. */
 background:#DDDDDD;
}
.twoColHybLtHdr #footer p {
 margin: 0; /* zeroing the margins of the first element in the footer
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 to on the page. */
 float: right;
 margin-left: 8px;
}
.fltlft { /* this class can be used to float an element left in your
 page */
 float: left;
 margin-right: 8px;
}
.clearfloat { /* this class should be placed on a div or break element
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 should fully contain a float */
 clear:both;
    height:0;
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}
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.style20 {font-size: xx-large}
.style23 {
 color: #0000FF;
```

```
 font-size: medium;
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-->
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<style type="text/css">
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<![endif]--></head>
<head></head>

<body class="twoColHybLtHdr">
<span class="style11"></span>
<div id="container">
  <div id="header">
    <h1 class="style8"><span class="style11">K</span><span
 class="style11">orean </span></h1>
    <h1 class="style8"><span class="style11">T</span><span
 class="style11">raditional</span></h1>
    <h1 class="style1"><span class="style8"><span
 class="style11">Textiles:</span> <em><span
 class="style35">Bojagi</span></em></span>
      <!-- end #header -->
    </h1>
  </div>
  <div id="sidebar1">
    <p align="left" class="style23 style28"> </p>
    <ul>
      <li class="style37"><a href="MJ's web 2.html"
 target="_parent">History</a></li>
      <br />
      <br/>
      <br />
      <br/>
      <li class="style37"><a href="MJ's web 4.html"
 target="_parent">Styles</a></li><br />
        <br/>
        <br />
       <br/>
      </li>
      <li class="style37"><a href="MJ's web 5.html"
 target="_parent">Patterns</a></li><br />
  <br/>
  <br />
```

```
 <br/>
    </li>
    <li class="style37"><a href="MJ's web 6.html"
target="_parent">Colours</a><br>
      <span class="style37"><a href="MJ's web 6.html"
target="_parent">&amp;Fabrics</a></span><br/>
  </li>
  </ul>
  <p align="left">
    <!-- end #sidebar1 -->
  </p>
  <p align="left"> </p>
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   <p align="justify"><span class="style27">Bojagi is a traditional
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Koreans during the Joseon dynasty (1392-1910). Bojagi were used for
wrapping as well as for covering, storing and carrying objects which
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   <h2><span class="style19"><span class="style20">Design</span> <span
class="style8"><em>your own Bojagi!</em></span></span></h2>
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3.html" target="_parent">Start now!</a></u></span></p>
   <p align="center" class="style27"> </p>
 <!-- end #mainContent --></div>
<!-- This clearing element should immediately follow the #mainContent
div in order to force the #container div to contain all child floats -
->
<br class="clearfloat" />
<div id="footer">
  <p>Footer</p>
 <!-- end #footer --></div>
<!-- end #container --></div>
</body>
</html>


<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
 "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<!-- TemplateBeginEditable name="doctitle" -->
<title>Korean traditional wrapping cloths:Pojagi</title>
<!-- TemplateEndEditable -->
<!-- TemplateBeginEditable name="head" -->
<!-- TemplateEndEditable -->
<style type="text/css">
<!--
body  {
```

```
 font: 80% Verdana, Arial, Helvetica, sans-serif;
 background:#FFFFFF;
 margin: 0; /* it's good practice to zero the margin and padding of the
 body element to account for differing browser defaults */
 padding: 0;
 text-align: center; /* this centers the container in IE 5
 browsers. The text is then set to the left aligned default in the
 #container selector */
 color: #000000;
}
.twoColHybLtHdr #container {
 width: 100%;  /* this will create a container 80% of the browser width
 */
 background: #FFFFFF;
 margin: 0 auto; /* the auto margins (in conjunction with a width)
 center the page */
 border: 1px solid #000000;
 text-align: left; /* this overrides the text-align: center on the body
 element. */
}
.twoColHybLtHdr #header {
 background: #999999;
 padding: 0 10px;  /* this padding matches the left alignment of the
 elements in the divs that appear beneath it. If an image is used in
 the #header instead of text, you may want to remove the padding. */
}
.twoColHybLtHdr #header h1 {
 margin: 0; /* zeroing the margin of the last element in the #header
 div will avoid margin collapse - an unexplainable space between divs.
 If the div has a border around it, this is not necessary as that also
 avoids the margin collapse */
 padding: 10px 0; /* using padding instead of margin will allow you to
 keep the element away from the edges of the div */
}

.twoColHybLtHdr #sidebar1 {
 float: left;
 width: 12em; /* since this element is floated, a width must be given
 */
 background: #EBEBEB; /* the background color will be displayed for the
 length of the content in the column, but no further */
 padding: 15px 0; /* top and bottom padding create visual space within
 this div  */
}
.twoColHybLtHdr #sidebar1 h3, .twoColHybLtHdr #sidebar1 p {
 margin-left: 10px; /* the left and right margin should be given to
 every element that will be placed in the side columns */
 margin-right: 10px;
 list-style-position: outside;
 list-style-image: none;
 list-style-type: circle;
}

.twoColHybLtHdr #mainContent {
 margin: 0 20px 0 13em; /* the right margin can be given in percentages
 or pixels. It creates the space down the right side of the page. */
}
.twoColHybLtHdr #footer {
```

```
 padding: 0 10px; /* this padding matches the left alignment of the
 elements in the divs that appear above it. */
 background:#DDDDDD;
}
.twoColHybLtHdr #footer p {
 margin: 0; /* zeroing the margins of the first element in the footer
 will avoid the possibility of margin collapse - a space between divs
 */
 padding: 10px 0; /* padding on this element will create space, just as
 the the margin would have, without the margin collapse issue */
}

/* Miscellaneous classes for reuse */
.fltrt { /* this class can be used to float an element right in your
 page. The floated element must precede the element it should be next
 to on the page. */
 float: right;
 margin-left: 8px;
}
.fltlft { /* this class can be used to float an element left in your
 page */
 float: left;
 margin-right: 8px;
}
.clearfloat { /* this class should be placed on a div or break element
 and should be the final element before the close of a container that
 should fully contain a float */
 clear:both;
    height:0;
    font-size: 1px;
    line-height: 0px;
}
.style1 {
 font-size: 80%
}
.style8 {font-size: x-large; }
.style11 {color: #FFFFFF}
.style16 {
 color: #666666;
 font-size: x-large;
 font-weight: bold;
}
.style19 {color: #663399}
.style20 {font-size: xx-large}
.style23 {
 color: #0000FF;
 font-size: medium;
 font-weight: bold;
}
.style27 {font-size: 14px; color: #000000;}
.style28 {color: #330066}
.style35 {color: #CCCCCC}
.style36 {
 font-size: large;
 font-weight: bold;
}
.style37 {color: #9D88FF; font-size: medium; font-weight: bold; }
.style371 {color: #9D88FF; font-size: medium; font-weight: bold; }
-->
```

```
</style>
<!--[if IE]>
<style type="text/css">
/* place css fixes for all versions of IE in this conditional comment
 */
.twoColHybLtHdr #sidebar1 { padding-top: 30px; }
.twoColHybLtHdr #mainContent { zoom: 1; padding-top: 15px; }
/* the above proprietary zoom property gives IE the hasLayout it may
 need to avoid several bugs */
</style>
<![endif]--></head>
<head></head>

<body class="twoColHybLtHdr">
<span class="style11"></span>
<div id="container">
  <div id="header">
    <h1 class="style8"><span class="style11">K</span><span
 class="style11">orean </span></h1>
    <h1 class="style8"><span class="style11">T</span><span
 class="style11">raditional</span></h1>
    <h1 class="style1"><span class="style8"><span
 class="style11">Textiles:</span> <em><span
 class="style35">Bojagi</span></em></span>
      <!-- end #header -->
    </h1>
  </div>
  <div id="sidebar1">
    <p align="left" class="style23 style28"> </p>
    <ul>
      <li class="style37"><a href="MJ's web 2.html"
 target="_parent">History</a></li>
      <br />
      <br/>
      <br />
      <br/>
      <li class="style37"><a href="MJ's web 4.html"
 target="_parent">Styles</a></li><br />
        <br/>
        <br />
       <br/>
      </li>
      <li class="style37"><a href="MJ's web 5.html"
 target="_parent">Patterns</a></li><br />
  <br/>
  <br />
  <br/>
      </li>
      <li class="style37"><a href="MJ's web 6.html"
 target="_parent">Colours</a><br>
       <span class="style37"><a href="MJ's web 6.html"
 target="_parent">&amp;Fabrics</a></span><br/>
    </li>
    </ul>
    <p align="left">
      <!-- end #sidebar1 -->
    </p>
    <p align="left"> </p>
    <p align="left"> </p>
```

```
    <p align="left"> </p>
    <p align="left"> </p>
    <p align="left"> </p>
  </div>
  <div id="mainContent">
    <br>
    <h1 class="style19"><span class="style20"><span class="style16">What
  is <em>Bojagi</em>?</span></span></h1>
    <p align="justify"><span class="style27">Bojagi is a traditional
  Korean wrapping cloths. Korean wrapping cloths(<em>bojagi</em>) of
  unusual beauty  occupied a prominent  place  in the daily lives of
  Koreans during the Joseon dynasty (1392-1910). Bojagi were used for
  wrapping as well as for covering, storing and carrying objects which
  were small and large, ordinary and precious.</span></p>
    <h2><span class="style19"><span class="style20">Design</span> <span
  class="style8"><em>your own Bojagi!</em></span></span></h2>
    <p align="center" class="style27"><img src="pojagi-1.jpg"
  width="253" height="151" /> <span class="style36"><u><a href="MJ's web
  3.html" target="_parent">Start now!</a></u></span></p>
    <p align="center" class="style27"> </p>
  <!-- end #mainContent --></div>
  <!-- This clearing element should immediately follow the #mainContent
  div in order to force the #container div to contain all child floats -
  ->
  <br class="clearfloat" />
  <div id="footer">
    <p>Footer</p>
  <!-- end #footer --></div>
<!-- end #container --></div>
</body>
</html>
```

Appendix B

MATLAB 7.0.4 GUI programme script for developing the interactive *bojagi* textile design tool

```
function varargout = mjgui(varargin)
% MJGUI M-file for mjgui.fig
%      MJGUI, by itself, creates a new MJGUI or raises the existing
%      singleton*.
%
%      H = MJGUI returns the handle to a new MJGUI or the handle to
%      the existing singleton*.
%
%      MJGUI('CALLBACK',hObject,eventData,handles,...) calls the local
%      function named CALLBACK in MJGUI.M with the given input
arguments.
%
%      MJGUI('Property','Value',...) creates a new MJGUI or raises the
%      existing singleton*.  Starting from the left, property value
pairs are
%      applied to the GUI before mjgui_OpeningFunction gets called.  An
%      unrecognized property name or invalid value makes property
application
%      stop.  All inputs are passed to mjgui_OpeningFcn via varargin.
%
%      *See GUI Options on GUIDE's Tools menu.  Choose "GUI allows only
one
%      instance to run (singleton)".
%
% See also: GUIDE, GUIDATA, GUIHANDLES

% Edit the above text to modify the response to help mjgui

% Last Modified by GUIDE v2.5 04-Jan-2011 10:02:25

% Begin initialization code - DO NOT EDIT
gui_Singleton = 1;
gui_State = struct('gui_Name',       mfilename, ...
                   'gui_Singleton',  gui_Singleton, ...
                   'gui_OpeningFcn', @mjgui_OpeningFcn, ...
                   'gui_OutputFcn',  @mjgui_OutputFcn, ...
                   'gui_LayoutFcn',  [] , ...
                   'gui_Callback',   []);
if nargin && ischar(varargin{1})
    gui_State.gui_Callback = str2func(varargin{1});
end

if nargout
    [varargout{1:nargout}] = gui_mainfcn(gui_State, varargin{:});
else
    gui_mainfcn(gui_State, varargin{:});
end
% End initialization code - DO NOT EDIT


% --- Executes just before mjgui is made visible.
function mjgui_OpeningFcn(hObject, eventdata, handles, varargin)
% This function has no output args, see OutputFcn.
% hObject    handle to figure
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
% varargin   command line arguments to mjgui (see VARARGIN)
```

```
% Choose default command line output for mjgui
handles.output = hObject;

% Update handles structure
guidata(hObject, handles);

% UIWAIT makes mjgui wait for user response (see UIRESUME)
% uiwait(handles.figure1);
set(handles.axes1, 'Visible', 'off', 'Units', 'pixels');
set(handles.axes2, 'Visible', 'off', 'Units', 'pixels');
set(handles.axes3, 'Visible', 'off', 'Units', 'pixels');
set(handles.axes4, 'Visible', 'off', 'Units', 'pixels');
set(handles.axes5, 'Visible', 'off', 'Units', 'pixels');
set(handles.axes8, 'Visible', 'off', 'Units', 'pixels');
handles.colors = [0.4 0.4 0.9; 0.9 0.6 0.7; 0.9 0.8 0.2; 0.8 0.8 1; 0
0 0];
set(handles.pushbutton1,'Visible', 'off', 'Enable', 'off');

defaultim1(1,1,:) = uint8(handles.colors(1,:)*255);
axes(handles.axes2);
image(defaultim1);
set(handles.axes2, 'Visible', 'off', 'Units', 'pixels');
defaultim2(1,1,:) = uint8(handles.colors(2,:)*255);
axes(handles.axes3);
image(defaultim2);
set(handles.axes3, 'Visible', 'off', 'Units', 'pixels');
defaultim3(1,1,:) = uint8(handles.colors(3,:)*255);
axes(handles.axes4);
image(defaultim3);
set(handles.axes4, 'Visible', 'off', 'Units', 'pixels');
defaultim4(1,1,:) = uint8(handles.colors(4,:)*255);
axes(handles.axes5);
image(defaultim4);
set(handles.axes5, 'Visible', 'off', 'Units', 'pixels');
defaultim5(1,1,:) = uint8(handles.colors(5,:)*255);
axes(handles.axes8);
image(defaultim5);
set(handles.axes8, 'Visible', 'off', 'Units', 'pixels');
handles.scale = 1;
handles.pattern = 1;
guidata(hObject, handles);
set(handles.slider1,'Value',1);
set(handles.listbox1,'Value',1);

% read texture image
texture = imread('nobang silk.tif','tiff');
axes(handles.axes6);
image(texture);
set(handles.axes6, 'Visible', 'off', 'Units', 'pixels');
texture = double(texture);
av = mean(mean(texture));
texture(:,:,1) = texture(:,:,1) - av(1);
texture(:,:,2) = texture(:,:,2) - av(2);
texture(:,:,3) = texture(:,:,3) - av(3);
handles.texture = texture;
clear texture;
guidata(hObject, handles);
```

```
    ss = size(handles.texture);
    N = ss(1);
    a = floor(N/10) + floor(rand*(N-N/3));
    c = a+floor(N/10) + floor(rand*((N-N/10)-a-floor(N/10)));
    b = floor(N/10) + floor(rand*(N-N/2));
    g = b+floor(N/10) + floor(rand*((N-N/10)-b-floor(N/10)));
    f = floor(N/10) + floor(rand*(N-N/3));
    d = floor(N/10) + floor(rand*(N-N/2));
    e = d+floor(N/10) + floor(rand*((N-N/10)-d-floor(N/10)));
    handles.colbot = a+floor(N/100) + floor(rand*N/20);
    handles.a = a;
    handles.b = b;
    handles.c = c;
    handles.d = d;
    handles.e = e;
    handles.f = f;
    handles.g = g;
    [handles] = set_colours(handles);
    guidata(hObject, handles);

    [handles] = set_store(handles);
    set(handles.pushbutton11,'Enable','off');

    guidata(hObject, handles);
    draw_image(hObject, handles);


% --- Outputs from this function are returned to the command line.
function varargout = mjgui_OutputFcn(hObject, eventdata, handles)
% varargout  cell array for returning output args (see VARARGOUT);
% hObject    handle to figure
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

% Get default command line output from handles structure
varargout{1} = handles.output;


% --- Executes on button press in pushbutton1.
function pushbutton1_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton1 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
    [handles] = set_store(handles);
    ss = size(handles.texture);
    N = ss(1);
    a = floor(N/10) + floor(rand*(N-N/3));
    c = a+floor(N/10) + floor(rand*((N-N/10)-a-floor(N/10)));
    b = floor(N/10) + floor(rand*(N-N/2));
    g = b+floor(N/10) + floor(rand*((N-N/10)-b-floor(N/10)));
    f = floor(N/10) + floor(rand*(N-N/3));
    d = floor(N/10) + floor(rand*(N-N/2));
    e = d+floor(N/10) + floor(rand*((N-N/10)-d-floor(N/10)));
    handles.colbot = a+floor(N/100) + floor(rand*N/20);
    handles.a = a;
    handles.b = b;
```

```
    handles.c = c;
    handles.d = d;
    handles.e = e;
    handles.f = f;
    handles.g = g;
    [handles] = set_colours(handles);
    guidata(hObject, handles);
    draw_image(hObject, handles);



% --- Executes on button press in pushbutton2.
function pushbutton2_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton2 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
exit


% --- Executes on button press in pushbutton3.
function pushbutton3_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton3 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
[handles] = set_store(handles);
c = uisetcolor(handles.colors(1,:));
defaultim(1,1,:) = uint8(c*255);
axes(handles.axes2);
image(defaultim);
set(handles.axes2, 'Visible', 'off', 'Units', 'pixels');
handles.colors(1,:) = c;
guidata(hObject, handles);
draw_image(hObject, handles);



% --- Executes on button press in pushbutton4.
function pushbutton4_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton4 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
[handles] = set_store(handles);
c = uisetcolor(handles.colors(2,:));
defaultim(1,1,:) = uint8(c*255);
axes(handles.axes3);
image(defaultim);
set(handles.axes3, 'Visible', 'off', 'Units', 'pixels');
handles.colors(2,:) = c;
guidata(hObject, handles);
draw_image(hObject, handles);



% --- Executes on slider movement.
function slider1_Callback(hObject, eventdata, handles)
```

```
% hObject    handle to slider1 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

% Hints: get(hObject,'Value') returns position of slider
%        get(hObject,'Min') and get(hObject,'Max') to determine range of
slider

[handles] = set_store(handles);
handles.scale = get(hObject,'Value');
guidata(hObject, handles);
draw_image(hObject, handles);



% --- Executes during object creation, after setting all properties.
function slider1_CreateFcn(hObject, eventdata, handles)
% hObject    handle to slider1 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns
called

% Hint: slider controls usually have a light gray background.
if isequal(get(hObject,'BackgroundColor'),
get(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor',[.9 .9 .9]);
end


function draw_image(hObject, handles)
colors = handles.colors;

if (handles.pattern==1)
    % pattern A
    ss = size(handles.texture)
    N = ss(1);
    defaultim = zeros(N,N,3);
    redquad1 = ones(N/2,N/2)*colors(1,1);
    greenquad1 = ones(N/2,N/2)*colors(1,2);
    bluequad1 = ones(N/2,N/2)*colors(1,3);
    redquad2 = ones(N/2,N/2)*colors(2,1);
    greenquad2 = ones(N/2,N/2)*colors(2,2);
    bluequad2 = ones(N/2,N/2)*colors(2,3);
    redquad3 = ones(N/2,N/2)*colors(3,1);
    greenquad3 = ones(N/2,N/2)*colors(3,2);
    bluequad3 = ones(N/2,N/2)*colors(3,3);
    redquad4 = ones(N/2,N/2)*colors(4,1);
    greenquad4 = ones(N/2,N/2)*colors(4,2);
    bluequad4 = ones(N/2,N/2)*colors(4,3);

    defaultim(:,:,1) = [redquad1 redquad2; redquad3 redquad4];
    defaultim(:,:,2) = [greenquad1 greenquad2; greenquad3 greenquad4];
    defaultim(:,:,3) = [bluequad1 bluequad2; bluequad3 bluequad4];

    defaultim = defaultim + 2*handles.texture/255;
    minval = min(min(min(defaultim)));
    if (minval<0)
```

```
        defaultim(:,:,1) = defaultim(:,:,1) - minval;
        defaultim(:,:,2) = defaultim(:,:,2) - minval;
        defaultim(:,:,3) = defaultim(:,:,3) - minval;
    end
    maxval = max(max(max(defaultim)));
     if (maxval>1)
        defaultim(:,:,1) = defaultim(:,:,1)/maxval;
        defaultim(:,:,2) = defaultim(:,:,2)/maxval;
        defaultim(:,:,3) = defaultim(:,:,3)/maxval;
     end

elseif (handles.pattern==2)
   % pattern B
    ss = size(handles.texture)
    N = ss(1);
    defaultim = zeros(N,N,3);
    a = ceil(N/4);
    b = ceil(N/2);
    c = ceil(2*N/3);
    d = ceil(2*N/5);
    e = ceil(4*N/7);
    f = ceil(3*N/5);
    g = ceil(5*N/7);
    % block 1
    for i=1:a
        for j=1:d
            defaultim(i,j,:) = colors(1,:);
        end
    end
    % block 2
    for i=a+1:b
        for j=1:d
            defaultim(i,j,:) = colors(3,:);
        end
   end
    % block 3
    for i=b+1:c
        for j=1:d
            defaultim(i,j,:) = colors(4,:);
        end
   end
    % block 4
    for i=c+1:N
        for j=1:d
            defaultim(i,j,:) = colors(2,:);
        end
    end
    % block 5
    for i=1:e
        for j=d+1:N
            defaultim(i,j,:) = colors(2,:);
        end
    end
    % block 6
    for i=e+1:g
        for j=d+1:f
            defaultim(i,j,:) = colors(1,:);
        end
    end
```

```
    % block 7
    for i=g+1:N
        for j=d+1:f
            defaultim(i,j,:) = colors(3,:);
        end
    end
    % block 8
    for i=e+1:N
        for j=f+1:N
            defaultim(i,j,:) = colors(4,:);
        end

    end

    defaultim = defaultim + 2*handles.texture/255;
    minval = min(min(min(defaultim)));
    if (minval<0)
        defaultim(:,:,1) = defaultim(:,:,1) - minval;
        defaultim(:,:,2) = defaultim(:,:,2) - minval;
        defaultim(:,:,3) = defaultim(:,:,3) - minval;
    end
    maxval = max(max(max(defaultim)));
     if (maxval>1)
        defaultim(:,:,1) = defaultim(:,:,1)/maxval;
        defaultim(:,:,2) = defaultim(:,:,2)/maxval;
        defaultim(:,:,3) = defaultim(:,:,3)/maxval;
     end

else
    % pattern C
    ss = size(handles.texture)
    N = ss(1);
    defaultim = zeros(N,N,3);
    a = handles.a;
    b = handles.b;
    c = handles.c;
    d = handles.d;
    e = handles.e;
    f = handles.f;
    g = handles.g;

    start_row = [1 1 a+1 a+1 c+1 c+1 c+1 1]
    end_row = [a a c c N N N handles.colbot]
    start_col = [1 g+1 1 f+1 1 d+1 e+1 b+1]
    end_col = [b N f N d e N g]
    colblk = [handles.colblk1 handles.colblk2 handles.colblk3
handles.colblk4 handles.colblk5 handles.colblk6 handles.colblk7
handles.colblk8];

    for block = 1:8
        for i=start_row(block):end_row(block)
            for j=start_col(block):end_col(block)
                defaultim(i,j,:) = colors(colblk(block),:);
            end
        end
    end
```

```
 defaultim = defaultim + 2*handles.texture/255;
 minval = min(min(min(defaultim)));
 if (minval<0)
     defaultim(:,:,1) = defaultim(:,:,1) - minval;
     defaultim(:,:,2) = defaultim(:,:,2) - minval;
     defaultim(:,:,3) = defaultim(:,:,3) - minval;
 end
 maxval = max(max(max(defaultim)));
  if (maxval>1)
     defaultim(:,:,1) = defaultim(:,:,1)/maxval;
     defaultim(:,:,2) = defaultim(:,:,2)/maxval;
     defaultim(:,:,3) = defaultim(:,:,3)/maxval;
  end

% draw the borders
for i=start_row(1):start_row(1)+1
   for j=start_col(1):end_col(2)
      defaultim(i,j,:) = colors(5,:);
   end
end
for i=end_row(5):end_row(5)+1
   for j=start_col(5):end_col(7)
      defaultim(i,j,:) = colors(5,:);
   end
end
for i=start_row(1):end_row(5)
   for j=start_col(1):start_col(1)+1
      defaultim(i,j,:) = colors(5,:);
   end
end
for i=start_row(1):end_row(5)
   for j=end_col(2):end_col(2)+1
      defaultim(i,j,:) = colors(5,:);
   end
end
for i=start_row(5):start_row(5)+1
   for j=start_col(5):end_col(7)
      defaultim(i,j,:) = colors(5,:);
   end
end
for i=start_row(5):end_row(5)
   for j=end_col(5):end_col(5)+1
      defaultim(i,j,:) = colors(5,:);
   end
end
for i=start_row(6):end_row(6)
   for j=end_col(6):end_col(6)+1
      defaultim(i,j,:) = colors(5,:);
   end
end
for i=start_row(8):end_row(8)
   for j=start_col(8):start_col(8)+1
      defaultim(i,j,:) = colors(5,:);
   end
end
```

```
   for i=start_row(8):end_row(8)
      for j=end_col(8):end_col(8)+1
         defaultim(i,j,:) = colors(5,:);
      end
   end
     for i=end_row(8):end_row(8)+1
      for j=start_col(8):end_col(8)
         defaultim(i,j,:) = colors(5,:);
      end
     end
     for i=end_row(1):end_row(1)+1
      for j=start_col(1):start_col(8)
         defaultim(i,j,:) = colors(5,:);
      end
     end
     for i=end_row(2):end_row(2)+1
      for j=end_col(8):end_col(2)
         defaultim(i,j,:) = colors(5,:);
      end
     end
     % special case
     if end_col(3) < start_col(8)
        for i=end_row(1):start_row(6)
           for j=end_col(3):end_col(3)+1
              defaultim(i,j,:) = colors(5,:);
           end
         end
     elseif end_col(3) > end_col(8)
        for i=end_row(2):start_row(6)
           for j=end_col(3):end_col(3)+1
              defaultim(i,j,:) = colors(5,:);
           end
         end
     else
        for i=end_row(8):start_row(6)
           for j=end_col(3):end_col(3)+1
              defaultim(i,j,:) = colors(5,:);
           end
         end
     end
end

num = floor(sqrt(100 - handles.scale*100));
im = defaultim;
for i=1:num
    im = [im defaultim];
end
defaultim = im;
for i=1:num
    im = [im; defaultim];
end
handles.current_image = defaultim;
axes(handles.axes1);
image(im);
set(handles.axes1, 'Visible', 'off', 'Units', 'pixels');
guidata(hObject, handles);
```

```
% --- Executes on selection change in listbox1.
function listbox1_Callback(hObject, eventdata, handles)
% hObject    handle to listbox1 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

% Hints: contents = get(hObject,'String') returns listbox1 contents as
cell array
%        contents{get(hObject,'Value')} returns selected item from
listbox1

[handles] = set_store(handles);
handles.pattern = get(hObject, 'Value');
if (handles.pattern==3)
    set(handles.pushbutton1,'Visible', 'on', 'Enable', 'on');
else
    set(handles.pushbutton1,'Visible', 'off', 'Enable', 'off');
end
% [handles] = set_colours(handles);
guidata(hObject, handles);
draw_image(hObject, handles);

% --- Executes during object creation, after setting all properties.
function listbox1_CreateFcn(hObject, eventdata, handles)
% hObject    handle to listbox1 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns
called

% Hint: listbox controls usually have a white background on Windows.
%       See ISPC and COMPUTER.
if ispc && isequal(get(hObject,'BackgroundColor'),
get(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor','white');
end




% --- Executes on button press in pushbutton5.
function pushbutton5_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton5 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

[handles] = set_store(handles);
c = uisetcolor(handles.colors(3,:));
defaultim(1,1,:) = uint8(c*255);
axes(handles.axes4);
image(defaultim);
set(handles.axes4, 'Visible', 'off', 'Units', 'pixels');
handles.colors(3,:) = c;
guidata(hObject, handles);
draw_image(hObject, handles);


% --- Executes on button press in pushbutton6.
```

```
function pushbutton6_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton6 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
[handles] = set_store(handles);
c = uisetcolor(handles.colors(4,:));
defaultim(1,1,:) = uint8(c*255);
axes(handles.axes5);
image(defaultim);
set(handles.axes5, 'Visible', 'off', 'Units', 'pixels');
handles.colors(4,:) = c;
guidata(hObject, handles);
draw_image(hObject, handles);



% --- Executes on button press in pushbutton7.
function pushbutton7_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton7 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

[FileName,PathName] = uigetfile('*.tif','Select the tiff file');
if(FileName)
    [handles] = set_store(handles);
    texture = imread(sprintf('%s/%s',PathName,FileName));
    axes(handles.axes6);
    image(texture);
    set(handles.axes6, 'Visible', 'off', 'Units', 'pixels');
    texture = double(texture);
    av = mean(mean(texture));
    texture(:,:,1) = texture(:,:,1) - av(1);
    texture(:,:,2) = texture(:,:,2) - av(2);
    texture(:,:,3) = texture(:,:,3) - av(3);
    handles.texture = texture;
    clear texture;
    guidata(hObject, handles);
    ss = size(handles.texture);
    N = ss(1);
    a = floor(N/10) + floor(rand*(N-N/3));
    c = a+floor(N/10) + floor(rand*((N-N/10)-a-floor(N/10)));
    b = floor(N/10) + floor(rand*(N-N/2));
    g = b+floor(N/10) + floor(rand*((N-N/10)-b-floor(N/10)));
    f = floor(N/10) + floor(rand*(N-N/3));
    d = floor(N/10) + floor(rand*(N-N/2));
    e = d+floor(N/10) + floor(rand*((N-N/10)-d-floor(N/10)));
    handles.colbot = a+floor(N/100) + floor(rand*N/20);
    handles.a = a;
    handles.b = b;
    handles.c = c;
    handles.d = d;
    handles.e = e;
    handles.f = f;
    handles.g = g;
    guidata(hObject, handles);
    draw_image(hObject, handles);
end
```

```
% --- Executes on button press in pushbutton9.
function pushbutton9_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton9 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
[handles] = set_store(handles);
c = uisetcolor(handles.colors(5,:));
defaultim(1,1,:) = uint8(c*255);
axes(handles.axes8);
image(defaultim);
set(handles.axes8, 'Visible', 'off', 'Units', 'pixels');
handles.colors(5,:) = c;
guidata(hObject, handles);
draw_image(hObject, handles);
```

```
% --- Executes on button press in saveimage.
function saveimage_Callback(hObject, eventdata, handles)
% hObject    handle to saveimage (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

[FileName, PathName] = uiputfile('*.tif', 'Save as tif file');
if isequal(FileName,0) || isequal(PathName,0)
    % do nothing
else
    imwrite(handles.current_image,fullfile(PathName, FileName),'tiff');
end
```

```
function [handles] = set_colours(handles);
handles.colblk8 = 1+ floor(rand*4);
handles.colblk1 = handles.colblk8;
while (handles.colblk1==handles.colblk8)
  handles.colblk1 = 1+ floor(rand*4);
end
handles.colblk2 = handles.colblk1;
handles.colblk3 = handles.colblk1;
while (handles.colblk3==handles.colblk1 |
handles.colblk3==handles.colblk8)
  handles.colblk3 = 1+ floor(rand*4);
end
handles.colblk4 = handles.colblk3;
while (handles.colblk4==handles.colblk3 |
handles.colblk4==handles.colblk1 | handles.colblk4==handles.colblk8)
  handles.colblk4 = 1+ floor(rand*4);
end
handles.colblk5 = handles.colblk3;
while (handles.colblk5==handles.colblk3 |
handles.colblk5==handles.colblk4)
  handles.colblk5 = 1+ floor(rand*4);
```

```
end
handles.colblk7 = handles.colblk5;
handles.colblk6 = handles.colblk5;
while (handles.colblk6==handles.colblk3 |
handles.colblk6==handles.colblk4 | handles.colblk6==handles.colblk5)
   handles.colblk6 = 1+ floor(rand*4);
end

function [handles] = set_store(handles);
% store the current settings to allow undo
handles.store.a = handles.a;
handles.store.b = handles.b;
handles.store.c = handles.c;
handles.store.d = handles.d;
handles.store.e = handles.e;
handles.store.f = handles.f;
handles.store.g = handles.g;
handles.store.pattern = handles.pattern;
handles.store.scale = handles.scale;
handles.store.texture = handles.texture;
handles.store.colors(1,:) = handles.colors(1,:);
handles.store.colors(2,:) = handles.colors(2,:);
handles.store.colors(3,:) = handles.colors(3,:);
handles.store.colors(4,:) = handles.colors(4,:);
handles.store.colors(5,:) = handles.colors(5,:);
handles.store.colbot = handles.colbot;
handles.store.colblk1 = handles.colblk1;
handles.store.colblk2 = handles.colblk2;
handles.store.colblk3 = handles.colblk3;
handles.store.colblk4 = handles.colblk4;
handles.store.colblk5 = handles.colblk5;
handles.store.colblk6 = handles.colblk6;
handles.store.colblk7 = handles.colblk7;
handles.store.colblk8 = handles.colblk8;
set(handles.pushbutton11,'Enable','on');




% --- Executes on button press in pushbutton11.
function pushbutton11_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton11 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

handles.a = handles.store.a;
handles.b = handles.store.b;
handles.c = handles.store.c;
handles.d = handles.store.d;
handles.e = handles.store.e;
handles.f = handles.store.f;
handles.g = handles.store.g;
handles.pattern = handles.store.pattern;
handles.scale = handles.store.scale;
handles.texture = handles.store.texture;
```

```
handles.colors(1,:) = handles.store.colors(1,:);
handles.colors(2,:) = handles.store.colors(2,:);
handles.colors(3,:) = handles.store.colors(3,:);
handles.colors(4,:) = handles.store.colors(4,:);
handles.colors(5,:) = handles.store.colors(5,:);
handles.colbot = handles.store.colbot;
handles.colblk1 = handles.store.colblk1;
handles.colblk2 = handles.store.colblk2;
handles.colblk3 = handles.store.colblk3;
handles.colblk4 = handles.store.colblk4;
handles.colblk5 = handles.store.colblk5;
handles.colblk6 = handles.store.colblk6;
handles.colblk7 = handles.store.colblk7;
handles.colblk8 = handles.store.colblk8;

defaultim1(1,1,:) = uint8(handles.colors(1,:)*255);
axes(handles.axes2);
image(defaultim1);
set(handles.axes2, 'Visible', 'off', 'Units', 'pixels');
defaultim2(1,1,:) = uint8(handles.colors(2,:)*255);
axes(handles.axes3);
image(defaultim2);
set(handles.axes3, 'Visible', 'off', 'Units', 'pixels');
defaultim3(1,1,:) = uint8(handles.colors(3,:)*255);
axes(handles.axes4);
image(defaultim3);
set(handles.axes4, 'Visible', 'off', 'Units', 'pixels');
defaultim4(1,1,:) = uint8(handles.colors(4,:)*255);
axes(handles.axes5);
image(defaultim4);
set(handles.axes5, 'Visible', 'off', 'Units', 'pixels');
defaultim5(1,1,:) = uint8(handles.colors(5,:)*255);
axes(handles.axes8);
image(defaultim5);
set(handles.axes8, 'Visible', 'off', 'Units', 'pixels');

set(handles.slider1,'Value',handles.scale);
set(handles.listbox1,'Value',handles.pattern);
if (handles.pattern==3)
    set(handles.pushbutton1,'Visible', 'on', 'Enable', 'on');
else
    set(handles.pushbutton1,'Visible', 'off', 'Enable', 'off');
end

set(handles.pushbutton11,'Enable','off');
guidata(hObject, handles);
draw_image(hObject, handles);
```